

Religiosity and Health Outcomes: Review of Literature

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ABSTRACT

Research into a connection between religiosity and health was neglected in scientific circles until recently. However, the interest in interactions between religiosity and mental and physical health has started to grow lately. A large proportion of published empirical data suggest that religious commitment shows positive associations with better mental and physical health outcomes. There are relatively few studies showing no effect or negative effect of religiosity on health outcomes. Despite somewhat inconclusive empirical evidence, because of the difficulties encountered in studying the topic, this area is worth of further investigation. The article reviews the literature on epidemiological and clinical studies regarding the relationship between religiosity and mental and physical health. The mentioned issues are discussed and directions for future research are proposed.

Key words: *religiosity, religion, mental health, physical health, mortality*

Introduction

Until recently, assessing patients' religious beliefs in medical settings was considered unnecessary or even inappropriate. In former times, medical and spiritual care was often provided by the same person, but later, passionate conflicts characterized this association. Medicine became grounded in Cartesian philosophy of science, which viewed mind and body as separate. The body was seen as appropriate for science and mind and soul for the church¹. Sigmund Freud, a pioneer of psychoanalysis and psychology at large, considered religion as »the universal obsessional neurosis of humanity«². In congruence with Freud, psychology and religion have often been perceived as divorced entities. As a result of this dissociation, the psychological effects of religion have been grossly under examined within the larger body of empirical research and literature.

The situation has changed substantially during the last few years. This recent change in addressing religious or spiritual issues in scientific research is a result of a growing interest in ethnocultural differences, challenged confidence in scientific methods »free« of ethical, philosophical or spiritual values of the subjects as well as an increased interest in the spiritual issues in general population³. The American Psychiatric Association has recently passed the resolution stating that: »It is

useful for the clinicians to obtain the information on the ideological or religious orientation of their patients so they could properly attend to them in the course of treatment«^{3,4}.

Research in religion and health constantly accumulates⁵, but the critiques, as Sloan's et al., point out the ethical considerations of such research and evaluate positive associations as weak and inconsistent⁶.

Religiosity is an important component of many people's lives. In the United States, over 95% of the population believes in God and more than 40% attend church regularly⁷. Given the prevalence and importance of religiosity in the population, it is reasonable to consider the impact that religious beliefs, practices and traditions may have on physical and mental health outcomes and thereby clarify the contradictory positions in the existing literature, which is the objective of our review.

A specific definition of religion and religiosity remains to be the subject of debate. For most, religion involves a social or institutional dimension. Webster's dictionary defines religion as: »a set of beliefs concerning the cause, nature and purpose of the universe...usually involving devotional and ritual observances and often containing a moral code for conduct of human affairs; set of beliefs and practices generally agreed upon a

number of persons⁸. The concept of spirituality is broader and much harder to define and measure. Spirituality includes belief in a higher being, the search for meaning, and a sense of purpose and connectedness and may or may not be rooted in the organized church⁹. Traditionally, it was part of religiosity and these two concepts have been distinguished within the past few decades as the society became secular. Studies of spirituality and health outcomes are fewer in number and recent in origin and the instruments for measuring spirituality are just beginning to be developed¹⁰.

We have used Medline search using keywords: »religiosity«, »religion« occurring together with »mental health« and »physical health«. We have also examined reference sections of the relevant articles to obtain other relevant references. Mainly the studies that measured religiosity according to the previously mentioned definition have been considered. This concept is clearer and more operational. We have excluded the studies that assess yoga, meditation, various forms of distant healing, trials designed to assess implications of religious motives for refusing therapy and, because of the length of the article, the use of religion in psychotherapy. Health outcome has been defined as any outcome that can be quantified by reproducible and medically established diagnostic criteria.

We have organized our review according to health outcomes, discussing separately mental health outcomes and physical health outcomes. First, we briefly address the mechanisms of interactions between religiosity and health and then review the studies of depression, anxiety, addiction and schizophrenia as major groups of mental disorders. Next, we address the impact of religion on physical health and review the studies of religion and mortality, as very obvious health outcome, and studies of most often researched physical illnesses that also pose a serious threat to public health: cardiovascular diseases, acquired immune deficiency syndrome (AIDS), states of physical disability and cancer.

Mechanisms of interaction between religion and health

Although there is no direct empirical research, the literature indicates three main ways religion impacts health: 1) religion provides framework to cope with and reduce stress of difficult life situations, 2) religion provides an outlet for social support, 3) religion promotes healthier living habits. Besides, we discuss some other potentially significant mechanisms of religion's impact on health.

