Religiousness is a long-standing interest of health research (see Levin & Schiller, 1987, for an excellent historical review) and continues to be an area of much attention (for recent reviews, see Koenig, 2015; Koenig, King, & Carson, 2012; VonDras, 2017). Epidemiological studies have long demonstrated that higher levels of religiousness (usually assessed as service attendance) are related to lower mortality rates, even when taking potential covariates (e.g., baseline health, social support, health behaviors) into account (see VanderWeele, 2017). More recently, recognizing the multidimensional nature of religiousness and spirituality, researchers have broadened their focus to include other aspects, such as prayer, spiritual transcendence, and religious coping. Thus, we adopt the convention of R/S to refer to the constellation of related variables comprising this construct, providing more background on the R/S convention later.

As the demographics of religion shift in the US and around the world, R/S continues to be important to many people. Research reflects the continued high prevalence of religious beliefs and behaviors in the United States. For example, a recent nationally representative poll of Americans found that 89% believe in God or a universal spirit, 75% say religion is very or fairly important to them, and 38% attend religious services almost every week or more often (Gallup, 2016); another nationally representative poll found that 73% pray (Pew Forum, 2014). While studies conducted in other countries report lower levels of R/S than those found in the US, they are still fairly high (e.g., Gallup, 2016; Pew Forum, 2012).

Research on R/S and health is currently attracting high scholarly activity and interest (Koenig, 2015), and results generally show robust associations between R/S and health. However, we still know relatively little about how R/S may influence health. In this chapter, we provide a conceptual model of the potential influences through which R/S may influence physical health and review the literature from the perspective of this model. When possible, we have provided specific attention to R/S and health in minority populations in the US and in diverse populations throughout the world. It is important to keep in mind that this research is almost exclusively correlational. Therefore, we must always keep in mind the possibility of unmeasured third variables even in the most rigorously designed epidemiological studies, a point to which we return later in the chapter.

Religion/Spirituality: What Is It?

Efforts to define and distinguish the constructs of R/S have proliferated in recent years and many definitions of each have been proposed (Harris, Howell, & Spurgeon, in press; Oman, 2013). Although
consensus appears unlikely, theorists and researchers appear undaunted in this quest to define R/S. Much of the confusion is that religion and spirituality are usually—but not always—related, and different researchers have defined these terms differently and in often overlapping or wholly the same ways, including concepts like God, the numinous, the divine, the sacred, meaning, transcendence, and faith (see Paloutzian & Park, in press). Given the lack of consensus and overlap in the terms, researchers have increasingly adopted the combined term religiousness/spirituality (R/S) as a reasonable solution to discussing research in the aggregate (e.g., Koenig, 2015; Park et al., 2017), and we take this approach in this chapter.

Although the term R/S is convenient when discussing generalities regarding these associations, it is also important to note that R/S comprises many distinct dimensions, and further, these dimensions—while related—may exert very specific and unique effects on health (Fetzer/NIA, 1999). Thus, interpreting results of any specific study depends to a great extent on the specific dimension(s) of R/S studied. In Figure 17.1, we have listed a number of specific dimensions of R/S that are commonly studied in the context of physical health. Religiousness comes in both public and private forms. Among the organizational dimensions are attendance at services and participation in the life of a religious community. Among the personal dimensions are practices (e.g., private prayer); beliefs; values, motives and goals; and emotions. One other personal R/S dimension that warrants special attention is spiritual struggle or strain, often studied as “negative religious coping”. As we will discuss, this aspect of R/S is among the most potent R/S predictors of physical health.

How Might R/S Influence Health?

Many pathways have been proposed to explain how R/S may exert salutary influences on well-being (Lee & Newberg, 2005; Levin & Vanderpool, 1989; Park, 2007). A recent conceptual overview of models of R/S and health highlighted the diversity as well as the commonalities of these mediational models (Aldwin, Park, Jeong, & Nath, 2014). Among the pathways proposed are health-related behaviors and lifestyle, religious or spiritual social support, benefits of religious practices such as prayer and meditation, comfort provided by specific beliefs and interpretations, positive affect derived from certain spiritual-related states such as gratitude or compassion, and access to health-promotive resources.

