

Review of Clinical Medicine and Religious Practice

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Journal of Religion and Health

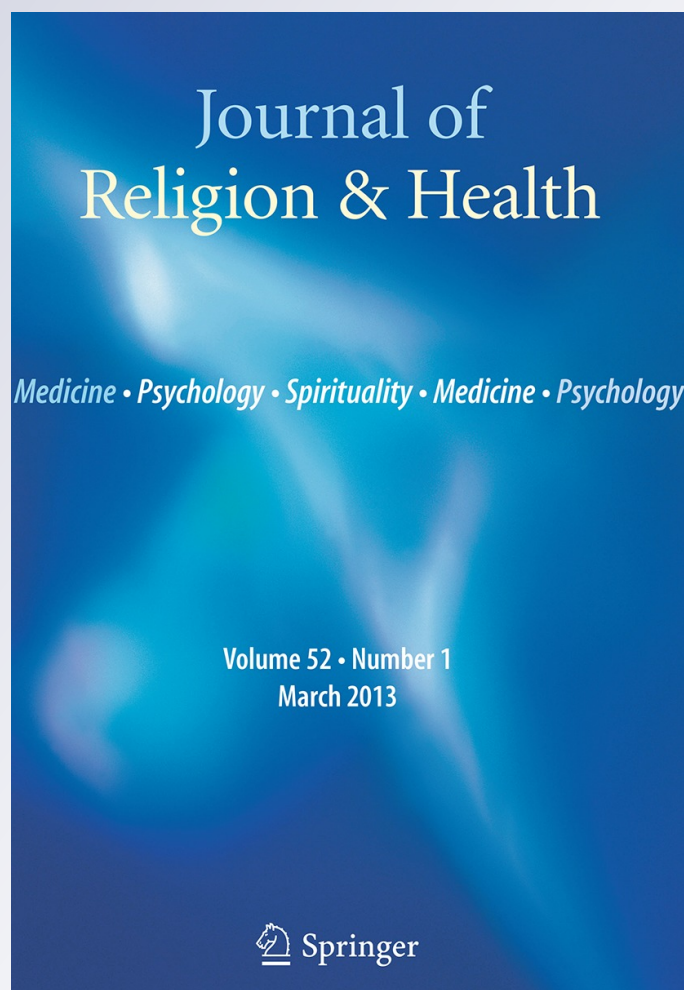
ISSN 0022-4197

Volume 52

Number 1

J Relig Health (2013) 52:91-106

DOI 10.1007/s10943-012-9578-9



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Review of Clinical Medicine and Religious Practice

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Published online: 7 March 2012
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Abstract The purpose was to evaluate faith-based studies within the medical literature to determine whether there are ways to help physicians understand how religion affects patients' lives and diseases. We reviewed articles that assessed the influence of religious practices on medicine as a primary or secondary variable in clinical practice. This review evaluated 49 articles and found that religious faith is important to many patients, particularly those with serious disease, and patients depend on it as a positive coping mechanism. The findings of this review can suggest that patients frequently practice religion and interact with God about their disease state. This spiritual interaction may benefit the patient by providing comfort, increasing knowledge about their disease, greater treatment adherence, and quality of life. The results of prayer on specific disease states appear inconsistent with cardiovascular disease but stronger in other disease states.

Keywords Medical treatment · Adherence · Health outcomes · Faith · Religion · God

Introduction

Physicians are trained to make treatment decisions based on the scientific literature to help affect healing. Patients, however, may have a different basis than their doctor to which they ascribe their hope of cure. Many patients express, in whole or in part, a dependence on God to provide healing for their disease. This may prove awkward for the physician whose basis for treatment typically is drawn from the scientific literature. Further, having to interact with the patient about God may be difficult because the physician may not have sufficient knowledge of the patient's religion to understand the basis of their spiritual hope for healing. Consequently, the physician may lack the ability to adequately counsel a patient based on their religious views.

Numerous studies have been published evaluating religious faith and medicine. However, to our knowledge, no attempt has been made to summarize these studies. Unfortunately, any

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attempt to review the literature is complicated by the wide variety of disease states evaluated and the differing measures of the patients' faith used by the investigators.

