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The Doubting Process: A Longitudinal Study of the Precipitants and Consequences of Religious Doubt

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Abstract

Religious doubt arises from a process in which there is a precipitant, the experience of doubt, a coping response, and a health-related outcome. We explore this process by assessing whether social factors precipitate doubt and the coping responses that are invoked to deal with it. Moreover, we evaluate whether these coping responses are, in turn, associated with health. The data reveal that, over time, people who encounter more negative interaction with fellow congregants have more doubts about religion, whereas more spiritual support and greater involvement in prayer groups are associated with less religious doubt. The findings further indicate that people who encounter more negative interaction are more likely to suppress religious doubts, but people who attend Bible study groups are more likely to seek spiritual growth when faced with doubt. Finally, the results suggest that suppressing religious doubt is associated with less favorable health, whereas seeking spiritual growth does not have a significant effect.

Introduction

People have had doubts about religion for thousands of years. Evidence of this may be found, for example, in the work of Euripides, a Greek playwright who was born in 485 B.C. In one of his plays, *Hippolytus*, a chorus chants the following verses: “Verily, it is a great thing to believe in gods that care; it soothes the grief of the believer. Though my secret heart hopes in an intelligent Providence, yet when I look at all the misfortunes of men and their actions, the hope fails me” (Euripides 1981: 91). Although doubt has continued to be discussed through the ages (see Hecht 2003), it was not until recently that scholars began to ask whether doubts about religion exert an adverse effect on physical and mental health. There is some evidence that they may. Ellison (1991) was one of the first to explore this issue. He studied religious certainty, which is operationally defined as the absence of religious doubt. His research reveals that greater religious certainty is associated with greater happiness and greater life satisfaction. These findings are supported by a small cluster of studies which suggest that people who have greater doubts about religion tend to experience more psychological distress (Galek et al. 2007; Krause 2003; Schieman, Van Gundy, and Taylor 2001), and rate their health less favorably (Krause and Wulff 2004), than individuals who do not have doubts about their faith.

Two important qualifications must be kept in mind when reviewing research on doubt and health-related outcomes: findings from research on religious doubt, health, and well-being are

inconsistent and the relationships among them are more complex than they may seem at first. For example, at least one longitudinal study found no association between doubt and psychological distress over time (Hunsberger, Pratt, and Pancer 2002). Second, there is some evidence that religious doubt may not affect all people in the same way. Krause, Ingersoll-Dayton, Ellison, and Wulff (1999) report that when doubts about religion arise, younger people are more likely than older individuals to experience psychological distress. More recently, Krause (2006) found in a study of older adults that the noxious effects of religious doubt on life satisfaction, self-esteem, and optimism are more evident among those with less education than among those with higher levels of education.

Given the underdeveloped nature of the literature on religious doubt and health, a number of issues need to be addressed. One issue has to do with the way the study of doubt is typically approached. Researchers have yet to fully appreciate that having doubts about religion is part of a larger process that unfolds over time. Focusing on three key issues helps to illuminate the nature of this process. First, in order to better understand religious doubt, it is important to delve more deeply into its basic nature. As the discussion in the following section will reveal, doubt may arise from a sincere and heartfelt desire to deepen one's faith. However, doubt may also be driven by a painful realization that there is a serious breach between the world that is espoused by religious traditions and the world as it is experienced by the individual.

Second, making a distinction between the positive and negative aspects of religious doubt is important because it draws attention to the beginning of the doubt process. More specifically, this issue highlights the need to identify the factors that cause one facet of doubt to emerge instead of the other. We suspect that the positive and negative aspects of religious doubt are triggered by factors that are distinctly social in nature. As we shall argue below, at least some of the factors that shape the nature of religious doubt may be found by focusing on the types of social relationships that an individual forms in the place where he or she worships.

Third, once the genesis of doubt is understood more fully, we flesh out the process by exploring how people cope with doubt, should it arise. People do not encounter doubt and then immediately experience some sort of health problem. Instead, they try to grapple with doubt by taking steps to resolve or eradicate it. Viewed in this way it is evident that health-related problems may either emerge or be avoided depending upon the coping responses that have been adopted.

We are unaware of any study that probes the root causes of religious doubt, examines the coping responses that are used to deal with doubt, and then assesses the relationship between these coping responses and health. Instead, the literature has developed in a piecemeal fashion, with some researchers exploring the ways in which religious doubt may arise (e.g., Batson, Schoenrade, and Ventis 1993), whereas other scholars take the presence of religious doubt as a point of departure and focus solely on the effects it may have on health and well-being (e.g., Krause 2006). Merging both approaches in the same study holds out the promise of deriving greater insight into the inner workings of this elusive, yet pervasive facet of religious life.

The Religious Doubt Process

Exploring the Dual Nature of Religious Doubt

The mixed findings that have emerged from research on religious doubt and health reflect uncertainty in scholarly discussions about the basic nature of doubt. Religious doubt is defined by Hunsberger and his colleagues as "... a feeling of uncertainty toward, or questioning of, religious teachings and beliefs" (Hunsberger, McKenzie, Pratt, and Pancer 1993: 28). However, when this definition is examined carefully, it is not clear why having doubts about religion should be either inherently good or inherently bad. In fact, there is a deep schism in

the literature over this issue. Some investigators argue that doubt by its very nature is harmful, whereas other researchers maintain that doubt is a good and necessary part of building a deeper faith.

With respect to the first perspective, Krause et al. (1999) point out that religious doubt may involve an unsettling state of indecision that arises from seeing the validity of two seemingly inconsistent points of view. Although these points of inconsistency may arise around any number of issues, one that is especially important for the current study involves the wider social life of a congregation. Membership in a community of faith signifies that a person endorses the basic teachings of the faith and will strive to uphold them. Moreover, it is understood that the other members of the congregation feel the same way. Violation of this implicit social contract creates an unsettling gap between the way congregational life is supposed to be and the way it actually is. Should this type of disjuncture arise, people may begin to question the basic premises upon which the faith is built and they may start to feel bitter and resentful. Cast in these terms, doubt may be viewed as a specific instance of the more general problem of cognitive dissonance (Festinger 1957). This is important because as Festinger argued some time ago, the inability to resolve cognitive dissonance promotes painful feelings of psychological distress.

