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Untangling the mechanisms underlying the links between religiousness, spirituality, and better health

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Abstract

Religion and spirituality are major forces in the lives of Americans. A large and growing body of research indicates that specific aspects of religiousness and spirituality are associated with better physical and mental health. In this article, we differentiate some hypothesized mechanisms involving social, behavioral, psychological, and biological processes, and summarize some of the evidence pertaining to these pathways. This endeavor generates testable hypotheses for future research. Interdisciplinary research is especially well suited to examining these potential pathways, and social psychology can play a pivotal role in this future research agenda.

KEYWORDS

health, mechanisms, mental health, religion, religiosity, spirituality

1 | INTRODUCTION

Seeking answers: A conceptual review of mechanisms of the good health associated with religiousness and spirituality.

Religion and spirituality are major forces in the lives of Americans despite the recent declines. According to the Pew Forum on Religion and Public Life (2008, 2015), 77% of Americans reports a religious affiliation. Beyond religious affiliation, the majority of Americans hold religious beliefs. For example, 71% of Americans says that they are absolutely certain that there is a God. Furthermore, religion is relevant to the behavior of Americans; in that, 55% reports praying daily and nearly 40% reports attending religious services at least once a week. Given the common nature of religious beliefs and behaviors, they are worthy of study by social and behavioral scientists.

A growing body of research shows that various aspects of religiousness and spirituality are associated with better physical and mental health. Health outcomes that are robustly linked to religiousness and spirituality include the "ultimate" health outcome, mortality (e.g., McCullough, Hoyt, Larson, Koenig, & Thoresen, 2000), as well as the leading causes of death in the United States, cancer and cardiovascular disease (e.g., Gillum & Ingram, 2006; Schnall et al., 2010), and also one of the most prevalent mental illnesses in the United States, that is, depression (Smith, McCullough, & Poll, 2003). These findings make religiousness and spirituality of particular relevance to those who study physical and mental health

and the many biopsychosocial mechanisms responsible. It is notable that for certain health outcomes and particular dimensions of religiousness—such as certain beliefs, qualities of relationships with God, and some denominational affiliations—the empirical evidence suggests negative associations with health, or none at all. This paper focuses mainly on the associations of religiousness and spirituality with positive or better health, consistent with the bulk of existing research.

Religiosity and spirituality are typically considered to be interrelated but empirically and theoretically distinct. Both are conceptualized as dimensions of human experience that involve beliefs, practices, and experiences related to transcendent or sacred reality (Hill et al., 2000; cf. Koenig, 2008). However, religiousness is typically thought of as involving behaviors related to organized traditions, whereas spirituality usually refers to beliefs and experiences. This distinction is reflected in people's self-identifications as well; that is, data from the Pew Forum on Religion and Public Life (2012) indicate that 65% of the U.S. population identifies as religious (and spiritual or not), whereas 18% identifies as spiritual but not religious and 15% as neither.

This paper reviews the relevant theories and outlines hypothesized mechanisms regarding associations of religiousness, spirituality, and health. Because religion and spirituality are robustly associated with both physical and mental health, untangling the mechanisms will advance knowledge and future research. Furthermore, these mechanisms have implications for improving wellness within communities and for individuals. We identify four possible pathways—social, behavioral, psychological, and biological—and summarize evidence for each of these pathways. Where possible, we focus on studies that specifically test mediation by these pathways. Finally, we highlight promising areas for future research.

1.1 | Mechanisms of the associations of religiousness, spirituality, and health

A number of mechanisms have been proposed to explain the associations of religiousness and spirituality with health outcomes. Dimensions of both religiousness and spirituality may have influence through more proximal social,