The cognitive psychological model considers religion as the coping mechanism used in cognitive structuring of life. In Beck's cognitive model of depression, decisive factors are hopelessness, pessimistic expectations about one's self, the environment and the future¹¹. An important feature of religion is that it tries to mobilize or restore hope, which is likely to counteract hopelessness. In their stress-vulnerability model, Brown and Harris argue that loss events produce hopelessness impairing

self-esteem, which further leads to generalization of hopelessness and development of depression¹². Religion prevents pessimistic attribution and may influence stress-vulnerability equilibrium by decreasing hopelessness.

Religion is a frequently cited mechanism for dealing with problems in life. It seems to become especially important once an illness, particularly a life-threatening one, is diagnosed in a person. About 40% of people older than 60 years use religion as the main way of coping with stress, when they are hospitalized for somatic illness³. Those who use religious means of coping seem to cope more effectively with their illness than those who do not use religious means of coping¹⁰.

Studies of religious coping show little change over time in patients with a treatable disease and an increase in religious coping in patients with a terminal disease^{10,13}. In our preliminary, yet unpublished study of religiosity and depression, 68,7% of patients with various stages of breast cancer, regardless of whether they were depressive or not, we expressed the opinion that faith was helpful in disease coping, although diagnosis of depression was significantly associated with the item »illness challenged my faith«. Another study of 100 hospitalized patients about to undergo cardiac surgery also identified religious practice as important for coping with the stress of impending surgery. The researchers found that 96% of the patients used prayer as a coping mechanism. When asked how helpful they found prayer to be, 70% of those patients indicated that prayer was »extremely helpful«¹⁴. Ethnicity and cultural context also have an important role¹⁰.

In all cultures, religion has always filled an existential gap¹⁵. Religion provides a way to understand the world; it is an effective basis for self-worth, especially a collectively based one. It is capable of offering a profound meaning to human life, and it puts suffering into context. Although other concepts, for example science, might give certain sense of control to agnostics and atheists, they do not even closely fulfill human needs for sense, comfort and meaning that religion offers¹⁶.

In McAdams tripartite framework of the personality, level III concerns with how people make sense in the world, with whom they are and how they create life stories that provide their lives with overall unity, meaning and purpose. The frame religion offers, may indicate a way to confront uncontrollable events by reinterpreting them. Religion might function as identity maintenance system providing a bridge between individualistic and collectivistic identities and protecting identity from fragmentation in the face of pressure¹⁷.

Religious behaviors, such as prayer or other group rituals, activate attachment processes that connect people both to one another and their conception of God¹⁸.

Another concept connected to personality psychology is the concept of spiritual intelligence. Some researchers add this concept to Gardener's concept of multiple intelligences. Emmons argues that religiosity is an aspect of

adaptive functioning that raises the possibility for reaching goals. It impacts the ways of how people view the world, solve problems and it includes the capability of forgiveness, gratitude, compassion and wisdom. According to this, truly religious persons could be more efficacious in adapting to trauma and they find meaning in suffering more easily¹⁷.

Stress is in the etiology of many mental and physical illnesses. The impact that religion may have on health could be explained through the theories of stress. Religion might protect against distress, because it enhances social support. Ellison developed a model of the ways through which religious involvement enables the receipt of social support: 1) regular religious fellowship provides access to constant and like-minded individuals that provide both emotional and tangible support during a stressful life event or chronic stress and 2) when faced with a stressful life event active religious fellowship enables individuals to ascribe a meaning to the event within a larger context that offers greater meaning, and therefore individuals experience the event less negatively. This model implies that active religious participation can be a source of support, which in turn may help to buffer the effects of stress and promote well-being¹⁹.

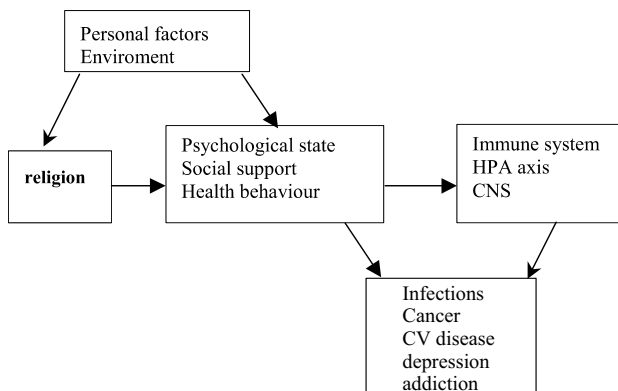


Fig. 1. Diagram of potential interactions of religion and disease.