The purpose of this review is to evaluate the faith-based studies within the medical literature to determine whether there are ways to help physicians understand the effect of religion on patients' lives, their disease, and identify ways to approach religious conversations with patients.

Materials and Methods

Due to the review design, ethical review board approval was not required. This review included any study that evaluated religious attitudes or activities in patients in peer reviewed medical literature from 1966 to the present. We performed this study using the search engine for published medical literature, PubMed (www.ncbi.nlm.nih.gov/pubmed/). We used the following search terms: religion, prayer, faith, beliefs, values, religious, spiritual, devotion, God, church, intercessory prayer, worship, disease, medical treatment, practices, health care, effects, thyroid, cardiovascular disease, activity, treatment, therapeutic diabetes, practices, heart, cardiac, thyroid, hypertension, intervention, coronary, alleviation of ill health, ophthalmology, ocular, glaucoma, age-related macular degeneration, ocular hypertension, cataract, keratitis, uveitis, retina, conjunctivitis, blepharitis, trachoma, scleritis, and retinopathy. We searched all the terms twice.

We obtained a copy of each article and extracted the following information: author, journal, date, volume, page numbers, disease type, number of patients, patient groups, religion, primary variable, primary result, religious result, and conclusions. Originally, 51 articles were chosen for review. Of these, two were excluded because their analysis did not concern the direct effect of religion on disease, treatment, or quality of life.

Review of Clinical Medicine and Religious Practice

This study evaluated 49 articles of which 37 were conducted in the United States, three in Europe, seven in Asia, one in Africa, and one in Canada. Further, 31 studies primarily studied patients of the Christian religion, two Muslim, two Hindu, two "other," and 12 unknown. Unless otherwise noted below, the studies were performed primarily in Christians and in the United States.

Religion and Self-Care

In most studies, religion generally influenced how a patient cared for themselves, especially in cases of severe illness (Table 1). Hjelm and Mufunda studied patients with diabetes of unreported religion in Zimbabwe between the ages of 19 and 65 years (Hjelm and Mufunda 2010). They found that self-care was limited, but frequently included household remedies, prayers, and holy water. The authors were unable to conclude from their results exactly how religion influenced patients' self-care. Thompson and associates, in older adults with cardiovascular disease, found that men may shun divine help, expressing more religious doubt, and praying less than other patient groups (Thompson et al. 2009a).

In contrast, Subramanian studied patients of unreported religion with ocular disease in urban and rural women in Tamil Nadu in India (Subramanian 2008). The author noted that rural women were more likely to rely on non-medical treatment such as prayer. However,

Table 1 Religion and self-care

Ref	Location	Disease type	Patients	Main religion	Religious results and conclusions
Hjelm and Mufunda 2010	Zimbabwe	DM	21	N/A	There is little knowledge about DM, and beliefs play a role in affecting self-care and care-seeking behavior.
Thompson et al. 2009a	USA	CVD	182	Christian 83%	Older men with heart trouble may maintain a masculine style and shun divine help.
Subramanian 2008	India	Ocular disease	N/A	N/A	Rural women were more likely to rely on non-medical treatment, such as prayer, but rural women favor medical pluralism, and medical treatments are associated with geographic location.
Harvey and Cook 2010	USA	Chronic illnesses	41	Christian	Spirituality does play a role in how people self-manage their illnesses.
Maygar-Russell et al. 2008	USA	General	124	Christian 77%	Religion and spirituality are significant and often positive components of patient value systems.
Rausch et al. 2011	USA	Cancer	153	N/A	62% of patients used prayer/spiritual healing. Spiritual healing/prayer is the most commonly reported.
McCaffrey et al. 2004	USA	General	N/A	Christian	Prayer is used frequently for common medical conditions, and users report high levels of perceived helpfulness.
Rippentrop et al. 2005	USA	Musculoskeletal pain	122	Christian 72%	People with worse physical health tend to engage in more religious activities.
Reed 1987	USA	Terminal illnesses	300	N/A	There is low, but significant, correlation that spiritual perspective is positively related to well-being among terminally ill hospitalized adults.