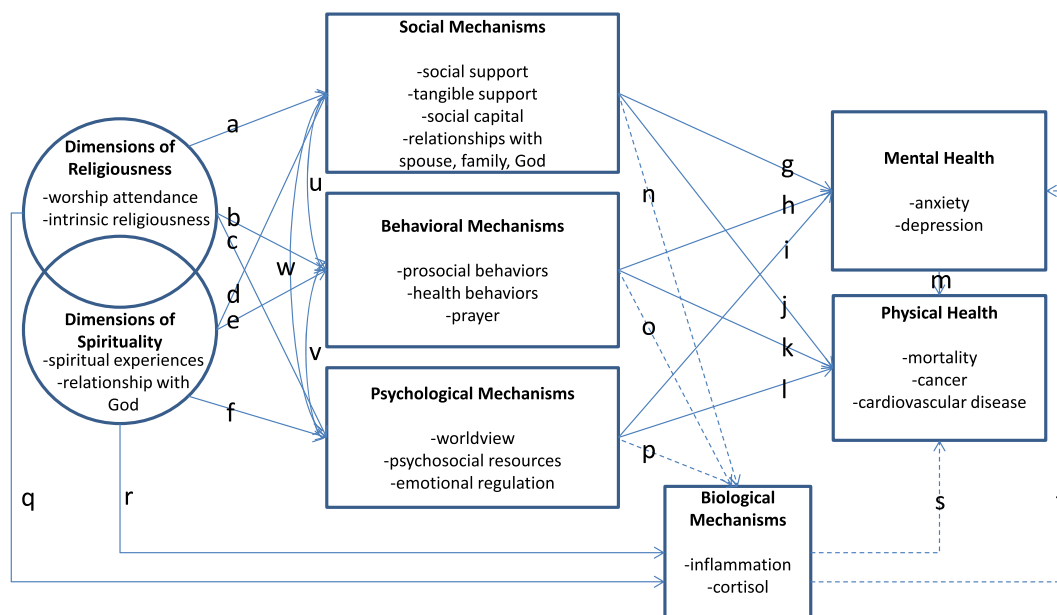


FIGURE 1 Pathways from religiousness and spirituality to social (a and d), behavioral (b and e), and psychological mechanisms (c and f) and from those mechanisms to mental and physical health (paths g–l) may explain the observed associations between religiousness and spirituality and health. Potential biological mechanisms are represented by paths leading from religiousness and spirituality to biological mechanisms, paths q and r, and paths leading from social factors to mental and physical health, paths s and t. Potential associations of social, behavioral, and psychological mechanisms and markers of physiological processes are represented by paths n, o, and p. Mutual influences between mechanisms are represented by paths u, v, and w

behavioral, and psychological influences on mental and physical health. In Figure 1, the key pathways from religiousness and spirituality to mental and physical health are depicted along the known links between mental and physical health (pathway m). Dimensions of religiousness and spirituality are shown as distinct for the most part but with some overlap, as consistent with definitions and common use.

1.1.1 | Social mechanisms

Many religious and spiritual groups, practices, and behaviors are inherently social. Social support and social interaction are generally beneficial to health based on considerable empirical evidence (Cohen, 2004; Thoits, 2011). As a result, many scholars have hypothesized that religiousness and spirituality may influence health through their social concomitants and effects (Powell, Shahabi, & Thoresen, 2003). In Figure 1, these pathways are represented by paths leading from religiousness and spirituality to social factors (paths a and d) and paths leading from social factors to mental and physical health (paths g and j). The health-relevant social components of religiousness and spirituality likely also include emotional and tangible social support as well as characteristics of relationships with family members. Empirical evidence supports these associations. Religiousness and spirituality are related to greater social support and especially emotional support (e.g., Krause & Bastida, 2009), tangible or instrumental support, especially among African-Americans (e.g., Chatters, Taylor, Lincoln, & Schroepfer, 2002), greater social capital or resources available to individuals through social structures and social organizations (Adler & Kwon, 2002), and greater marital and family quality and stability (e.g., Mahoney, Pargament, Tarakeshwar, & Swank, 2008; cf. Brown, Orbuch, & Bauermeister, 2008).

A handful of studies support the hypothesis that social factors may be mechanisms of the associations of religiousness and health by demonstrating mediation. For instance, in a longitudinal study of over 8,000 U.S. adults, Gillum, King, Obisesan, and Koenig (2008) found that Americans who report attending religious services at least weekly have a lower mortality risk than those who never attend services over an average of eight and a half year follow-up; this effect was partially mediated by reports of social support received (Note that these data only contained measures of support received outside of religious communities). Social support from family, friends, and others has also been shown to mediate associations of religiousness and mental health outcomes among college students (Salsman, Brown, Brechting, & Carlson, 2005) and clinical samples of HIV (Prado, Feaster, Schwartz, Pratt, & Smith, 2004) and cardiac surgery patients (Ai, Park, Huang, Rodgers, & Tice, 2007). However, other studies do not support a mediating role of social support though they do show associations of religiousness and mental health variables (e.g., Sternthal, Williams, Musick, & Buck, 2010). Although perceived social support was similarly not a mediator of the association of religiousness and depression in a large study of American adults, further examination pointed to the importance of another social factor, the number of social ties, and connections adults had, (i.e., social integration) which mediated the association of religious service attendance and depressive symptoms (Schnittker, 2001). Thus, other aspects of social life are worthy of consideration as mechanisms of the association of religiousness and health and may deserve greater attention. No studies were identified that tested mediation of associations of religiousness and spirituality and health by tangible support, social capital, or marital or family characteristics; however, preliminary evidence affirms that these factors are related to religiousness and spirituality and to health relevant outcomes, and therefore, they are promising candidates for mechanisms.