Abbreviations: HPA – hypothalamic-piruitary-adrenal, CNS – central nervous system, CV – cardiovascular.

Note: Though above model is presented with unidirectional arrows clearly some factors might be bidirectional and multidirectional.

The impact of religion on psychical and mental health may be understood in the frame of new advances in psychoimmunodocrinological research. Psychic, immune and endocrinological statuses have to be in balance to maintain homeostasis and prevent disease. Both emotions and religious feelings may influence immuno-endocrinological function²⁰. Social support can function as a stress buffer, reducing plasma level of cortisol elicited by stressors, be a predictor of longer survival among cancer patients, lower risk for cardiovascular disease and enhance rehabilitation after stroke^{21–23}. Higher lev-

els of stress and depression are associated with release of hormones, such as cortisol that impairs immune function, and we can hypothesize that religious commitment improves stress control and even has an immunomodulatory role²⁰. The study of Koenig et al. with 1718 older adults showed that those who regularly attended church were half as likely as non-attendees to have elevated level of pro-inflammatory cytokine, interleukin-6²⁴. Twin studies of religiosity are rare, but show that intensity of personal religious involvement is influenced by both environmental experiences and temperamental factors, that are partly under genetic control²⁵.

Potentially substantive pathways connected to better health outcomes include reductions in risky behaviors such as smoking, drug use, alcohol use, obesity, and unsafe sexual practices^{26,27}. Religiosity has been associated with improvements in marital-family stability^{28,29}. God control, perceived as health locus of control in religious individuals seems protective against health risk behaviours¹⁰.

Some of the possible interactions between religion and health are shown on Figure 1.

Religion and Mental Health

Depression

Even Freud, although negatively described religion as universal obsessional neurosis, thought that believers were protected against certain kinds of neurotic illnesses². The majority of studies show that religiosity could lower prevalence and incidence of depression⁵. However, results across studies are not consistent. Relations between depression and religiosity change depending on how religiosity is practiced or which aspects of religiosity are measured. There is also a question of various religious affiliations, and possible differences among them result in different psychosocial resources.

Jews score higher in depressive measures compared to Christians, and that could be a result of genetic differences, lower rates of alcoholism among men that contribute to higher rates of depression, or marginalization of this group in multiethnic communities³⁰.

Cross-sectional studies mainly show negative correlations between religiosity and depression⁵, but after controlling for age, marital status and race, Ferraro found a decrease in associations, while Brown et al. and Fehring et al. found falls to non-significant level^{31,32}. Allport, a pioneer in research of religion, differentiated between intrinsic religion (religion worth of itself) and extrinsic (strictly utilitarian motivation for religiosity: comfort, security, affirmation)³³. Most of the research shows that people involved intrinsically in religion are at substantially reduced risk of depression, while people involved in religion for reasons of self-interest (extrinsically) are at higher risk of depression³⁰. However, religiosity may enlarge the burden of guilt for some people who feel that their illness resulted from their own moral failure. On the other hand, it should be noted that the

burden of guilt is not unique to religion. Patients who cannot lose weight or those who get cancer or AIDS might feel that they caused their disease by engaging in behaviors that increase health risks.

Although most of the studies are cross-sectional, there are several prospective studies that examine if religious involvement could influence recovery from depression. Koenig et al. conducted a one-year long follow-up study of 87 older patients, who had been diagnosed with depressive disorder after admission for the physical illness, to assess the severity and persistence of their depressive symptoms. For every 10-point increase in a person's intrinsic religiosity, as measured by a scientifically validated questionnaire, there was a 70% increase in the speed of recovery from depression. The more religious showed higher speed of remission from depression³⁴. In a one-year follow-up study Braam and colleagues found that people who indicated religion to be one of the three most important things in their lives had significantly less chance of becoming depressed in comparison with those who did not ascribe such importance to religious faith³⁵.