In contrast to this negative view of doubt, other scholars have gone to great lengths to show that it should be embraced because only by doubting does one develop a deeper and more meaningful faith. The essence of this competing view was captured succinctly by Paul Tillich (1957: 73), who argued that "... doubt is not the opposite of faith; it is an element of faith." Similar views were expressed by Allport (1950: 73), who maintained that "... the mature religious sentiment is ordinarily fashioned in the workshop of doubt" (see also Fowler 1976). As the views of these scholars reveal, a deeper and more mature faith can only arise through relentless searching and questioning as the individual strives to reflect upon and reason out the finer nuances of his or her faith. The notion that doubt leads to greater understanding and personal development was captured some time ago by Goethe, who discussed the role that doubt plays in virtually any area in life, "But there is no permanence in doubt; it incites the mind to closer inquiry and experiment – from which, if rightly managed, certainty proceeds; and in this alone can man find thorough satisfaction" (as quoted in Eckermann 1836/1998: 190). Goethe's views are intriguing because they appear to presage issues involving coping responses ("... if rightly managed ...") and because he appears to link the successful resolution of doubt with well-being ("... in this alone can man find thorough satisfaction").

Developing a deeper appreciation for the dual nature of religious doubt is important because it makes it easier to see why contradictory findings have emerged in the literature. If doubt is a necessary element in the development of a deeper faith, then the effects of religious doubt should have a salubrious effect on health and well-being. But if doubt involves the inability to resolve contradictory elements of religious life, then it is not hard to see why it may exert a deleterious effect on health and well-being.

Social Relationships in the Church and Religious Doubt

The discussion that has been provided up to this point is useful, but it lacks the theoretical specificity that is needed to take work in this field to the next level. In order to sort out the complex effects of religious doubt researchers must devise specific propositions that can be evaluated empirically. One way to proceed involves identifying the factors that tend to promote the beneficial as well as the negative aspects of religious doubt. Although a number of factors may cause doubts to arise, such as stressful life events (Ingersoll-Dayton, Krause, and Morgan 2002), we focus on one that is inherently social in nature. More specifically, we propose that the nature of religious doubt is determined, at least in part, by the types of the social relationships that a person develops at the place where he or she worships. This orientation is

consistent with the broader notion that social relationships lie at the very heart of religion itself. Evidence of this may be found by turning to the work of James Mark Baldwin, who was one of the first presidents of the American Psychological Association. Writing in 1902, Baldwin argued that "... the fact is constantly recognized that religion is a social phenomena. No man is religious by himself, nor does he choose his god, nor devise his offering, nor enjoy his blessing alone" (p. 325).

Since that time, researchers have continued to highlight the central role that social relationships play in the church. For example, in his classic work, *The Sacred Canopy*, Berger (1967) maintained that religion arises from and is sustained by plausibility structures, which are socially constructed and socially maintained world views that define and guide religious beliefs and religious behavior. These theoretical advances have been supported by a host of empirical studies which show that social ties in the church help sustain religious practice and religious world views (Cornwall 1989), aid in the recruitment of new church members (Hayward 2005), and even drive newcomers away if cliques develop in a congregation (Olson 1989).

Arguing that social relationships in the church shape the basic nature of religious doubt is important, but delving into this issue creates a new set of challenges that arise from the fact that church-based social ties are a complex phenomenon in their own right (Krause 2008). Simply put, people may interact with fellow church members in a number of different ways and, as a result, it is important to identify the precise types of church-based social relationships that may influence religious doubt. One way to confront this challenge is to begin with the simple observation that some types of relationships in the church are positive, whereas others are negative. Viewing church-based social ties in this way makes it easier to map them onto religious doubt, which also has both positive and negative characteristics.

Positive social relationships in the church may arise in both formal and informal settings. With respect to the former, people may attend formal Bible study and prayer groups that are found in many congregations. The explicit purpose of these groups is to help people work through questions, concerns, and doubts they may have about religion in order to arrive at a deeper faith (Wuthnow 1994). But doubts about religion may also be resolved outside formal church groups. As research by Krause (2002a) reveals, people in a congregation may informally share religious experiences in order to help each other develop a deeper faith. Krause (2002a) refers to this type of interaction as spiritual support, which is defined as assistance that is provided with the explicit goal of increasing the religious commitment, beliefs, and behaviors of a fellow church member. For example, fellow church members may share their own religious experiences with their coreligionists or show them how to apply religious principles in daily life. Viewed more generally, this discussion of formal and informal relationships in the church is consistent with the observations of Stark and Finke (2000). Referring to religious beliefs as religious explanations, these researchers argue that, "An individual's confidence in religious explanations is strengthened to the extent that others express their confidence in them" (Stark and Finke 2000: 107).

In the analyses that follow, we test the hypothesis that greater involvement in Bible study and prayer groups is associated with fewer doubts about religion. Moreover, we propose that people who receive more informal spiritual support from their fellow church members should report having fewer doubts about their faith than individuals who are not helped in this way.

A small cluster of studies suggest that social interaction in the church is not always pleasant and that, at times, relationships among church members may become conflicted (Becker 1999). It is especially important to point out that a number of these studies reveal that greater negative interaction in the church is associated with more physical and mental health problems (Ellison, Zhang, Krause, and Marcum 2007; Krause 2003; Krause, Chatters, Meltzer, and

Morgan 2000; Krause, Ellison, and Wulff 1998; Krause and Wulff 2004). Negative interaction arises when fellow congregants are critical of each other, make too many demands on each other, are unwelcoming, and fail to provide assistance when a fellow church member is counting on it. Based on the observations of Exline and Rose (2005), we hypothesize that people who encounter negative interaction in the church will experience more doubts about their faith than individuals who do not experience interpersonal conflict with their fellow church members. Negative interaction may exacerbate feelings of religious doubt for the following reason.

One of the goals of virtually all the major religions in the world is to help people maintain better relationships with others. More specifically, the fundamental precepts of these faiths encourage parishioners to be compassionate (Wuthnow 1991), help people who are in need (Krause 2007), and forgive others for the things they have done wrong (Rye et al. 2000). Because these precepts are supposed to be endorsed by everyone in a congregation, people will expect social ties in church to be especially close and particularly rewarding. However, if conflict is encountered when a high degree of harmony is expected, a person may begin to question the core tenets of their faith. In the process, they may be overcome by the feeling that people in church are hypocrites. The problem of hypocrisy has been discussed for centuries. For example, writing more than two hundred years ago, David Hume made the following unsettling observation: "Hear the verbal protestations of all men: Nothing so certain as their religious tenets. Examine their lives: You will scarcely think that they repose the smallest confidence in them. The greatest and truest zeal gives us no security against hypocrisy ..." (1757/1993: 184–185). More recently, a study by Altemeyer (2004) revealed that hypocrisy was the most common reason given by people for becoming an apostate. So rather than leading to spiritual growth or providing other benefits, doubts that emerge from negative interaction are likely to have the opposite effect. More specifically, doubt arising from negative interaction with fellow church members is likely to call basic tenets of the faith into question without providing a clear cut way to resolve them. And as people linger with this type of doubt and uncertainty, the cognitive dissonance it creates is likely to have an adverse effect on their health and well-being (Festinger 1957).