1.1.2 | Behavioral mechanisms

Religious and spiritual practices involve behaviors and rituals specific to the communities in which those practices take place, and the beliefs inherent to those traditions. These rituals and behaviors may have an impact on health through emotional processing, expression, catharsis, and other mechanisms, and thus, may be part of the various mechanisms explaining the associations of religiousness and spirituality and health. In addition to these rituals and behaviors, religiousness and spirituality are associated with particular health behaviors and health-relevant social behaviors. In Figure 1, these pathways are represented by paths leading from religiousness and spirituality to behavioral factors (paths b and e) and paths leading from behavioral factors to mental and physical health (paths h and k).

Some empirical evidence suggests that the behavioral rituals associated with religiousness and spirituality are linked to better health. One's own prayer (versus intercessory prayer) is associated with better mental health in adults and among undergraduate college students (e.g., Ellison, Boardman, Williams, & Jackson, 2001; cf. Masters & Spielmanns, 2007). Engaging in religious or spiritual ritual may also influence health through other health-relevant processes such as instilling peace and calm, strengthening religious and spiritual belief and commitment, and promoting social connections (Ellison, Burdette, & Hill, 2009; Schnitker, 2001).

Most robustly, religiousness and spirituality are clearly tied to health behaviors. Religious and spiritual people have better diets (e.g., Debnam, Holt, Clark, Roth, & Southward, 2012; Park, Edmondson, Hale-Smith, & Blank, 2009; cf. Hill, Burdette, Ellison, & Musick, 2006), engage in more physical activities (Hill et al., 2006; Park et al., 2009), have better medical regime adherence (e.g., Strawbridge, Shema, Cohen, & Kaplan, 2001; cf. Kremer, Ironson, & Porr, 2009), and engage in fewer health degrading behaviors like substance use and risky sex (Strawbridge et al., 2001; cf. Hill et al., 2006; Park et al., 2009). Each of these health behaviors is associated with good health outcomes and mortality, and thus, could be mechanisms of the associations of religiousness and spirituality and health. Despite these associations, there is a little research concerning their functioning as actual mechanisms, or mediators, of associations of religiousness and spirituality and health. Future research should focus on whether these behaviors mediate associations of religiousness, spirituality, and health, and not simply seek to demonstrate that these behaviors are common among religious and spiritual persons or that these behaviors are associated with mental and physical health.

1.1.3 | Psychological mechanisms

Many dimensions of religiosity and spirituality likely have their effects on health through psychological pathways. For example, associations of religiousness and spirituality and health may be explained by conceptualizing religiousness and spirituality as worldviews that enable people to make meaning of their lives (Park, 2007). In samples from both the United States and abroad, Diener, Tay, and Myers (2011) have demonstrated that religiousness is associated with greater well-being and that this association is mediated by purpose and meaning in life. These factors have also been shown to mediate associations of religiousness and mental health in clinical samples (Contrada et al., 2008; cf. Nelson et al., 2009).

1.1.3.1 | Psychosocial resources

It has been theorized that positive psychosocial resources, especially optimism, mastery, self-esteem, and gratitude—each of which are emphasized and valued by religious and spiritual traditions—may be higher in religious and spiritual people. These resources have well-established salutary associations with health and clearly mediate associations of health and other psychosocial factors (e.g., Rasmussen, Scheier, & Greenhouse, 2009; Sowislo & Orth, 2013; Taylor, Kemeny, Reed, Bower, & Gruenewald, 2000). Accordingly, there is some evidence that suggests that optimism, mastery, self-esteem, and positive affect, in particular, may be mechanisms of associations of religiousness and spirituality and health.