Ref Reference, *USA* United States of America, *DM* diabetes mellitus, *CVD* cardiovascular disease, *N/A* not applicable

these patients also used modern medical treatment and the reliance on non-medical treatment was not excessive. Harvey and Cook found in patients with chronic illnesses that four categories of spirituality influenced self-management: God's involvement, prayer as a mediator, spirituality as a coping mechanism, as well as a combination of conventional and spiritual practices (Harvey and Cook 2010). Most frequently used practices included prayer, reading the Bible, and medicine. The authors concluded that spirituality does play a role in how people self-manage their illnesses.

Maygar-Russell and coworkers found in ophthalmic patients that 82% believed prayer was important (Maygar-Russell et al. 2008). The authors concluded that religion and spirituality often were positive components in a patient's value system. Rausch and associates found in cancer patients of unreported religion that 63% used prayer and spiritual healing (Rausch et al. 2011). The authors concluded that spiritual healing and prayer were the most commonly used complementary alternative treatments. McCaffrey and coworkers found in patients with any systemic disease that 35% prayed for health concerns; of these, 75% prayed for wellness and 22% prayed for a specific medical condition (McCaffrey et al. 2004).

In contrast, Rippentrop and associates found that people with worse physical health tended to engage in more religious activities (Rippentrop et al. 2005). Further, Reed showed that spiritual perspective is positively correlated with well-being among terminally ill hospitalized adults of unreported religion (Reed 1987).

Prayer and Spiritual Care by Patients and its Relationship to Physicians and Staff

Interaction with the physician and staff over spiritual issues may, within limits, be viewed positively by patients (Table 2). Hanson and coworkers showed that spiritual care activities varied, but help with relationships and coping were more common than prayer, religious ritual, or services (Hanson et al. 2008). The study concluded that satisfaction with spiritual care is not related to the religious provider; as family, friends, and health care professionals were more commonly named than clergy. Bussing and associates, in German female cancer patients, of unreported religion, found they were convinced that spirituality had a positive impact on their lives (Bussing et al. 2005). The authors concluded that knowledge

Table 2 Prayer and spiritual care by patients and its relationship to physician and staff

Ref	Location	Disease type	Patients	Main religion	Religious results and conclusions
Hanson et al. 2008	USA	Serious illness	103	Christian 77%	Spiritual care came from all different sources including health care professionals.
Bussing et al. 2005	Germany	Cancer	N/A	N/A	Female patients were convinced that spirituality had a positive influence. Knowledge of patient's spirituality helps care providers know how to respond to patients' needs.
Smith et al. 2004	USA	Inflammatory eye disease	37	N/A	Prayer was the most commonly used complementary and alternative medicine to specifically improve their eye disease.
MacLean et al. 2003	USA	General	456	Christian 70%	A substantial minority of patients want spiritual interaction in routine office visits, the desire for this increasing with severity of illness and decreasing with the intensity of the spiritual interaction.
Siatkowski et al. 2008	USA	General	300	Christian 96%	Prayer before surgery with the doctor may be well received.

Ref Reference, USA United States of America, N/A not applicable

of patient spirituality helped care providers know how to best respond to their needs. Smith and coworkers found in patients, of unreported religion, with inflammatory eye disease that prayer was the most commonly used alternative treatment by patients (18%), greater than vitamins and herbal medicines (Smith et al. 2004). The authors concluded that physicians should question their patients about alternative treatments because patients view them as beneficial and they can influence the course of eye disease by how they interact with conventional treatments.

MacLean and associates found in patients with any systemic disease that 33% wanted to be asked, and 67% felt their physician should know, about their religious beliefs (MacLean et al. 2003). Patient agreement with physician spiritual interaction increased with severity of illness (19% at a clinic visit, 29% during hospitalization, and 50% at near death). However, the desire for the spiritual interaction with the physician decreased with the intensity of the interaction: 33% would discuss spiritual issues, 28% assented to silent prayer, and 19% desired spoken prayer. The authors concluded that the physician should be aware that a substantial minority of patients wants spiritual interaction, even at an office visit, and the desire for this interaction increases with severity of the illness (MacLean et al. 2003). Further, Siatkowski and coworkers found that before surgery, 90% of Christians thought praying with their doctor was positive in an ophthalmological setting (Siatkowski et al. 2008). Further, only 0–25% of non-Christians thought prayer with the doctor was negative. The authors concluded that prayer before surgery with the doctor generally was well received.