Coping with Religious Doubt

The theoretical issues that were investigated in the previous section provide a step in the right direction, but they do not go far enough. As defined earlier, doubt involves feeling uncertain about religious beliefs and questioning basic teachings of the church (Hunsberger et al. 1993). But as we have already shown, merely knowing whether a person has questions about his or her faith reveals little about the effects of these uncertainties. Instead, more information is needed to disentangle the beneficial effects of doubt from the deleterious impact of doubt. One way to approach this issue is to explore the way people attempt to cope with the doubts that confront them. We examine two coping responses in the analyses that follow by asking study participants if they cope with doubt by seeking spiritual growth or whether they try to handle doubts by suppressing them. In the discussion that follows, we link these coping responses with the social relationships that were discussed in the previous section. In the process, we also show how relying on positive religious appraisals in the face of doubt and suppressing doubt may affect a person's health.

Doubt and seeking spiritual growth—Wuthnow (1994) reports that 97% of the Bible study group participants in his study indicate that being part of the group helped them grow spiritually. Unfortunately, he did not assess whether these spiritual benefits arose specifically in the process of grappling with religious doubt. Nevertheless, there is some evidence that this was true for at least some of his study subjects. One study participant indicated that prior to attending a Bible study group she was confused, frustrated, and "disillusioned," but

participation in the group helped allay these concerns and deepen her faith (Wuthnow 1994: 278). It is likely that a similar function is performed by people who informally provide spiritual support to a fellow church member. If the intent of providing spiritual support is to increase the religious commitment and beliefs of a coreligionist, then it follows that this type of assistance is likely to be given to those who are most in need – individuals who are wrestling with religious doubt. And if this informal spiritual assistance is effective, then support recipients will be motivated to seek out ways in which their faith has deepened and matured.

There do not appear to be any studies in the literature that examine the relationship between spiritual support and seeking spiritual growth. However, some indirect support for this relationship may be found in the work of Krause et al. (2001). The findings from their study suggest that greater spiritual support is associated with a greater reliance on positive religious coping responses in general (i.e., more trait-like religious coping). To the extent this is true, spiritual support from fellow church members may help people find beneficial ways of coping specifically with religious doubt. Consequently, we hypothesize that people who are involved in prayer groups and Bible study groups, as well as individuals who receive informal spiritual support from fellow church members, will be more likely to feel that wrestling with religious doubt has fostered spiritual growth.

In view of the fact that spiritual growth has frequently been discussed in the literature (Koenig, 1994), it is surprising to find that relatively little effort has been made to see if it is associated with health and well-being. Pargament and his colleagues are among the few investigators to empirically examine the factors that promote spiritual growth (Pargament, Magyar, Benore, and Mahoney 2005).¹ However, these researchers did not focus specifically on seeking spiritual growth when doubts about religion arise nor did they link this type of coping response to health and well-being. Nevertheless, by turning to secular research on finding benefits in the face of adversity, it is possible to see how spiritual growth that arises in the process of struggling with religious doubt may have beneficial health-related effects.

A rapidly growing literature reveals that people who are faced with traumatic life events (e.g., exposure to extreme violence) often find they have changed in a positive way because of their ordeal (Tedeschi and Calhoun 2004). The realization that they have grown in this way bolsters their sense of self confidence, enhances their feelings of control, and helps them derive a deeper sense of meaning in life. This is important because extensive bodies of research reveal that people with a greater sense of self worth (Trzesniewski, Donnellan, and Robins 2003), personal control (Mirowsky and Ross 2003), and meaning (Krause 2004) tend to enjoy better physical and mental health. Similar themes may be found in the work of King and Hicks (2007) as well as McAdams (2008). King and Hicks (2007) discuss the ways in which regrettable experiences promote happiness and a greater awareness of the self-complexity. Similarly, McAdams' (2008) notion of the redemptive self specifies how people use personal challenges and misfortune to improve themselves and the lives of the individuals around them.

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¹Our conceptualization of seeking spiritual growth differs from that of Pargament et al. (2005) in one potentially important way. We view the search for spiritual growth in the face of adversity as an explicit religious coping response. In contrast, Pargament et al. (2005) consider spiritual growth to be conceptually distinct from religious coping. More specifically, these investigators view spiritual growth as something that is shaped or determined by religious coping responses. They provide support for this specification by showing that greater use of positive religious coping responses is associated with greater spiritual growth. Positive religious coping was assessed in their study with twenty-seven items from the larger RCOPE scale (Pargament et al. 2000). The items in this shortened scale were not provided in this study. However, an examination of the full RCOPE reveals that it contains items that clearly suggest that the search for spiritual growth is a religious coping response (e.g., "Thought that the event might bring me closer to God") (Pargament et al. 2000: 522). This issue is important because Pargament et al. (2005) assess spiritual growth in much the same way when it is treated as being conceptually distinct from positive religious coping ("I have grown closer to God" – see page 67). Perhaps the difference between the two lies in the fact that positive religious coping involves the *search* for spiritual growth, whereas the spiritual growth measure in the study by Pargament et al. (2005) focuses on *actually having experienced* spiritual growth. This is not the place to resolve such fine nuances in the measurement of religious coping. Instead, we raise the issue here in an effort to encourage further debate on the assessment of this important construct.

Given the insights provided by Tedeschi and Calhoun (2004), King and Hicks (2007), and McAdams (2008), it is not difficult to see how people who are faced with religious doubt may, nevertheless, try to find growth in the face of this challenging experience. By creating something good (i.e., seeking spiritual growth) from something that initially seemed to be bad (i.e., religious doubt), individuals are likely to experience a surge in self-confidence, and derive a greater sense that they can control and overcome the problems arising in their religious life. Moreover, when people are able to see the purpose behind the struggles they have endured, they are likely to derive a deeper sense of meaning in their faith. Consequently, we predict that individuals who seek spiritual growth in the process of resolving religious doubt will tend to have better health.

The suppression of doubt—Earlier, we argued that fostering and maintaining good social relationships lies at the heart of religion. If people, therefore, expect their congregation to be highly supportive but, instead, encounter conflict and derision, they are faced with the prospect of having to admit that one of the very pillars of their faith may be invalid. Moreover, the doubt this may foster may be especially painful because it may involve feelings of shame and guilt. Shame and guilt may arise because people may feel as though it is wrong to question fundamental aspects of their faith. As the book of Romans in the New Testament unequivocally states, "... he who has doubts is condemned" (Romans 14:23, King James Version). Faced with the prospect of being condemned by one's own faith, a person may react by suppressing doubt and simply refusing to think about it. Based on this reasoning, we predict that some people will react to doubt that arises from negative interaction in the church by attempting to suppress or ignore it.