Building on these diverse conceptual frameworks, we developed a comprehensive model to organize these proposed mediational pathways (see Figure 17.1). On the far left of the figure are
many different aspects of R/S identified as influencing physical health, and on the far right are aspects of physical health. In between, we include a panel of secular psychosocial mediators and then the two penultimate mediators between these psychosocial variables and health: physiological processes and health behaviors (Sarafino & Smith, 2016). Thus, in this model, different dimensions of R/S are proposed to influence a variety of psychosocial factors that in turn influence physical health via both direct physiological effects and via engagement in health behaviors. We also note that adherence to the prescriptions and proscriptions of some religious groups may expressly affect engagement in health behaviors, rather than being mediated through psychosocial variables. Although this model is useful for organizing our discussion, it simplifies the myriad and recursive mediating and moderating effects of the components displayed in Figure 17.1 (as well as others not included).

In this chapter, we describe each pathway and review research linking dimensions of R/S with physical health. Very few studies have examined complete linkages from R/S to psychosocial mediators to mechanisms (physiological or behavioral) to health outcomes; we have endeavored to identify studies that have. Although we have included all of the aspects of R/S in a single panel for simplicity’s sake, and these aspects are generally moderately strongly interrelated, they are all distinct dimensions of R/S that may have unique effects. Few studies include multiple aspects or attend to their differential influences on health.

**RS-Social Support-Health**

Religious social support refers to emotional, tangible, informational, and spiritual support that one receives, provides, and expects from one’s religious community (Barrett, 2013). Religious social support can be received or perceived as coming from one’s fellow congregants or church leaders or from God (Brewer, Robinson, Sumra, Tatsi, & Gire, 2015). Social support is a well-documented correlate of many aspects of physical health (Eisenberger, 2013). The social support networks of those who include a religious congregation are larger than those who do not attend religious services regularly (Ellison, Hummer, Burdette, & Benjamins, 2010), and further, may be qualitatively different from non-religious social support (Krause, 2008; Ysseldyk, Haslam, & Haslam, 2013).

Religious social support is usually positively related to physical health. For example, in a nationally representative sample of older adults, congregational social support led to a sense of satisfaction with one’s health (Krause & Wulff, 2005). Further, those with higher anticipated congregational support experienced less decline in self-rated health across three years (Krause, 2006). However, religious social interactions are not always positive nor always related to better health. In a longitudinal study of a national sample of African-American adults (the RHIAA Study), positive religious social support was associated with higher consumption of fruits and vegetables and lower depressive symptoms and heavy drinking over time, but negative religious social interactions predicted more alcohol consumption and increases in depressive symptoms and decreases in emotional functioning over time (Debnam, Holt, Clark, Roth, & Southward, 2012; Holt, Roth, Huang, & Clark, 2017 online first).

**R/S-Optimism-Health**

R/S may be related to health through optimism, or the degree to which one has positive expectations for the future (Lee & Seligman, 1997). Many studies have found associations between optimism and R/S: a review of studies prior to 2010 found more than 80% reported a significant positive relationship between them (Koenig, 2015). Optimism is robustly related to health. For example, one meta-analysis found an average effect size of the optimism-physical health relationship was .17 (across 83 studies; Rasmussen, Scheier, & Greenhouse, 2009). Optimism was related to all individual facets of health assessed (e.g., mortality, cancer outcomes, immune functioning). However, we were
unable to locate any studies testing the full linkage from R/S through optimism to physical health indices.

**RS-Positive Affect-Health**

Positive affect (e.g., joy, contentment) is increasingly demonstrated as being associated with physical health (e.g., Pressman, Jenkins, Kraft-Feil, Rasmussen, & Scheier, 2017; Stellar et al., 2015) and is often associated with higher levels of R/S (Van Cappellen, Toth-Gauthier, Saroglou, & Fredrickson, 2016). Thus, positive affect is a mediational pathway through which R/S may influence health and well-being.

Religions often explicitly promote spiritually relevant positive emotions such as gratitude, compassion, and hope (Tsai, Koopmann-Holm, Miyazaki, & Ochs, 2013), all of which have been proposed to lead to greater physical well-being (Van Cappellen et al., 2016). One nationwide survey linked R/S, positive affect, and physical health, finding that more frequent worship service attendance and receipt of spiritual support from fellow church members had more benevolent images of God, which was associated with gratitude to God which was, in turn, associated with more hope about the future, which was associated with fewer physical symptoms and better self-rated physical health (Krause, Emmons, & Ironson, 2015). Note that in this cross-sectional study, all of these variables were assessed at the same time.