Influence of Religious Practice on Clinical Outcomes: General

Religious practice generally has demonstrated a positive effect on general health outcomes (Table 3). Yeager and associates found in older Taoists and Buddhists that the frequency of attending religious services showed no influence on health outcomes (Yeager et al. 2006).

Table 3 Influence of religious practice on clinical outcomes-general

Ref	Location	Disease type	Patients	Main religion	Religious results and conclusions
Yeager et al. 2006	USA	General	N/A	Taoist 50%	Religion has no significant outcomes on health.
Maselko and Kubzansky 2006	USA	General	N/A	Christian 81%	Religious activity was significantly associated with better health.
Koenig 1998	USA	General	455	Christian 95%	Religious attendance was associated with less medical illness. Religious beliefs are prevalent among older adults.
Koenig et al. 1998a	USA	General	577	Christian	Negative religious coping was related to poorer physical health and worse quality of life. Positive religious coping was related to better mental health.
Pargament et al. 2001	USA	General	596	Christian 95%	Higher religious struggle is predictive of greater risk of mortality. Religious struggle may increase risk of death.

Ref Reference, USA United States of America, N/A not applicable

In contrast, Maselko and Kubzansky found that weekly public religious activity was associated with generally better health (Maselko and Kubzansky 2006). Koenig found in older patients that most had religious beliefs and practices, which were associated with positive social, psychological, and physical health outcomes (Koenig 1998). Further, in 40%, their belief was the most important factor to help them cope with physical illness and major life stresses. In a separate study, Koenig and coworkers found that positive aspects of religious worship such as believing God is benevolent, seeking a connection with God, and asking support from clergy were related to better mental health. However, negative experiences such as dealing with God's vengeance, punishment, demonic forces, and spiritual discontent were associated with poorer health outcomes (Koenig et al. 1998a). Similar to Koenig, Pargament and associates found in patients above 55 years that religious struggles, such as feeling unloved by God or attributing an illness to the devil, may increase risk of death (Pargament et al. 2001).

Influence of Religious Practice on Clinical Outcomes in Specific Disease States

Cardiovascular Disease

Most studies which evaluated religious adherence related to specific disease states involved cardiovascular disease for which religious practice appeared to have an inconsistent influence (Table 4). Following myocardial infarction, Blumenthal and coworkers determined from a daily spiritual experience questionnaire evaluating total spirituality, worship service attendance, or daily meditation/prayer, no relationship between death or a non-fatal cardiac event and spirituality (Blumenthal et al. 2007). Feinstein and associates also found no consistent positive associations between religiosity and the presence/extent of sub-clinical cardiovascular disease at baseline or during follow-up over 4 years of cardiovascular disease events in patients of unreported religion (Feinstein et al. 2010).

Further, Aviles and coworkers noted no effect of prayer on cardiovascular disease outcomes after hospitalization in the coronary care unit (Aviles et al. 2001). In addition, Benson and associates showed that prayer itself had no effect on the complication rate (52%), compared with those who received no prayer (51%) following coronary bypass surgery. However, prayer by another person was associated with a higher complication rate (59%) (Benson et al. 2006). Roberts and coworkers also indicated that prayer did not decrease the incidence of death in heart disease or leukemia in the United Kingdom. They noted, however, the data were too inconclusive to uphold or refute the power of prayer in health outcomes (Roberts et al. 2009).

In contrast, other studies have noted a benefit of religious activity in cardiovascular disease. While Schnall and associates showed that religious factors (religious affiliation or frequent religious service attendance) did not reduce cardiovascular mortality or morbidity, they were associated with decreased all-cause mortality (Schnall et al. 2010). Thompson and coworkers observed that church-based interventions were successful in helping weight loss, diabetes, and cardiovascular disease (Thompson et al. 2009b).