We have been unable to find any research that links the suppression of religious doubt with health or psychological well-being. Nevertheless, an extensive amount of research on a similar coping response in secular settings (i.e., denial) suggests that suppression of religious doubt is not an effective coping response (Aldwin 1994). However, the findings from research on denial are complex. More specifically, Lazarus (1985) maintains that denial may be an efficacious coping response, but only during the early stages of a stressful experience because it allows a person to regain his or her composure. But he goes on to argue that over time, this initial advantage fades as more direct action for eradicating the problem is called for. We address this issue below by assessing the effects of suppressing religious doubt on health over time. More specifically, we hypothesize that attempts to cope with religious doubt by suppressing it will have an adverse effect on health.

The theoretical rationale that has been developed for this study leads to the following study hypotheses:

1. More frequent attendance in Bible study groups is associated with less religious doubt.
2. More frequent attendance in prayer groups is associated with less religious doubt.
3. More frequent spiritual support is associated with less religious doubt.
4. More negative interaction with fellow church members is associated with more religious doubt.
5. People who attend Bible study groups often are more likely to seek spiritual growth in the face of religious doubt.
6. People who attend prayer groups more often are more likely to seek spiritual growth in the face of religious doubt.
7. People who receive more spiritual support from their church members will be more likely to seek spiritual growth when doubts about religion arise.

8. People who encounter more negative interaction with fellow church members are more likely to suppress doubts about religion.
9. People who seek spiritual growth when doubts about religion arise will enjoy better health.
10. People who suppress doubts about religion will rate their health less favorably.

Earlier, a study was reviewed which suggests that the deleterious effects of doubt on psychological well-being appear to be stronger for younger than for older people (Krause et al. 1999). Yet the data for the current study were provided by older adults. There are three reasons why continued research with older people is justified. First, Krause et al. (1999) focused solely on psychological well-being, whereas the analyses presented below are concerned with physical health status. Second, the sample that was studied by Krause et al. consisted of Presbyterians, and as a result, it is not clear if the findings can be generalized to all older people. Third, Krause et al. did not examine the coping responses that older people use to deal with religious doubt. If some coping responses are more effective than others, then Krause et al. (1999) may have overlooked significant health-related variations in the way older people respond to religious doubt.

Method

Sample

The data for this study come from an ongoing nationwide survey of older Whites and older Blacks. The study population was defined as all household residents who were either Black or White, noninstitutionalized, English-speaking, and at least 66 years of age. Geographically, the study population was restricted to all eligible persons residing in the coterminous United States (i.e., residents of Alaska and Hawaii were excluded). Finally, the study population was restricted to currently practicing Christians, individuals who were Christian in the past but no longer practice any religion, and people who were not affiliated with any faith at any point in their lifetime. This study was designed to explore a range of issues involving religion. As a result, individuals who practice a faith other than Christianity were excluded because members of the research team felt it would be too difficult to devise a comprehensive battery of religion measures that would be suitable for individuals of all faiths.

The sampling frame consisted of all eligible persons contained in the beneficiary list maintained by the Centers for Medicare and Medicaid Services (CMS). A five-step process was used to draw the sample from the CMS Files (see Krause 2002a).

The baseline survey took place in 2001. The data collection for all waves of interviews was performed by Harris Interactive (New York). A total of 1,500 interviews were completed, face-to-face, in the homes of the study participants. Elderly Blacks were over-sampled so that sufficient statistical power would be available to assess race differences in religion. As a result, the Wave 1 sample consisted of 748 older Whites and 752 older Blacks. The overall response rate for the baseline survey was 62%.

The Wave 2 survey was conducted in 2004. A total of 1,024 of the original 1,500 study participants were re-interviewed successfully, 75 refused to participate, 112 could not be located, 70 were too ill to participate, 11 had moved to a nursing home, and 208 were deceased. Not counting those who had died or moved to a nursing home, the re-interview rate for the Wave 2 survey was 80%.

A third wave of interviews was completed in 2007. A total of 969 older study participants were re-interviewed successfully, 33 refused to participate, 118 could not be located, 17 were too

sick to take part in the interview, and 155 older study participants had died. Not counting those who had died, the re-interview rate was 75%.

Findings from a number of analyses are reported below that involve data from all three waves of interviews. As a result, the sample sizes in these analyses vary from 585 to 205 cases.² Preliminary analysis of the sample comprising 585 older study participants reveals that 36.6% are older men, 47.7% are older Whites, and 55% indicated they were married at the time of the baseline survey. The average age of the respondents in this group at Wave 1 was 74.2 year ($SD = 5.6$ years). Moreover, the study participants reported at Wave 1 that they had successfully completed an average of 11.9 years of schooling ($SD = 3.3$ years). These descriptive statistics, as well as the findings that are presented below, are based on data that have been weighted so that they conform to the United States population in terms of age, sex, and education.

Measures

Table 1 contains the core measures that were used to assess the relationships among religious doubt, church-based social ties, and health. The measures of religious doubt, doubt coping responses, negative interaction in the church, and spiritual support were crafted with the item development strategy reported by Krause (2002b). This item development program consisted of nine steps that utilized both qualitative and quantitative research method. The indicators for domains that were assessed with multiple measures were summed to form scales.

Religious doubt—Four items are used to assess doubts about religion. These items ask older study participants how often they have doubts about their faith, how often they have doubts about things they have learned in church, how often they doubt whether prayers make a difference in life, and how often they doubt whether God is directly involved in their daily lives. A high score on these indicators reflects greater doubt. The measures of doubt come from the Wave 1 and Wave 2 interviews. Preliminary analysis revealed that 24.3% of the study participants experienced a decline in religious doubt during this period, 50.0% remained at the same level of doubt, and 25.6% reported an increase in religious doubt over time.

Formal relationships in the church—The participants in this study were also asked how often they attend Bible study groups and prayer groups. A high score on either measure denotes more frequent attendance. The measures of participation in Bible study and prayer groups that are used in the analyses presented below come from the Wave 1 and Wave 2 surveys.

Spiritual support—Three items are used to measure spiritual support that has been provided by fellow church members. These indicators assess how often coreligionists share religious experiences with a study participant, how often they make an effort to help them lead a more religious life, and how often someone at church helps an older respondent know God better. Study participants were instructed not to count spiritual support they may have received in Bible study groups, prayer groups, or church services when answering these questions. This is important because it helps ensure that the measures of spiritual support are not confounded with the indicators of formal religious involvement. The measures of spiritual support that are included in the analyses provided below come from the Wave 1 and Wave 2 interviews. A high score on these items denote more frequent spiritual support.