**RS-Meaning in Life-Health**

Meaning in life refers to a sense of coherence (i.e., the world makes sense), purpose (i.e., a set of goals and the motivation to achieve them), and mattering (i.e., feeling one’s existence makes a difference in the cosmic scheme of things) (George & Park, 2016). Many studies have shown that a higher sense of meaning in life is related to higher levels of physical health, including lower rates of mortality and morbidity (see Hooker, Masters, & Park, 2017, for a review).

In turn, R/S is a primary source of meaning in life for many people, and further, many different dimensions of R/S are related to meaning in life. In their review of 45 studies conducted prior to 2010, most (93%) reported a significant positive relationship (Koenig et al., 2012). One notable cross-sectional survey study that used data from the Gallup World Poll of over 450,000 individuals from 154 nations found that spirituality was associated with greater meaning in life (Diener, Tay, & Myers, 2011). A study of congestive heart failure (CHF) patients and cancer survivors examined whether R/S (measured as daily spiritual experience) can provide meaning in the context of serious illness. In cross-lagged panel analysis, higher baseline spirituality predicted more positive change in meaning in life over the subsequent six months (heart failure patients) or year (cancer survivors), although meaning in life did not lead to increased changes in spirituality (George & Park, 2017). We were unable to find any studies that traced the linkage from R/S to meaning in life through meaning to indices of physical health.

**R/S-Forgiveness-Health**

Physical and emotional injuries experienced at the hands of another is, perhaps, the worst kind of trauma (Frazier et al., 2009), often leaving long-standing negative psychological and physical health sequelae (Krause, Shaw, & Cairney, 2004). Forgiveness, however, has been related to well-being in many studies. For example, in a large national sample of adults, forgiveness was related to better subjective health through reduced hostility (Lutjen, Silton, & Flannelly, 2012), and in lab-based research, forgiveness in response to an interpersonal transgression was associated with faster blood pressure recovery (Whited, Wheat, & Larkin, 2010). Studies with middle-aged and older adults demonstrated
that forgiveness mediated links between religion and a variety of health indicators, including self-reported health and symptoms, medication use, and sleep quality (Lawler-Rowe, 2010).

**R/S-Distress/Negative Affect-Health**

Depression and anxiety, along with general negative affectivity, are well-established risk factors for poorer physical health (Friedman & Kern, 2014). R/S is consistently associated with less depression and appears to be associated with less anxiety as well (see Park & Slattery, 2013, for a review). Lower levels of depression and anxiety may be due to the salutary effects of some religious beliefs, such as beliefs in a protecting and benevolent God or belief in an afterlife (Ellison, Burdette, & Hill, 2009). For example, in a large national sample of American adults, afterlife beliefs were inversely related with symptom severity on all six of the psychiatric symptom clusters examined (i.e., anxiety, depression, obsession-compulsion, paranoia, phobia, and somatization) after controlling for demographic and other variables known to influence mental health (Flannelly, Koenig, Ellison, Galek, & Krause, 2006).

Aspects of R/S have also been shown to be related to physiological stress responses. For example, laboratory-based studies of older adults found intrinsic religiousness (i.e., wherein religion serves as a master motive) was related to lower cardiovascular reactivity while extrinsic religiousness (i.e., wherein religion is considered a means to other ends) was related to exaggerated cardiac reactivity (Masters, Hill, Kircher, Lensegrav-Benson, & Fallon, 2004; Masters, Lensegrav-Benson, Kircher, & Hill, 2005).

**R/S-Stress-Health**

R/S may influence health through the levels of stress and individual experiences, both on a daily basis and when facing potentially significant challenges; stress is well-known to be related to poorer health through many pathways (e.g., Gianaros & Wager, 2015). People high on R/S may interpret experiences in a less stressful way than those low on R/S, based on their underlying beliefs in a purposeful God who is in control of the universe (e.g., DeAngelis & Ellison, 2017). Thus, R/S may result in lower appraisals of stress and threat (see Park, 2013). Further, individuals high in R/S have been shown to have better emotion regulation abilities when facing potentially stressful situations in both daily life and in managing lab-based experimental stress inductions (e.g., Vishkin et al., 2016).