Gartner and colleagues found that religious commitment was inversely related to suicide in 13 (81%) out of 16 of the reviewed studies, and no study showed positive correlation³⁶. Commitment to religious beliefs was the strongest buffer against suicidal ideas in adolescents and moderated the effect of depression on suicidal risk³⁷. Neeleman et al. conducted a cross-sectional study of age and sex specific suicide rates across 26 European and American countries showing a strong association between religiosity and lower suicide rates in men. This suggests that suicide acceptance depends not only on personal but also on contextual levels of religious belief, and that men are more sensitive to this phenomenon than women³⁸. There are opposite results of Sorri and colleagues who have found a high religious activity in 18% of all suicide victims in Finland over 1-year period, as well as heavier burden of major mental disorders among religious than nonreligious suicide victims³⁹.

Anxiety

As in depression, intrinsic religiosity has been associated with lower levels of general anxiety in comparison to extrinsic religiosity, although with differences in outcomes for various religious affiliations¹⁰. Patients with panic disorder may overemphasize the concept of sin, which could lead to additional panic. Negative outcomes among anxious persons were found also among those with a strict religious upbringing⁴⁰. Harris et al. followed heart transplant recipients through the first year after the transplantation. Frequent church attendees reported less anxiety and had higher self-esteem than non-frequent attendees⁴¹.

Considering both the positive and negative associations between religiosity and anxiety, further research is needed to investigate factors in religion that influence the outcomes.

Addiction

Religious involvement may promote health-related behaviors and life styles that lower disease risk and discourage behaviors that increase health risks, such as the use of tobacco and abuse of alcohol and other drugs³. The use of faith in Higher Power in the treatment of alcoholism and other substances abuse is well known in Alcoholic Anonymous (AA) and similar organizations⁴². AA group meetings provide support to its members, and emphasize developing and strengthening the God locus of control over health. Religious commitment is also identified as the factor that could decrease the risk of substance abuse in adolescents^{43,44}. In 11 out of 12 published studies dealing with alcohol and other drug abuse, religious commitment was linked to a reduced risk of addictive behavior³⁶. Religiosity was one of the factors most strongly negatively correlated with alcohol, marijuana and other drug use^{3,10}. Gorsuch reports that nurturing and supportive religious experiences are associated with a decreased substance use, whereas religiosity, characterized as restrictiveness, harshness and punishment, may be associated with substance abuse⁴⁵.

Schizophrenia

Understanding patients' perceptions in the light of their religious background might be necessary for proper diagnosing of schizophrenia, but also helpful in intervention strategies⁴⁶. Religious coping methods have been shown to have positive effects on individuals with diagnosed schizophrenia, as well as on their families. For individuals who share the same religious values as their families' religiosity could be a cohesive force^{10,46}.

Aside from the inverse relationship between religiosity and depression and religiosity and substance abuse, generally, individual differences in religiosity bear little relation to individual differences in current or lifetime psychopathology²⁵.

Religion and Physical Illness

Religion and mortality

Most of the research shows that religious commitment might increase longevity. A meta-analysis of data from 42 studies examining the association between a measure of religious involvement and all-cause mortality reported that religious involvement was significantly associated with lower mortality, indicating that people with high religious involvement were more likely to be alive at a follow-up than people with lower religious involvement⁴⁷. Data from the majority of these studies show that the measures of public religious involvement (i.e., religious attendance) may be more strongly related to health outcomes than the measures of private religiousness (e.g., self-rated religiousness, frequency of private prayer, or use of religion as a coping resource)^{10,47}. A century ago, Durkheim suggested in his research that the association between religious involvement and physical health might be more closely tied to

the psychosocial resources that religion provides than to more private forms of religious expression. He assumed that a religion that fosters social ties might increase longevity and reduce suicide rates (largely in Roman Catholic countries – Spain, Portugal, Italy) compared to religiosity in Protestant countries, as for example in Scandinavia, where social ties as are not encouraged by religion⁴⁸. Krause conducted research that shed light on this point. He followed 819 older adults for 4 years and measured three dimensions of religiosity: organizational (attending church), non-organizational (watching religious programs, reading Bible) and coping with stress (reliance on religious guidance in crisis). It appeared that favorable associations were confined only to the organizational religious involvement, the non-organizational involvement had no association, and using religion to cope with stress was related to greater probability of mortality⁴⁹.

These relations are complicated by a possible confound: healthy persons might be more likely than the unhealthy to attend public religious activities⁴⁷, although Stawbridge et al. found that frequent church attendees had more mobility problems at the baseline than the infrequent²⁷. Future research is needed to establish why, given the typically high correlation between public and private religion, some measures are, and others are not, related to mortality. The association between religious involvement and mortality can be explained in part as a function of other demographic, psychosocial, or health-related variables, which should be regularly controlled.