Although optimism has mixed associations with religiousness and spirituality (e.g., Ciarrocchi, Dy-Liacco, & Deneke, 2008; Mattis, Fontenot, Hatcher-Kay, Grayman, & Beale, 2003), evidence from a few studies is clearer that optimism mediates associations of spirituality and religiousness with various health outcomes, both mental and physical. First, in a sample of undergraduates, optimism, as well as social support, mediated the association between intrinsic religiousness and life satisfaction (Salsman et al., 2005). Similarly, in a large sample of students interviewed shortly after the 9/11 terrorist attacks, prayer and strength of faith affected anxiety and depression through positive attitudes, including optimism (Ai, Tice, Peterson, & Huang, 2005). Lastly, Ai's team also found that optimism mediated the association of use of petitionary prayer and postoperative well-being in adults after open-heart surgery (Ai, Tice, Huang, Rodgers, & Bolling, 2008).

Religious and spiritual commitment is theorized to engender both mastery and self-esteem. Commitment and involvement to one's religion or faith can reinforce one's beliefs and worldviews, thereby leading to feelings of control

and mastery and affirmation and self-esteem (Ellison, 1991). Empirical evidence provides mixed support for these associations (e.g., Kashdan & Nezlek, 2012; Oates & Goode, 2013). Despite these associations, few studies have tested whether these factors mediate associations of religiousness and spirituality and health. In a large sample of adolescents from the Add Health study, both internal and external religiousness inversely predicted depressive symptoms after 1 year, and self-esteem partially mediated this association for European-American and African-American adolescents (Le, Tov, & Taylor, 2007). Similar mediation of the effect of spirituality has been shown in a sample of Puerto Rican women with HIV (Simoni & Ortiz, 2003). However, two large studies found that self-esteem did not mediate the association of religiousness and health outcomes (Ellison et al., 2001; Musick, House, & Williams, 2004). Only one study was identified that tested mastery as a mechanism of an association of religiousness and mental health and mediation was not seen (Schieman, 2008).

Though sometimes considered an indicator of emotional or mental health rather than a contributor to health, some researchers have investigated the possibility that positive affect mediates the associations of religiousness and spirituality and health. In two studies of people with cancer, positive affect has been shown to mediate these associations: for cancer-related health behavior performance (Park et al., 2009) and for emotional functioning (Holt et al., 2011). These studies suggest that for some, positive affect may be an important contributor to the associations of religiousness and spirituality and health.

Another hypothesis is that religious and spiritual values and practices may help individuals to regulate their negative emotions and thereby lead to better mental and physical health. For instance, religious coping, a strategy of emotional regulation, is linked to better mental health in nonclinical samples (e.g., Schwartz, Meisenhelder, Ma, & Reed, 2003) and to physical health in clinical samples (e.g., Ai, Peterson, Bolling, & Rodgers, 2006). Religious people also have been found to have better self-control and self-regulation, which has, in some studies, mediated the association of religiousness and health (McCullough & Willoughby, 2009). Furthermore, particular beliefs and behaviors considered to be methods of "religious" coping or emotion regulation may be other behaviors already hypothesized as mechanisms of this such as prayer (McCullough & Willoughby, 2009) or seeking social support.

In sum, there is some evidence supporting psychological mechanisms of associations of religiousness and spirituality and health including meaning and purpose, psychosocial resources, and emotion regulation or religious coping. Each of these pathways is ripe for further investigation to uncover important links between religiousness and spirituality and health.

1.1.4 | Biological mechanisms.

The hypothesized biological mechanisms possibly explaining the associations of religiousness and spirituality to health have been less studied. Yet, religiousness and spirituality have been linked with biological markers known to be relevant to multiple diseases and to general health. These include HPA products such as cortisol (e.g., Carrico et al., 2006) and markers of inflammation (e.g., Ford, Loucks, & Berkman, 2006; King & Pearson, 2001; Lutgendorf, Russell, Ullrich, Harris, & Wallace, 2004). It has been suggested that biological markers and the associated underlying physiological processes may be mechanisms of the association of religiousness and spirituality and health (Seeman, Dubin, & Seeman, 2003). In Figure 1, these pathways are represented by paths leading from religiousness and spirituality to biological mechanisms, paths q and r, and paths leading from social factors to mental and physical health, paths s and t. Furthermore, it is likely that the social, behavioral, and psychological mechanisms hypothesized to mediate the associations of religiousness and spirituality and health are also associated with markers of physiological processes. In Figure 1, these potential pathways are represented by paths n, o, and p. Finally, the mechanisms that are proposed to mediate associations of religiousness and spirituality with health are likely to be intertwined with variables interacting and influencing each other; therefore, these mutual influences are represented in Figure 1 by paths u, v, and w. In sum, there are clear opportunities for researchers to further investigate these pathways ideally in collaboration across areas of expertise.