**R/S-Coping-Health**

Because most religions provide ways to understand, reinterpret, and even redeem suffering as well as ways to find the work of a loving or purposeful God within it (Park, 2013), individuals commonly turn to religion in their coping efforts (see Pargament, Falb, Ano, & Wachholz, 2013). Pargament and colleagues have extensively studied religious coping types, categorizing them broadly as positive and negative (Pargament, Koenig, & Perez, 2000). Positive religious coping involves activities such as making benevolent religious reappraisals, using a collaborative approach with God in facing problems, seeking spiritual support, and seeking support from members of one’s religious group. Individuals high in R/S are more inclined to use religious coping, which is often related to better psychological adjustment (see Pargament et al., 2013, for a review).

Some studies have found that positive religious coping is also related to better physical health outcomes following stressful experiences. In adolescents with cystic fibrosis, positive religious coping predicted a slower decrease in BMI and pulmonary function as well as fewer hospital visits (Reynolds et al., 2014), and in HIV patients, religious coping predicted a smaller increase in viral load after a stressful event (e.g., divorce, death) after controlling for baseline viral load and use of antiretroviral medications (Ironson, Henry, & Gonzalez, 2017).
However, it is important to note that many longitudinal studies have failed to demonstrate significant effects of positive religious coping (e.g., Trevino et al., 2010), and, in fact, a number of studies have found positive religious coping related to poorer health outcomes. For example, positive religious coping was related to poorer subsequent physical health in studies of adjustment to illness by older adults (Gall, 2003) and advanced cancer patients (Tarakeshwar et al., 2006). The use of prayer for serious illness specifically has also been shown to be related to poorer physical outcomes (Andersson, 2008). Thus, positive religious coping may only be beneficial in certain contexts and in relation to certain outcomes.

In contrast, findings on negative religious coping, or spiritual struggle, are more robust and consistent across studies. Crises and trauma can lead individuals to question their beliefs in a loving and omnipotent God, resulting in feelings of betrayal, anger, fear, and doubt (Exline & Rose, 2013; Park, 2005). The use of negative religious coping with stressful events has been related to poorer physical as well as psychological health. For example, a prospective cohort study of inpatients found that negative religious coping in the hospital (appraisals of the illness as a punishment from God and interpersonal religious discontent) was associated with subsequent declines in health and increased mortality rates of 19–28% at two-year follow-up, even controlling for relevant demographic and baseline characteristics (Pargament, Koenig, Tarakeshwar, & Hahn, 2001). In endstage CHF patients, religious struggle predicted more nights hospitalized, higher depression, and lower physical functioning. These effects were stronger for those higher in religious identification, suggesting that spiritual struggle may be particularly difficult for those for whom R/S is more central to their sense of self (Park, Wortman, & Edmondson, 2011).

These findings contrast with the relatively modest and inconsistent findings for other aspects of religious coping generally considered more positive. Some of these inconsistencies may be due to differences found across particular people and circumstance. Religious and spiritual coping, for example, may be more effective in situations that allow little control and that rouse existential concerns (Park, Sacco, & Edmondson, 2012). A religious outlook that is only moderately strongly held might be less protective than one that is firmly held (e.g., Wink & Scott, 2005). Relying on faith when confronting an ongoing stressful life event may initially be helpful but eventually lead to negative attitudes toward their faith for failing to provide relief (Exline & Rose, 2013).

**R/S-Health Beliefs-Health**

Health-related beliefs have been shown to be important determinants of health-related behaviors and subsequent health (e.g., Broadbent et al., 2015). R/S has been shown to relate to many specific health-related beliefs. For example, in the abovementioned national study of African-Americans (RHIAA), active spiritual locus of control beliefs (i.e., belief that one works in partnership with God to stay in good health) were positively associated with fruit consumption and negatively associated with alcohol consumption. Passive spiritual beliefs (that because a higher power has control over one’s health, one does not need to engage in healthy behaviors) were associated with lower vegetable intake and increased alcohol consumption (Debnam, Holt, Clark, Roth, Foushee, et al., 2012). In a cross-sectional national US survey, believing in healing miracles was related to greater divine health deferral, which was in turn associated with more symptoms of physical illness (Hayward, Krause, Ironson, & Pargament, 2016).