Further, Byrd showed that prayer had a beneficial therapeutic effect on coronary care unit patients with lower severity scores, less ventilatory assistance, and less antibiotic, as well as diuretic use (Byrd 1988). Harris and associates found that intercessory prayer was associated with improved scores measuring clinical progress in the coronary care unit (Harris et al. 1999). The authors concluded that intercessory prayer may be an effective adjunct to medical treatment. In addition, Krucoff and coworkers found that in patients undergoing percutaneous coronary intervention, a 20–30% reduction in adverse outcomes

Table 4 Influence of religious practice on clinical outcomes-cardiovascular

Ref	Location	Disease type	Patients	Main religion	Religious results and conclusions
Blumenthal et al. 2007	USA	AMI	503	Christian 93%	No relationship between death or non-fatal AMI and total spirituality, worship service attendance, or daily meditation/prayer. Little evidence that spirituality is associated with cardiac morbidity or all-cause mortality
Feinstein et al. 2010	USA	CVD	5474	N/A	There was no reduction in risk for CVD associated with higher religiosity.
Aviles et al. 2001	USA	CVD	799	Christian 100%	Intercessory prayer had no significant effect on medical outcomes after hospitalization in a coronary care unit.
Benson et al. 2006	USA	Coronary artery bypass graft	1802	Christian 85%	Intercessory prayer itself had no effect on complications, but being prayed for was associated with higher incidence of complications.
Roberts et al. 2009	UK	Leukemia, heart disease		Christian	No evidence that prayer decreased the number of deaths of leukemia or heart disease.
Schnall et al. 2010	USA	CHD	92 395	Christian 79%	Religious affiliation, frequent religious service attendance reduced cause-all mortality. Religious factors did not reduce CHD morbidity or mortality.
Thompson et al. 2009b	USA	Obesity and type 2 diabetes	N/A	Christian	Church-based interventions are successful and help weight loss. It's important to decrease type 2 diabetes and CVD.
Byrd 1988	USA	Coronary care	393	Judeo-Christian	The prayer group had lower severity scores and needed less ventilatory assistance, antibiotics, and diuretics. Prayer to the Judeo-Christian God has a beneficial therapeutic effect in patients.
Harris et al. 1999	USA	Coronary	990	Christian 100%	The group that was prayed for had lower CCU course scores than the group that was not prayed for.
Krucoff et al. 2001	USA	Percutaneous coronary intervention	150	Christian	There is a therapeutic benefit of prayer.

Table 4 continued

Ref	Location	Disease type	Patients	Main religion	Religious results and conclusions
Fitchett and Powell 2009	USA	SBP and hypertension	1658	N/A	Little difference in SBP, daily spiritual experiences do not affect it, but age does.
Buck et al. 2009	USA	SBP, DBP and hypertension	3105	Christian	Prayer was associated with a likelihood of increased hypertension, spirituality with increased DBP.
Koenig et al. 1998b	USA	BP	3963	Christian 100%	Religiously active older adults tend to have lower blood pressure than those who are not active.
Al-Kandari 2003	Kuwait	SBP and DBP	223	Muslim	Both SBP and DBP were affected by religious commitment and religious activities.
Vannemreddy et al. 2009	USA	Severe head injuries	26	Christian	The prayer group stayed in the hospital more days but patients with prayer habits recovered better following head injury.
Cha and Wirth 2001	South Korea	IVF	219	N/A	A positive effect of prayer was found on the outcome of IVF.
Matthews et al. 2000	USA	Class II/III rheumatoid arthritis	40	Christian 100%	People receiving intercessory prayer in person showed significant overall improvement and therefore may be a useful adjunct to medical care.
Leibovic 2001	Israel	Bloodstream infection	3393	N/A	Prayer is associated with a lower mortality rate, shorter hospital stays, and a shorter duration of fever.
Koenig et al. 1997	USA	Plasma interleukin-6	1718	Christian	Older adults who frequently attend religious services have healthier immune systems.

Ref Reference, *USA* United States of America, *CVD* cardiovascular disease, *AMI* acute myocardial infarction, *BP* blood pressure, *SBP* systolic blood pressure, *DBP* diastolic blood pressure, *CHD* coronary heart disease, *CCU* coronary care unit, *IVF* in vitro fertilization, *N/A* not applicable

for all non-pharmacological therapies such as stress relaxation, touch therapy, imagery, and prayer groups, of which the lowest rates were observed with prayer (Krucoff et al. 2001).

Prayer has also been evaluated in patients who suffer from systemic hypertension. Fitchett and Powell found little difference in systolic blood pressure associated with spiritual experiences in midlife women of unreported religion (Fitchett and Powell 2009). Further, Buck and associates found that prayer was actually associated with increased systolic hypertension and spirituality with increased diastolic blood pressure (Buck et al. 2009).