Cardiovascular diseases

Larson et al. explored the relationship between religion and hypertension by comparing the blood pressure of religious smokers and non-smokers. Smokers who attended church at least once a week were 4 times less likely to have an abnormal diastolic pressure than smokers who attended church infrequently. They concluded that religious commitment might contribute to the prevention of health problems even among people who engage in risky behaviors like smoking⁵⁰.

The rate of hypertension-related morbidity and mortality were lower in conservative religious groups such as Seventh-Day Adventists and Mormons than in compared populations³. Levin and Vanderpool posited that adherence to health-promoting behaviors as abstaining from alcohol, red meat or tobacco could partly explain these lower incidences⁵¹. Religious commitment, they suggest, may promote greater peace, self-confidence and sense of purpose that characterise type »B« personality that seems to be protective against coronary heart disease⁵². Besides, religious practices as prayer or meditation may elicit relaxation, which has been shown to reduce muscular tension, reduce activity of sympathetic nervous system and lower blood pressure, heart rate and oxygen consumption⁵³.

The study of Stiffen et al. investigated the relationship between religious coping, ethnicity, and ambula-

tory blood pressure (ABP), measured during daily activities and sleep. After controlling for demographic variables, the investigators found a significant religious coping by ethnicity interaction for ABP and concluded that among African Americans, religious coping and BP are related during daily activities. They further hypothesized that lower 24-hour BP load may be a pathway through which religiosity impacts cardiovascular health⁵⁴.

However, there are also some opposite findings. King et al. followed 250 (125 cardiology and 125 gynecology) patients. Those with stronger spiritual beliefs were 2.3 times more likely to remain the same or deteriorate clinically at a 9-month follow-up. The authors proposed the explanation that the more seriously ill were drawn closer to their faith and this led to poorer outcome or that patients with stronger beliefs took up less struggle to recover due to their existential beliefs in afterlife⁵⁵. The subject claims for further research.

AIDS

Studies suggest that the factors that reduce psychological stress and increase social support may affect the course of AIDS through immunological mechanisms⁵⁶. In accordance with these data Woods et al. surveyed 106 HIV positive gay men to determine whether religiosity (measured as religious activities or religious coping) was associated with less depression and better immune function. Religious activities were associated with significantly higher CD4+ counts and CD4 + percentages (also known as T-helper inducer cells that are an early measure of disease progression and which low counts reflect a diminished capacity to fight infection). Religious coping was related to lower depression scores, but not to specific immune parameters. Possible explanation for the latter finding might be that individuals with more severe disease turn to religious coping and so disguise possible cross-sectional associations⁵⁷.

Although religious organizations vary in their attitude to patients afflicted with AIDS, sometimes having organized support networks, many individuals with AIDS feel alienated from formal religious institutions that often have been antagonistic towards their lifestyle (as homosexuality, or drug abuse). Fears of stigmatization, or the view of illness as a punishment could lead to increased anxiety, depression, sense of guilt and reluctance to engage in spiritual resources¹⁰.

Physical disability

The relationship between an individual's religious commitment and coping seems to be most substantial among people with high levels of disability. In a 6-year follow-up study Idler and Kasl investigated the effect of religious involvement on functioning and the effect of disability on religious practice. They reported that the relationship between physical illness and functional disability (assessed by the activities of daily life and physical performance measures) was moderated by the respondent's level of religiosity. As religiosity increased, a greater level of physical illness was required to produce

any given level of perceived disability and vice versa. Religious commitment also seemed to moderate the relationship between disability and depression: as religious commitment increased, the relationship between disability and depression became weaker⁵⁸. Koenig et al. replicated Idler's findings using data on elderly, in-patients and again found that the positive correlation between disability and depression was strongest among the least religiously involved subjects and progressively weakened among individuals who were most likely to use religion as a coping strategy⁵⁹.

In Pressman's study of elderly women with broken hips, religiosity was associated with better ambulation status (measured by the assistance required and linear distance walked) after discharge, although this association was non-significant when depression was controlled, implying that their status at discharge might have been at least partly mediated by the effect of religiosity on depression⁶⁰.