²The sample consisting of 585 study participants comes from analyses involving both the Wave 1 and Wave 2 data. This sample size is smaller than the total number of study participants at Wave 2 ($N = 1,024$) for the following reasons. First, the measures of spiritual support and negative interaction in the church form the focal point of the analyses involving the sample of 585 study participants. However, these items were only administered to study participants who attend church more than once or twice a year. This decision is based on the belief that it does not make sense to ask people about church-based social relationships if they very rarely go to church. Consequently, 342 older study participants who go to church no more than once or twice a year were excluded from the analyses that are provided throughout this study. Second, as in any study, our study contained some item non-response. More specifically, 9.5% of the participants did not answer all the questions.

Negative interaction in the church—Interpersonal conflict in the church is measured with four items that ask study participants how often their fellow church members make too many demands on them, how often they are critical of them, how often respondents are bothered by cliques in their congregation, and how often older study participants feel that the people in their church are unwelcoming. A high score stands for more negative interaction. The measures of negative interaction come from the Wave 1 and Wave 2 interviews.

Doubt coping responses—Two types of coping responses that older people may rely upon to deal with religious doubt are discussed below. These coping response measures were only administered to study participants who reported they experienced religious doubt at least once in awhile.³

The first coping response has to do with seeking spiritual growth when doubts about religion arise. This coping response is measured with three indicators that ask older study participants if they feel that doubt is a necessary part of spiritual growth, if working through doubt helps them better understand their faith, and if doubt is a necessary part of leading a religious life. A high score on these measures represents a stronger conviction that spiritual growth may be found through religious doubt.

The second type of coping response has to do with suppressing religious doubt. This construct is assessed with two indicators that ask older study participants whether they try to put doubts out of their mind as soon as they arise, whereas the second item asks whether they feel that it is wrong to question their religious beliefs.

Self-rated health—Measures of self-rated health are included in the analyses presented below to trace the health-related consequences of seeking spiritual growth in the face of religious doubt and suppressing religious doubt when it arises. Because the coping response measures were administered only in Wave 2, tests of the effects of these coping responses on health are based on the Wave 2 and Wave 3 data.

Three items are used to assess self-rated health. The first asks study participants to rate their overall health on a scale ranging from poor to excellent; the second asks them to how their health compares to other people of their own age; and the third item asks respondents to report whether their health is better, the same, or worse than a year ago. The items in this brief composite have been used widely in empirical studies on health in late life (e.g., Liang 1986). A high score on these indicators denotes more favorable health.

Church attendance and private prayer—The relationships among religious doubt, church-based social relationships, coping responses, and health were evaluated after the effects of the frequency of church attendance and the frequency of private prayer were controlled statistically. These control variables were taken from the Wave 1 and Wave 2 surveys. A high score denotes either more frequent church attendance or more frequent private prayer.

Demographic control variables—Measures of age, sex, education, race, and marital status were also included in the analyses presented below. Age and education are coded continuously in years, whereas sex (1 = men; 0 = women), race (1 = Whites; 0 = Blacks), and marital status (1 = currently married; 0 = not currently married) are scored in a binary format.

³Questions involving the coping responses that may be used to wrestle with religious doubt were only administered to study participants who indicated they experienced any of the religious doubts provided in Table 1 at least once in a while. A total of 298 older study participants reported that they experienced at least one of these doubts once in a while or more often.

Results

The findings from this study are presented below in four sections. When the sample for this study was introduced, data were provided which reveal that some older people who participated in the Wave 1 survey did not participate in the Wave 2 interviews. Similarly, some older adults who took part in the Wave 2 survey were not interviewed at Wave 3. Although there is considerable controversy in the literature (Groves 2006), some investigators maintain that the loss of subjects over time may bias study findings if it occurs non-randomly. The analyses that are presented in the first section were designed to take a preliminary look at this potential problem. The second set of analyses was designed to see if church-based social relationships are associated with change in religious doubt over time. The purpose of the third set of analyses is to see whether social relationships that arise in the church influence the coping responses that older people may rely on to deal with religious doubt. The analyses that are presented in the fourth section focus on whether the coping responses that older people utilize to handle religious doubt are associated with change in self-rated health over time.

Assessing the Effects of Sample Attrition

Although it is difficult to conclusively determine if the loss of subjects over time has biased the findings from this study, some insight into this issue can be obtained by seeing whether select data at the Wave 1 survey are associated with study participation status at the Wave 2 interview. The following procedures were used to address this issue. First, a nominal-level variable consisting of three categories was created to represent older adults who participated in both the Wave 1 and Wave 2 surveys (scored 1), older people who had died during the course of the follow-up period (scored 2), and older individuals who were alive but did not participate at Wave 2 (scored 3). Then, using multinomial logistic regression, this categorical outcome was regressed on the Wave 1 measures of age, sex, race, education, marital status, the frequency of church attendance, participation in Bible study groups, participation in prayer groups, spiritual support, negative interaction and religious doubt. The category representing older people who remained in the study served as the reference group in this analysis.

The results (not shown here) reveal that the loss of subjects over time did not occur in a random manner. More specifically, the data suggest that compared to older people who remained in the study, those who died were older ($b = .048$; $p < .01$; odds ratio = 1.050), they had fewer years of schooling ($b = -.073$; $p < .05$; odds ratio = .930), and they were less likely to be married ($b = -.542$; $p < .05$; odds ratio = .581). But in contrast, significant effects failed to emerge with respect to the nine other Wave 1 measures.

The findings from the sample attrition analysis further indicate that, compared to older people who remained in the study, those who dropped out at Wave 2 but were still alive were less likely to be married ($b = -.769$; $p < .001$; odds ratio = .464). However, significant differences across groups were not observed with any of the other eleven Wave 1 indicators.

A second set of attrition analyses were performed to see if the Wave 2 measures of age, sex, education, race, marital status, church attendance, attendance in Bible study groups, attendance in prayer groups, spiritual support, negative interaction, the suppression of religious doubt, seeking spiritual growth in the face of religious doubt, and self-rated health were associated with study participation status at Wave 3. The findings (not shown here) suggest that compared to the people who remained in the study, older adults who died were more likely to be older ($b = .099$; $p < .05$; odds ratio = 1.104), they were less likely to be White ($b = -1.460$; $p < .05$; odds ratio = .232) and they were less likely to get spiritual support from the people in their congregation ($b = -.311$; $p < .01$; odds ratio = .733).

The results from the analysis of sample attrition between Wave 2 and Wave 3 further indicate that, compared to older adults who remained in the study, those who dropped out but were still alive attended Bible study groups less often ($b = .1283$; $p < .05$; odds ratio = .754). However, statistically significant differences failed to emerge with respect to any of the other thirteen Wave 2 indicators.

As noted above, there is considerable controversy in the literature over the effects of non-random sample attrition on substantive study findings. In fact, as Groves (2006: 670) concluded in his recent review of the literature, "... there is no simple relationship between nonresponse rates and nonresponse bias ... hence, there is little empirical support for the notion that low response rate surveys de facto produce estimates with high nonresponse bias." Because it is not possible to resolve this debate here, it is best to keep the potential influence of non-random subject attrition in mind as the substantive findings from the study are reviewed.