In contrast, religious activity has been associated with reduced blood pressure. Buck and coworkers discovered that patients with purpose in life and self-forgiveness demonstrated lower diastolic blood pressure (Buck et al. 2009). Further, Koenig and associates showed that religiously active older patients had lower blood pressure than those inactive in their faith (Koenig et al. 1998b). Al-Kandari found in Muslims in Kuwait that religious activities generally lowered blood pressure (Al-Kandari 2003). The author believed that adherents felt secure when performing religious activities that might have contributed to the reduced blood pressure. However, religious commitment was the least powerful predictor of lower blood pressure.

Non-cardiovascular Disease

In addition, several studies have evaluated non-cardiac disease and demonstrated generally beneficial effects from prayer. Vannemreddy and coworkers analyzed severe head injuries and found that patients who received prayer recovered better (i.e., lower death rates, less long-term vegetative states, and better scores on the Glasgow Outcome Scale for state of consciousness) (Vannemreddy et al. 2009). Further, patients who prayed themselves also had better clinical results and were noted by the authors as “the strongest among all variables to have influenced good outcomes.” Additionally, Cha and Wirth found that South Korean patients, of unreported religion, who underwent in vitro fertilization and received intercessory prayer, demonstrated a 50% pregnancy rate versus 25% in the non-prayer group (Cha and Wirth 2001). The prayer group had an implantation rate of 17 and 8% in the non-prayer group. Also, Matthews and associates showed a positive effect with intercessory personal prayer on rheumatoid arthritis, but there was no additional benefit in patients who received prayer from a distance (Matthews et al. 2000). Further, Leibovic demonstrated in Israeli patients, of unreported religion, with sepsis that prayer was associated with a lower mortality rate, shorter hospital stays, and decreased duration of fever (Leibovic 2001). Regarding general religious adherence, Koenig and coworkers found that older adults who frequently attended religious services had a healthier immune system as measured by plasma interleukin-6 (Koenig et al. 1997).

Religion and Quality of Life

Generally, studies have found a positive relationship between religious activity and quality of life (Table 5). Stewart and associates found that, in patients with ocular hypertension and glaucoma, greater adherence to activities designed to develop religious maturity (drawing encouragement from other church members, reading Scripture, or encouraging others to have faith), and in patients who manifested at least a basic knowledge about their faith, greater comfort was manifested related to their glaucoma and treatment (a positive attitude toward their glaucoma, a better coping with their disease, a belief that God was concerned about their glaucoma and helped with their treatment) (Stewart et al. 2010). These findings may indicate that the more serious the practice of religion, the greater sense of well-being derived in relationship to their glaucoma disease and treatment. Keefe and coworkers found rheumatoid arthritis patients, of unreported religion, with daily spiritual experiences manifested more positive moods, less negative moods, and less pain (Keefe et al. 2001).

Table 5 Religion and quality of life

Ref	Location	Disease type	Patients	Main religion	Religious results and conclusions
Stewart et al. 2010	USA	OAG, OHT	248	Christian 100%	The response to the comfort questions was statistically separate from the patients that were religiously adherent and not adherent. The patients that had higher maturity questions had greater benefit from the comfort questions. Religious patients can subjectively cope with treatment better and religiosity increases self-confidence and possibly QoL.
Keefe et al. 2001	USA	Rheumatoid arthritis	35	N/A	Individuals who had daily spiritual experiences had more positive moods, less negative moods, and less pain on days they rated their religious coping as high. Daily spiritual experiences and religious coping are important in understanding people with rheumatoid arthritis.
Chen et al. 2010	Taiwan	Oral cancer	165	Buddhism 91%	Religion was the highest correlated with each need and therefore plays an important role.
Baetz and Bowen 2008	Canada	Chronic pain/fatigue	37,000	N/A	Religious persons were less likely to have chronic pain or fatigue and individuals who were spiritual but did not attend regular worship were more likely to have these conditions. Consideration of a person's religious/spiritual beliefs may be an additional method to coping with chronic pain and fatigue.
Cotton et al. 1999	USA	Breast cancer	142	N/A	Positive correlation between spirituality and QoL, also between adjustments of attitude. Spirituality contributed little additional variance to QoL. The relationship among the variables are complex and more indirect than previously thought
Fitchett et al. 2004	USA	Diabetic, congestive heart failure, oncology	248	Christian	15% had moderate/high levels of religious struggle, religious struggle associated with higher levels of depression. Younger patients and ones with CHF had highest levels of religious struggle.
Silvestri et al. 2003	USA	Lung cancer	357	Christian	Doctors and patients are influenced to make decisions differently. Faith plays an important role in how patients make decisions.