**R/S-Access to Health-Promotive Resources-Health**

Members of religious groups may have better access to healthcare promotions and health-improvement programs sponsored by their congregation. Some of these health promotion efforts are merely standard health-promotive programs sponsored by religious organizations (e.g., blood pressure screening
following services), while others involve the integration of R/S content into the intervention itself (e.g., Sattin et al., 2016). Such faith-based programs have become increasingly popular, particularly with minority populations, although their effectiveness remains undemonstrated (Timmons, 2015). Further, some religious organizations have substantial resources, allowing them to exert positive influences on their members by simply providing tangible resources (Lee & Newberg, 2010).

**Direct Influences of R/S on Health Behaviors**

As noted earlier, in addition to the pathways of R/S through secular psychosocial mediators to health, R/S may also influence health by directly encouraging behaviors that promote health (see Figure 17.1, arrow from R/S directly to health behaviors). Large-scale epidemiological studies have demonstrated that health behaviors partially mediate the effects of service attendance on physical health, including mortality (e.g., Koenig & Vaillant, 2009). Some religious denominations and traditions explicitly promote health habits or other prescriptions or proscriptions that may influence health, such as prohibiting the use of alcohol or other intoxicants, prescribing a vegetarian diet, and forbidding sexual activity outside of marriage (Levin & Vanderpool, 1989). Religions generally promote moderation and frown on excess (Koenig et al., 2012). In addition to explicit prescriptions and proscriptions, other aspects of R/S have been linked to health behaviors, including better diets, higher levels of physical activity, and higher levels of preventive health behaviors (e.g., flu shots, cholesterol screening, mammograms, pap smears, and prostate screening; see Koenig et al., 2012). In a national sample of African-Americans with diabetes, for example, R/S beliefs and practices and religious social support were related to a healthier diet and better adherence to foot care (Watkins, Quinn, Ruggiero, Quinn, & Choi, 2013).

**International Research on R/S and Health**

Although most of the research linking R/S to health has been conducted in the United States, Canada, and Western Europe, and primarily focused on Christians, some international studies have been conducted in various religions with various religious affiliations and practices. These studies tend to show associations between religion and physical health consistent with our proposed framework (Figure 17.1).

Religious practices and religious beliefs have been associated with better health in international studies. In a study of dialysis patients (mostly Muslim) conducted in Saudi Arabia, religious beliefs and group/individual practices were related to better clinician-rated physical health (Zaben et al., 2015). Praying at midlife was associated with lower risk of mild cognitive impairment after controlling for educational level in Arabic women residing in Israel (Inzelberg et al., 2013). In young Pakistani adults, Ramadan fasting had a positive effect on glucose level and lipid profile as well as an overall reduction in body weight (Kiyani et al., 2017).

Several studies have focused on the effect of self-reported religiosity or spirituality on health, highlighting the potentially complex interactions of beliefs and culture. For example, a study of patients with hypertension in Ghana showed that high levels of spirituality were related to low levels of medication adherence, suggesting that spiritual beliefs in divine intervention may lead patients to rely less on their medications (Kretchy, Owusu-Daaku, & Danquah, 2013). Also, in an Australian cross-sectional study, Catholic and Baptist men had significantly higher BMI compared to those reporting no religious affiliation, though the mechanism behind this relationship is not clear (Kortt & Dollery, 2014). A nine-year longitudinal study in Mexico found religious participation was associated over time with lower levels of waist-to-hip ratio, total cholesterol, pulse rate, diastolic blood pressure, C-reactive protein, and allostatic load, though unrelated to BMI, glycosylated hemoglobin, and systolic blood pressure (Hill, Rote, & Ellison, 2017).
Research Issues/Caveats/Future Directions

We noted earlier that virtually all of the research linking R/S and health has been observational. Such designs cannot be avoided given that R/S beliefs and behaviors reside within the person and most researchers elect to simply observe how these dimensions relate to aspects of physical health. However, observational designs are greatly limited in understanding causality. Thus, we are left with thousands of studies of associations, many supportive of potential causality through both theoretically and temporally plausible links, but without the ability to conclusively demonstrate it. Some studies have employed experimental manipulations (e.g., having participants pray for a specific outcome; Hoşrik, Cüceloğlu, & Erpolat, 2017), but such experimental efforts are rare. For practical and ethical reasons, few researchers have attempted to manipulate levels of R/S to test its effects on health outcomes, with the exception being the increasing interest in health-promotive interventions that incorporate R/S (e.g., Wachholtz, Malone, & Pargament, 2017). Such experimental work could, for example, examine whether engaging in R/S practices consistent with one’s faith leads to differences in short-term health outcomes.