Church-Based Social Relationships and Religious Doubt

Table 2 contains findings from the analysis that were conducted to see if the social relationships that older people maintain at church influence whether they have doubts about religion. Because the Wave 1 measure of religious doubt is included as an independent variable in this model, this analysis shows the effects of other Wave 1 independent variables on change in religious doubt over time. Two sets of analyses are presented in this table. The first set of analyses focuses on the effects of the Wave 1 measures of church-based social relationships on religious doubt (see Model 1). Four potentially important findings emerged from the estimation of Model 1. To begin with, the data suggest that more negative interaction with fellow church members is associated with greater religious doubt over time ($Beta = .114$; $p < .01$). In contrast, the findings further reveal that more frequent attendance at prayer groups is associated with fewer doubts about religion over time ($Beta = -.121$; $p < .01$). However, attendance at Bible study groups failed to exert a similar effect ($Beta = .029$; *ns*). Finally, it was somewhat surprising to find that spiritual support at Wave 1 is not significantly associated with change in religious doubt over time ($Beta = .050$; *ns*).

We were puzzled by the findings involving spiritual support because this type of assistance is specifically intended to increase the faith of a religious other. This prompted us to take a closer look at the way in which the model presented in Table 2 is specified. The time between the Wave 1 and Wave 2 interviews is three years. This means that in effect, we are assessing whether spiritual support at the baseline survey is associated with change in religious doubt three years later. Because this seems like a fairly long time, we wondered whether the effects of spiritual support might be manifest more quickly. The following strategy was implemented to evaluate this possibility. We performed the analyses a second time after including the Wave 2 measure of spiritual support and the Wave 2 measure of negative interaction as independent variables in the model. Put another way, both the Wave 1 and Wave 2 indicators of spiritual support as well as negative interaction were included in the analysis as independent variables (see Finkel 1995 and Menard 1991, for a discussion of this type of model specification). The results of these additional analyses are presented in Model 2. Two important sets of findings emerged from these additional analyses. First, the data suggest that greater spiritual support at Wave 2 is associated with less religious doubt at the follow-up interview ($Beta = -.101$; $p < .05$). But consistent with the results presented above, spiritual support at Wave 1 was not associated with change in religious doubt over time ($Beta = .054$; *ns*). Second, negative interaction at Wave 2 was not significantly associated with religious doubt at Wave 2 ($Beta = .080$; *ns*). However, more frequent negative interaction at Wave 1 is associated with greater religious doubt over time ($Beta = .116$; $p < .01$). When viewed in more general terms, these additional analyses suggest that the potentially beneficial effects of spiritual support are manifest fairly quickly. In contrast, the effects involving negative interaction are not as

conclusive. On the one hand, the fact that the Wave 1, but not the Wave 2 measure of negative interaction is statistically significant suggests that some time must pass before the pernicious impact of negative interaction on religious doubt becomes evident. However, the difference in the size of the Wave 1 (Beta = .116) and Wave 2 (Beta = .080) is not substantial.

Coping with Religious Doubt

Table 3 contains the findings from the analyses that assess the relationship between church-based social relationships and the coping responses that older people may employ in the face of religious doubt. Before turning to these results, it is important to touch on three methodological points. First, two regression equations were estimated. The suppression of religious doubt was the dependent variable in the first equation, whereas seeking spiritual growth served as the outcome in the second regression equation. Second, the coping measures were administered only at the Wave 2 survey and, as a result, these analyses are cross-sectional. Third, the coping response indicators were only administered to older people who indicated they experienced some religious doubt.

The data in the left-hand column of Table 3 suggest that older people who experience more negative interaction with their fellow church members are more likely to suppress religious doubt when it arises (Beta = .195; $p < .001$). In contrast, neither spiritual support (Beta = .068; *ns*), participation in Bible study groups (Beta = .041; *ns*), nor participation in prayer groups (Beta = -.087; *ns*) exert a statistically significant effect.

The data in the right-hand column of Table 3 reveal that negative interaction in the church is not significantly associated with seeking spiritual growth in the face of religious doubt (Beta = .015; *ns*). Similarly, the data suggest that older adults who attend prayer groups at church more often are not more likely to seeking spiritual growth when doubts about religion arise (Beta = -.007; *ns*). In contrast, there is some evidence that older adults who attend Bible study groups are more likely to seek spiritual growth in the process of wrestling with religious doubt (Beta = .130; $p = .06$).⁴ However, this relationship is only of borderline significance.

Coping with Religious Doubt and Health

The final set of analyses was designed to see if the way older adults try to cope with religious doubt affects their physical health status over time.⁵ The findings are presented in Table 4. This analysis was conducted by estimating a single ordinary least squares multiple regression equation. The data come from Wave 2 and Wave 3. Because the Wave 2 measure of health is included as an independent variable in the model, the data assess the effects of the independent variables on change in self-rated health over time.

The data in Table 4 suggest that older people who suppress religious doubt when it arises tend to rate their health less favorably than older adults who do not rely on this coping strategy (Beta = -.108; $p < .05$). In contrast, people who seek spiritual growth in the face of adversity do not appear to enjoy greater health benefits over time (Beta = .033; *ns*). At first glance, the size of the relationship between the suppression of religious doubt and health may appear to be fairly

⁴Some may be concerned with our decision to rely on the .06 instead of the .05 level of significance. In our view, what matters more is the substantive importance of the result. And in this case, finding that more frequent attendance at Bible study groups is associated with experiencing growth in the face of religious doubt makes a good deal of sense from a theoretical point of view.

⁵It should be emphasized at the outset that these results are very preliminary because the sample size ($N = 208$) is modest. Nevertheless, we briefly review these results in the hope that they promote further work on the way that people cope with religious doubt and health. The relatively small sample size arises from three factors. First, the data for these analyses come from the Wave 2 and Wave 3 surveys, and as a result, some sample attrition has occurred. Second, these analyses are restricted only to those older people who reported experiencing some religious doubt at Wave 2. Third, because the effects of church-based social relationships are included as control measures, only older adults who attend church more than once or twice a year are included in these analyses. Because the sample size is relatively modest, we use one-tailed t-tests to assess levels of statistical significance.

modest ($Beta = .108$). However, researchers have known for some time that as the number of factors that determine an outcome increase, the size of the relationship between any one determinant and the outcome declines. More specifically, as Ahadi and Diener (1989) convincingly show, when an outcome has only three determinants, the size of the relationship between any one determinant and the outcome cannot exceed .50. Therefore, when all the potential determinants of health are kept in mind, it is not surprising to find that the relationship between the suppression of religious doubt and health is fairly modest.