Table 5 continued

Ref	Location	Disease type	Patients	Main religion	Religious results and conclusions
Kumar and Jiven 2007	UK	Any ocular disease	200	Muslim	Most patients would use a treatment during Ramadan if vision was helped.
Park and Nachman 2010	USA	HIV	20	Christian	People who had excellent adherence had significantly higher religious beliefs than those who did not.

Ref Reference, *CHF* congestive heart failure, *OAG* open-angle glaucoma, *OHT* ocular hypertension, *USA* United States of America, *QoL* quality of life, *N/A* not applicable

Chen and associates found in oral cancer patients in Taiwan, mostly of Buddhist faith who suffered anxiety, that those with religious beliefs demonstrated lower care needs including physical, daily living, psychological, and cancer-specific needs (Chen et al. 2010). Further, Baetz and Bowen found in patients of unreported religion with chronic pain as well as fatigue that religious persons were likely to have less symptoms than individuals who did not attend regular worship (Baetz and Bowen 2008). Further, Cotton and coworkers found in Canadian women, of unreported religion, with breast cancer that spiritual well-being was strongly positively correlated with a fighting spirit, taking 1 day at a time, counting blessings, and making the most of life, and negatively correlated with helplessness/hopelessness, anxious preoccupation, and cognitive avoidance (Cotton et al. 1999).

In contrast, Fitchett and associates noted in diabetic or congestive heart failure patients that 15% demonstrated moderate to high levels of religious struggle, which was associated with higher levels of depression, especially in younger patients and those with congestive heart failure (Fitchett et al. 2004).

Treatment Adherence

Religious belief may be associated with greater treatment adherence (Table 5). Silvestri and coworkers noted that lung cancer patients ranked the doctor's recommendations first and faith in God second when evaluating treatment options. The authors indicated, however, that doctors and patients may make decisions differently, with faith playing an important role in patient decision making (Silvestri et al. 2003). Kumar and Jiven observed in Muslim patients in the United Kingdom, with any ocular disease, that during Ramadan, 64% believed following prescribed treatments would break the fast (Kumar and Jiven 2007). However, 76% said they would use a treatment during Ramadan if their vision was threatened. The authors concluded that Ramadan could be a cause of treatment non-adherence. Park and Nachman in AIDS patients between the ages of 14 and 22 years found that excellent treatment adherence was associated with greater religious beliefs (Park and Nachman 2010).

Medical Knowledge and Religious Belief

Several studies have indicated that greater spirituality is generally associated with more knowledge about a patient's disease (Table 6). Sathyamangalam and associates found, in

Table 6 Medical knowledge and religious belief

Ref	Location	Disease type	Patients	Main religion	Religious results and conclusions
Sathyamangalam et al. 2009	India	Glaucoma	1926	Hindu 83%	Religion, females, higher education, age, and family history play determining factors in knowledge about glaucoma.
Rani et al. 2008	India	Diabetes mellitus, diabetic retinopathy	1938	Hindu 86%	Christians knew most about diabetic retinopathy.

Ref Reference

an urban glaucoma population, that greater knowledge about this disease was associated with practice of religion, female gender, higher education levels, older age, and family history of glaucoma (Sathyamangalam et al. 2009). Rani and coworkers, in a rural health clinic, found that Christians and people from social economic upper strata knew most about diabetes and retinopathy (Rani et al. 2008).

Discussion

This review indicates religious faith is important to many patients, particularly those with serious disease, and that patients depend upon it as a positive coping mechanism. Further, many patients react positively to a physician's spiritual interaction with them, especially with greater severity of their disease. Importantly, religious practices, including prayer, generally provide positive results in the patient's life and treatment as determined by measurable factors such as patient knowledge about their disease, adherence to treatment, disease coping, quality of life, and overall of health outcomes.