Cancer

Lower rates of cancer morbidity are found in populations of strict religious groups as Mormons. Although part of the lower rates could be explained by low alcohol and tobacco consumption in highly religious groups⁶¹, there is also a link in psychoneuroimmunology, the effect of social support that religiosity bolsters to enhance immunity and a favorable effect of religiosity on stress amelioration that is connected to mechanisms of carcinogenesis⁶². Utah has the lowest female malignant breast cancer incidence rates in the United States due in part to the low rates among Mormon women. Mormons' religious doctrine is very restrictive, and Mormon women that scored highly on religiosity assessment are characterized by factors that are associated with lower risk of breast cancer: more pregnancies, a later age at first pregnancy, less likelihood of oral contraceptive use, fewer hysterectomies, less smoking and alcohol use and more often and longer breastfeeding⁶³. The similar is valid for colon-rectum, cervix cancers, leukemias and lymphomas in Mormon population⁶¹.

The infrequent attendance at religious services (less than once per month) was associated with a regional/advanced stage of colon cancer diagnosed in Whites, but not in Blacks. Religiosity was associated with more advanced stages of colon cancer in Blacks⁶⁴.

Two studies of patients with cancer^{65,66} found that religious involvement was not associated with mortality, contrary to the previously mentioned studies in general population. Some argue that religiosity could have more health promoting than risk reducing role, and this could be a possible explanation⁶⁷.

Some researchers wondered if religious involvement might have negative impact on early detection of cancer by fostering fatalistic expectations or perception that healing is in the hands of God and not conventional

medicine. The study of lower income African Americans suggests that although fatalistic attitude is common, these expectations are not linked to religious involvement^{10,68}. On the other hand, breast cancer patients with higher levels of spiritual faith were less likely to receive testing on BRCA1/2 genes (mutations in BRCA1 or BRCA2 are associated with a significantly increased risk of developing new primary cancers), because they were less motivated to understand the cause of their cancer and showed greater acceptance of the disease. This effect of spiritual faith on testing decisions was dependent on a woman's perceived risk of developing cancer again⁶⁹.

Other issues considering diagnosis of cancer are adjustment to illness, impact on treatment adherence, decisions about terminal care and coping. All those areas are just beginning to be seriously researched^{10,70}.

Conclusion

Religious involvement could be associated with, or mediated by, a variety of demographic, psychosocial, and physiological variables, such as age, gender, race-ethnicity, social support, psychological well-being, health practices such as exercise, diet and smoking⁶⁷. Researchers who investigate religion and health outcomes should control for all of the socio-demographic, social, and health variables that are known to be risk factors for certain diagnoses. Religiosity is multidimensional and has to be assessed accordingly.

Although the evidence of an association between religion and health has been criticized as weak and inconsistent⁶, it cannot be denied that the majority of studies show a relationship between greater religious involvement, and better mental and physical health. Considering the previously mentioned limitations of current state of research, understandable for a field in its early stage, there are relatively few studies showing no effect or negative effect of religiosity on health outcomes. However, there are many open questions. Additional research is needed to assess the mechanisms of how religion could affect health, what aspects of religion might do so and how these findings may be applied to clinical practice.

Over the past several decades a dualistic biomedical model has evolved to bio-psychosocial⁷¹ with the view that illness and health are the interactions of biological, psychological and socio-cultural influences. Given the prevalence and importance of religiosity in population, a regular inclusion of religiosity and spirituality measures in health research studies is needed in order to understand the integration of mind, body and spirit and to move toward a biopsychospiritual model of quality of life⁷².

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RELIGIOZNOST I ZDRAVLJE: PREGLED LITERATURE

SAŽETAK

Istraživanje povezanosti religioznosti i zdravlja je donedavno zanemarivano u znanstvenoj literaturi, no zanimanje za interakcije religije, mentalnog i tjelesnog zdravlja je u zadnje vrijeme značajno poraslo. Većina objavljenih empirijskih podataka govori o pozitivnoj povezanosti religioznosti i zdravstvenog stanja. Relativno je malo istraživanja koje ne ukazuju ni na kakvu povezanost ili ukazuju na negativnu povezanost. Usprkos donekle nedorečenim rezultatima, zbog poteškoća u istraživanju ovog područja, ovakva su istraživanja i dalje potrebna. Članak se bavi pregledom literature epidemioloških i kliničkih istraživanja vezanih za odnos religioznosti, te mentalnog i tjelesnog zdravlja. U članku se raspravlja o navedenim područjima i daju preporuke za daljnje istraživanje.