Conclusion

The central thesis in this study is that religious doubt is a process in which there is a precipitant, a consequent type of doubt, a coping response, and a health-related outcome. In effect, we aimed to assess whether social factors precipitate doubt and the coping responses that were invoked to deal with it. Moreover, we endeavored to see if these coping responses are, in turn, associated with health. Three potentially important sets of findings emerged from this research. First, our data suggest that, as time passes, older people who encounter more negative interaction with fellow church members report having more doubts about their faith. But in contrast, more spiritual support and greater involvement in prayer groups appear to be associated with having fewer doubts about religion. Second, our findings indicate that the social relationships that older people develop at church may also influence the coping responses they rely on to deal with religious doubt. Specifically, people who encounter more negative interaction in their congregation are more likely to suppress doubts about religion when they arise. However, the results further reveal that older people who attend Bible study groups are more likely to seek spiritual growth in the process of doubting than older adults who do not participate in Bible study groups. Third, the data suggest that suppressing religious doubt is associated with less favorable health ratings over time, whereas seeking spiritual growth in the face of religious doubt fails to have a statistically significant effect. To the best of our knowledge, this is the first time any of these issues have been examined empirically.

We feel more confident about the findings that emerged from our data because two of the three sets of analyses were based on longitudinal data, thereby allowing us to evaluate key study relationships over time. This helped us uncover some intriguing theoretical issues. The results reveal that the pernicious effects of church-based negative interaction on doubt take some time to become manifest (i.e., the effects are lagged), whereas the salubrious effects of spiritual support appear to emerge fairly quickly (i.e., the effects are contemporaneous). The fact that it takes time for the deleterious effects of negative interaction to emerge fits nicely with the finding that negative interaction is also associated with greater suppression of doubt. Based on the insights provided by Lazarus (1985), we suspect that the lagged effects of negative interaction on doubt may indicate that suppression is an effective coping response in the short run because it may initially help older people avoid the troubling dissonance that is fostered by interpersonal conflict in the church. But over time, this stopgap defense mechanism may break down as problems with church members, and the arising doubt can no longer be avoided. In contrast, the contemporaneous effects of spiritual support may signify that it is a welcomed resource when doubt arises because the religious insight and guidance that is provided by like-minded others may help older people work through the doubts they encounter and allay any painful feelings of dissonance these doubts may have fostered. In addition, the sheer act of providing spiritual support may convey subtle messages to the recipient, including the feeling that they are esteemed by the support provider and they are an important part of the congregation in which they worship. These realizations may, in turn, enhance the motivation or impetus for resolving religious doubt.

Recall that the findings suggest that the suppression of religious doubt has an adverse effect on health, but seeking spiritual growth does not. Although we do not have additional data to

explain this pattern of results, they are consistent with the wider literature on religious coping. More specifically, Pargament et al. (2000) report that negative religious coping responses tend to have a greater effect on physical health status than positive religious coping responses.

A number of the measures in the analyses presented above were developed especially for this survey (Krause 2002b). As a result, it is important to show that these newly devised indicators are valid. Focusing on construct validity provides one of the more feasible ways to address this issue (Carmines and Zeller 1979). Construct validity is demonstrated by embedding new measures in substantive models to see if the new scales are related to other well-known constructs in a theoretically meaningful way. The findings provided by the models that were estimated in this study indicate that the new study measures have good construct validity. So, for example, the fact that suppression of doubt is associated with a decline in self-rated health over time is understandable and explicable. It should be emphasized, however, that construct validity is not determined conclusively in one study. Instead, it is slowly confirmed over a series of independent investigations (Carmines and Zeller 1979).

Viewed in a more general way, the results from the current study begin to show that having doubts about religion is a complex process. Even so, there are at least two ways in which even greater depth may be found in this complex construct. First, having doubts about religion may represent one facet of an even broader process involving spiritual struggles. As Pargament (2007:112) discussed recently, spiritual struggles involve, "...signs of spiritual disorientation, tension, and strain." Pargament (2007) identifies three types of spiritual struggles, one of which involves doubt. Second, as the measures that were used in the current study reveal, there are a number of different types or kinds of religious doubt. People may doubt whether God is directly involved in their lives or they may have doubts about things they have been taught in church (e.g., the ordination of women). This suggests that greater theoretical insights may be found by developing topologies of doubt, as has been done with the secular literature on negative interaction (Newsom, Rook, Nishishiba, Sorkin, and Mahan 2005). Once this has been done, researchers can see if different types of doubt affect health and well-being in different ways.

It is important to raise two issues about the nature of the sample that was analyzed in our study. First, we assessed religious doubt only among people who go to church more than once or twice a year. In contrast, we did not evaluate religious doubt among people who go to church less often or who do not go to church at all. As a result, we cannot be sure if the findings reported above apply to people who are not religious. It would be intriguing to compare and contrast the effects of religious doubt on people who are involved in religion and those who are not. Our hunch is that religious doubt is more troubling to those who are still involved in religion but this issue needs to be evaluated empirically. Second, our sample consisted solely of older adults. As noted earlier, research by Krause et al. (1999) indicates that religious doubt may have a more pernicious effect on younger than on older people. Yet the findings in the current study suggest that religious doubt may have a fairly substantial effect on older adults, as well. Although the data from these two studies may appear to be contradictory, there is a way to resolve the differences between them. The data from the current study were provided by older people who attend church with some regularity, whereas the same restriction was not placed on participants in the study by Krause et al. (1999). Older people who attend church regularly are likely to be more deeply committed to their faith. Based on the basic tenets of identity theory (Thoits 1991), it seems reasonable to argue that older people who have invested more energy and effort in their faith are likely to be more troubled when doubts about religion arise.

We were somewhat surprised to find that participation in Bible study groups is associated with seeking growth in the face of religious doubt, whereas informal spiritual support failed to provide a similar benefit. Perhaps the mantle of religious authority that is conveyed in meetings

of formal Bible study groups adds credence to the lessons that are learned there. This may be especially true if the Bible study group is led by a pastor, lay minister, or other church official (e.g., elder or deacon). This observation is consistent with the notion that, "Confidence in explanations offered by religion will be greater to the extent that its ecclesiastics display levels of commitment greater than that expected of followers" (Stark and Finke 2000: 112).