The reasons for these benefits are not completely understood by the findings in the articles themselves. However, they may be derived potentially from the effect of religion in the patient's life that encourages them to generally maintain a positive attitude, be respectful of medical staff and their treatment decisions, as well as provide a comforting hope for a potential cure and/or their eternal future. Additionally, perhaps, the structure of religious practice itself may provide the necessary discipline to encourage the patient to learn about their disease and adhere to treatment. Further, the more a patient practices the positive aspects of their religion, the greater the demonstration of benefits on how they cope with their disease and treatment. In contrast, patients' struggles related to perceived anger from God or being unloved by God, are associated with poorer health outcomes.

Interestingly, the impact of prayer on the course of a disease appears inconsistent. This is especially true with cardiovascular disease and systemic hypertension, in which prayer was associated with no effect at least as often as with a positive impact. In contrast, prayer is associated generally with positive clinical outcomes in non-cardiovascular diseases including rheumatoid arthritis, head injuries, inflammation, and infection. The reason for the apparent benefit of prayer in some cardiovascular disease studies and generally in non-cardiovascular disease trials was not clear in the study results.

How should a physician handle a patient's religious faith? In general, a physician might choose one of three directions in interacting with a patient's faith. First, a *secular*

approach: A physician might assume that God does not interact with a patient, their disease, or treatment. The physician could use the positive aspects of a patient's faith to further encourage their knowledge about the disease, adherence to treatment, and the use of faith as a coping mechanism. In one sense, this is the easiest choice because it allows the physician to contain religious-based interactions with the patient within the framework of the scientific literature. However, such an approach might be perceived by the patient as impersonal or as lacking respect for their religion.

Second, *humanistic approach:* The physician might assume that a loving God exists and interacts equally among adherents in all faith groups. This approach allows the physician to be positive toward all religions and limits their need to learn specifics about each. However, it does have the disadvantage that the lack of knowledge about a patient's individual religion may limit their ability to counsel because their approach may appear unknowledgeable or insincere.

Third, *religion-specific approach:* The doctor might assume that if God exists, then the Deity would manifest certain characteristics consistent with a set of religious literature (i.e., Judeo-Christian God, Muslim God, or Hindu pantheon). This approach has the advantage of providing better counsel to patients of a specific religion, in which the physician might personally believe, in a more sensitive and knowledgeable way. For example, in Christianity, a patient struggling over guilt or fear of punishment by God, which has been linked to negative disease outcomes, might receive encouragement from a physician knowledgeable in Christian tenets. Since Christianity bases acceptance by God solely on faith and not upon a system of works, the patient could be counseled in the proper precepts of this religion (Ryrie 1981). However, the disadvantage of the religion-specific approach is that the physician potentially may have difficulty in counseling patients of other faith groups for which they are not knowledgeable.

This review suggests that patients frequently practice religion and interact with God about their disease state. This spiritual interaction may benefit the patient by providing comfort, increasing knowledge about their disease, greater treatment adherence, and quality of life. The results of prayer on specific disease states appear to be inconsistent with cardiovascular disease but stronger in other disease states.

Many research avenues remain open regarding religion and disease, including better controlled studies relating the impact of religion on a patient's quality of life and disease, as well as research that evaluates how physicians can best interact with a patient's religious beliefs and encourage them to use their religion to cope with their disease. Research regarding prayer is especially difficult and should be carefully designed. Past research generally has assumed that healing is the only positive response to prayer. Although true from a human standpoint, it makes assumptions about the Deity apart from the tenets of the associated religion.

Further, the great majority of available research about religious practices and medicine is derived from the United States, primarily in Christians. Importantly, cultures differ across the world and dogma differs across religions. Therefore, the results in this review might not reflect research performed in other countries or in religions with beliefs differing from those of Christians.

Acknowledgments This study was supported clinically by Teleios, Inc., a private foundation. PRN Pharmaceutical Research Network, LLC received no financial support from any private or government funding source. None of the authors have any proprietary interests or conflicts of interest related to this submission. This submission has not been published anywhere previously and is not simultaneously being considered for any other publication.

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