However, given that most research in R/S and health will likely continue to be observational, we suggest that researchers implement more complex research designs, including daily diary and ecological momentary assessments, which better illuminate temporal relationships (Pearl, 2012). In addition to using more theoretically specific measures of R/S variables of interest (Park et al., 2017), future research should test potential moderators of demonstrated R/S effects on health outcomes. The high levels of within-group variability on health outcomes among individuals with high levels of R/S suggest that moderating factors may play critical roles in these associations. For example, age, gender, socioeconomic status, and race/ethnicity may moderate effects of R/S on health (Sternthal, Williams, Musick, & Buck, 2012). Such moderator effects can be complex. For example, analyses of a recent nationally representative US sample demonstrated moderated mediation such that the mediational pathway of social support linking religious involvement and beneficial health effects held only for African Americans (Ansari, 2017). Better understanding the moderators of effects will help identify the characteristics of individuals or groups for whom certain dimensions of R/S are relatively more or less potent influences on health, yielding important data to inform future interventions.

Implications for Interventions

Ideally, a better understanding of the potentially health-promotive and protective roles of R/S will inform efforts to not only intervene with those who are experiencing poor health but also to prevent problems in those who are yet well. For example, prevention efforts may attempt to leverage individuals’ already-existing R/S resources to assist them in keeping stress levels low and engaging in healthy lifestyles. R/S has important therapeutic applications, and interventions have been developed that integrate R/S to promote forgiveness (Waltman et al., 2009), and address spiritual struggle (Murray-Swank & Pargament, 2005), including those targeted to individuals with serious and life-threatening illnesses (Cole & Pargament, 1999). The literature linking these phenomena with psychological and physical well-being suggests that this is a productive direction for intervention development.

In addition to interventions, there are other ways that healthcare providers may need to consider and deal with patients’ R/S. Given its importance to many patients, knowledgeable and competent healthcare treatment must take them into account. A robust literature on issues of R/S in healthcare (e.g., discussions with patients, praying with patients) is accumulating (Best, Butow, & Olver, 2015). While not all patients desire for their healthcare providers to address their spiritual needs, unmet spiritual needs may have deleterious effects on patients’ physical as well as emotional well-being (Park & Sacco, 2017).
Ethical questions regarding the promotion of R/S by healthcare professionals have been raised (see Mills, 2002). That is, if R/S is known to be related to better health, should healthcare providers promote it? For example, Hall (2006) noted the favorable comparison for cardiovascular benefits of service attendance on mortality in the general population relative to those of Lipitor. While cautioning that there are “ethical, theological, and methodological problems with this instrumental approach” (Hall, 2006, p. 107), he nonetheless suggested that the associations between attendance and other aspects of spirituality may have implications for medical practice.

Perhaps focusing on spirituality as defined by individuals themselves is the best approach to these issues in intervention and prevention efforts. While many or even most individuals may find and express their spirituality through explicitly religious means, not all do. Focusing on broader aspects of spirituality, such as existential meaning, avoids imposing any particular religious perspectives on individuals. Nonetheless, interventionists should be familiar and comfortable with various approaches to meaning in order to provide respectful and effective treatment.

Conclusion

This chapter delineates the multiple behavioral and physiological pathways through which R/S may exert influences on many aspects of physical health. Aspects of R/S may have protective effects by imbuing daily life with direction and positive emotional states and stress and distress. They also appear to serve as important resources promoting adjustment and better health in the context of serious illness. However, the research to date has many methodological limitations and much remains to be learned. Even at this stage of research, however, it is clear that R/S plays pervasive and important roles in physical health and well-being.

References


Religion, Spirituality, and Health


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