2 | DISCUSSION

There are many social, behavioral, and psychological factors that may function as mechanisms explaining associations of religiousness and spirituality with health. Some—such as social support, meaning in life, and psychosocial resources—have been shown to be mediators of these associations whereas others have been shown to be associated with religiousness and/or spirituality and are health-relevant but have not been explicitly tested as mechanisms. Very few research studies and programs focus on particular mechanisms but those that do provide useful models for future research.

Among the four sets of mechanisms, we recommend further testing of the hypothesized social mechanisms in particular. It has been well established that religiousness and spirituality are associated with greater social support, and future research should test the hypothesis that social support mediates associations of religiousness and spirituality and physical health. Such research will benefit from the expertise of social psychologists.

Hypothesized behavioral mechanisms of the associations of religiousness and health have perhaps been the least generative of the suggested mechanisms, but a review of research highlights two important areas for future research. First, the idea that ritual participation reduces anxiety and thereby improves health is a hypothesis that could be tested through experimental methods, but only one such study was identified (Anastasi & Newberg, 2008). Second, it is clear that religiousness and spirituality are associated with better health behaviors such as exercise and diet, however, these have been little tested as mediators. Such research could make significant contributions by examining prospective associations of religiousness and spirituality, health behaviors, and physical health outcomes such as disease and mortality. This research will benefit from interdisciplinary collaborations among researchers from psychology and the social sciences, medicine, and health professions, and also theologians and religion scholars.

Many of the proposed psychological mechanisms are also ripe for further testing. Particularly of interest are the psychosocial resources. Such research will benefit from the strong work on these resources in positive and health psychology research.

Research on biological and physiological mechanisms of associations of religiousness and spirituality and health is in its infancy. Basic research is needed to establish the strength and nature of associations of dimensions of religiousness and spirituality with biological markers of particular physiological pathways. In addition, tests of mediation effects of these biological markers will be extraordinarily instructive for this field. In our opinion, getting to the bottom of this robust area of research will require the expertise of health psychology and interdisciplinary collaboration with health professionals and researchers from other fields.

Importantly, the mechanisms summarized herein do not function in isolation. These processes influence and interact with each other. In the next generation of research, it is important to consider links between variables rather than individual pathways alone. Indeed, there is some evidence of this. For instance, social support appears to mediate the associations of religiousness and spirituality and health behaviors (Debnam et al., 2012). Other research indicates that relationships with God are associated with health, and this association appears to be mediated by aspects of religiousness and spirituality (e.g., Miner, 2009). These findings hint at the potential complexity of associations of dimensions of religiousness and spirituality, social, psychological, behavioral, and biological mediators, and physical and mental health outcomes yet to be uncovered. Furthermore, there are important confounding factors to consider that may also contribute to observed associations including socioeconomic status, genetics, personality, and propensity for risk-taking (D'Onofrio, Eaves, Murrelle, Maes, & Spilka, 1999; Ellison & Levin, 1998; George, Ellison, & Larson, 2002; Koenig et al., 2012). In some studies, these factors are controlled, but they are interesting in their own right to model into underlying mechanisms and reflect interesting hypotheses worthy of further study, though not considered in detail in this review.

Lastly, research on religiousness, spirituality, and health has been limited by methodological issues including lack of agreement on definitions of religiousness and spirituality, poor measures of religiousness and spirituality, a dearth of programmatic research, and small samples. Researchers must endeavor to address these limitations as future research investigates mechanisms of associations of religiousness and spirituality and health.

Understanding these mechanisms is important in order to advance knowledge and to inform efforts to improve wellness within communities and for individuals. Given that religion and spirituality are universal and common influences in individuals' lives that affect their health, getting at the underlying processes and considering how to integrate them into methods to improve health are valuable. Whereas promotion of religiousness and spirituality is not always possible or ethical, promoting mediating mechanisms such as social support and psychosocial resources may be realistic. Interdisciplinary research that combines expertise from different domains of psychological science and across social sciences, medical fields, and religious studies is especially well suited to examining these potential pathways. Social and health psychologies play a pivotal role in this future research agenda on social, behavioral, psychological, and biological mechanisms of the associations of religiousness and spirituality with mental and physical health.

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