Although our study provides some useful insights into the nature and functioning of religious doubt, a great deal of work remains to be done. At least four issues warrant further investigation. First, only two ways of coping with religious doubt were evaluated in our study – suppression of religious doubt and seeking spiritual growth in the process of doubting. This does not exhaust all the ways that older people may respond to religious doubt. It is possible, for example, that some individuals try to cope by asking God to help them work through their doubts and uncertainties about religion (i.e., collaborative religious coping – see Pargament, Koenig, and Perez 2000), or they may believe that the doubts they encounter are the work of the devil (i.e., demonic reappraisal – see Pargament et al. 2000). Second, more research is needed on denominational differences in the nature and effects of religious doubt. So, for example, it would be interesting to see if the nature of doubt and the coping responses that are used to confront it are different for conservative Baptists and liberal Unitarians. There is some evidence that denominational differences in the effects of religious doubt exist. For example, Kooistra and Pargament (1999) report that the effects of religious doubt on psychological distress are more pronounced for Protestant than for Catholic adolescents. However, we are unaware of any studies that explore this issue with either young adults or older adults. Third, two forms of informal interaction were evaluated in this study – negative interaction and spiritual support. Although the additive effects of each type of interaction were assessed in the same models, there is another way to specify the nature of the relationship between them. More specifically, it is possible that greater insight may be found by exploring the balance or ratio of positive to negative exchanges on religious doubt. This means, for example, that people may experience less religious doubt if they encounter more positive than negative interaction with fellow church members. Conversely, individuals may have more doubts about religion when they have more negative than positive exchanges with people at church. This issue was not assessed in the current study because, as the work of Liang, Krause, and Bennett (2001) reveals, the proper estimation of this issue is exceedingly complex and would constitute a separate paper. Fourth, the data in the current study suggest that the ways in which older people cope with religious doubt may influence their health. And if coping with doubt affects health then, perhaps, it is related to mortality as well. More work is needed to see if this is so.

In the process of exploring these and other issues, it is important for researchers to keep two limitations of the current study in mind. First, even though we have data that have been gathered at more than one point in time, issues involving the direction of causality between key study constructs remain. For example, we specified that negative interaction with fellow church members causes older people to have more doubts about their faith. However, one might just as easily argue that people may experience criticism and rejection by religious others primarily because they have doubts about religion. Issues involving the direction of causality can only be resolved with studies that have true experimental designs. Second, as we pointed out earlier, the number of cases available for some of our analyses was fairly modest. It is important to recruit even larger samples so that the finer nuances of the doubt process can be explored fully.

A considerable number of studies have been conducted to see if involvement in religion is associated with better physical and mental health (Koenig, McCullough, and Larson 2001). Taken together, this vast body of work seems to suggest that religion provides certain health-related benefits. But research in this field is not without its critics (e.g., Sloan and Bagiella 2002). One way to address the sharp criticisms that have been made is to frankly admit that the nature of the relationship between religion and health is complex, and that part of this

complexity arises from the fact that religion may exert negative as well as positive effects on health (George, Ellison and Larson, 2002). We tried to attain this type of balance in the current study by focusing on factors like negative interaction in the church and the suppression of religious doubt, as well as spiritual support and seeking growth through the process of doubting. We hope this encourages others investigators to do the same. We believe that following this strategy not only helps silence the critics, but ultimately leads to more realistic and more intuitively pleasing theoretical perspectives that help illuminate the finer aspects of leading a religious life.

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Table 1**Core Study Measures**

1. Religious Doubt (Waves 1 and 2) ^a	Wave 1 $M = 5.123$; $SD = 1.880$; $\alpha = .753$
	Wave 2 $M = 5.092$; $SD = 1.997$; $\alpha = .783$
A. How often do you have doubts about your religious or spiritual beliefs?	
B. How often do you have doubts about the things you've been taught in church?	
C. How often do you doubt whether your prayers make a difference in your life?	
D. How often do you doubt that God is directly involved in your life?	
2. Formal Relationships in the Church (Wave 1 and Wave 2) ^b	
A. How often do you attend adult Sunday School or Bible study groups?	
Wave 1 $M = 4.533$; $SD = 3.142$	Wave 2 $M = 4.343$; $SD = 3.117$
B. How often do you participate in prayer groups that are not part of your regular worship services or Bible study groups?	
Wave 1 $M = 3.176$; $SD = 2.839$	Wave 2 $M = 2.900$; $SD = 2.609$
3. Informal Spiritual Support (Waves 1 and 2) ^a	Wave 1 $M = 7.531$; $SD = 2.635$; $\alpha = .836$
	Wave 2 $M = 7.068$; $SD = 2.617$; $\alpha = .864$
A. Not counting Bible study groups, prayer groups, or church services, how often does someone in your congregation share their own religious experiences with you?	
B. Not counting Bible study groups, prayer groups, or church services, how often do the examples set by others in your congregation help you lead a better religious life?	
C. Not counting Bible study groups, prayer groups, or church services, how often does someone in your congregation help you to know God better?	
4. Negative Interaction in the Church (Waves 1 & 2) ^a	Wave 1 $M = 4.656$; $SD = 1.309$; $\alpha = .669$
	Wave 2 $M = 4.620$; $SD = 1.163$; $\alpha = .749$
A. How often does someone in your congregation make too many demands on you?	
B. How often are the people in your congregation critical of you and the things you do?	
C. How often are you bothered by cliques in your congregation?	
D. How often are the people in your congregation unwelcoming to you?	
5. Suppression of Religious Doubt (Wave 2) ^c	$M = 4.934$; $SD = 1.304$
A. Whenever I have doubts about religion, I try to put them out of my head.	
B. I feel it is wrong to question my religious beliefs.	
6. Seeking Spiritual Growth in the Face of Religious Doubt (Wave 2) ^c	
$M = 8.042$; $SD = 1.868$; $\alpha = .784$	
A. Doubt is necessary for religious and spiritual growth.	
B. Working through religious doubt helps me to better understand my faith.	
C. Doubt is a necessary part of leading a religious life.	
7. Self-Rated Health (Waves 2 and 3)	Wave 2 $M = 7.347$; $SD = 1.409$; $\alpha = .630$
	Wave 3 $M = 6.867$; $SD = 1.728$; $\alpha = .761$
A. How would you rate your overall health at the present time? ^d	
B. Would you say your health is better, about the same, or worse than most people your age? ^e	
C. Do you think your health is better, about the same, or worse than it was a year ago? ^e	

^aThese items are scored in the following manner (coding in parentheses): Never (1); once in a while (2); fairly often (3); very often.

^b These items are scored in the following manner: Never (1); less than once a year (2); about once or twice a year (3); several times a year (4); about once a month (5); 2 to 3 times a month (6); nearly every week (7); every week (8); several times a week (9).

^c These items are scored in the following manner: Strongly disagree (1); disagree (2); agree (3); strongly disagree (4).

^d This item is scored in the following manner: Poor (1); fair (2); good (3); excellent (4).

^e These item are scored in the following manner: Worse (1); about the same (2); better (3).

Table 2

Ordinary Least Squares Multiple Regression Analysis of Church-Based Social Relationships and Change in Religious Doubt Wave 1 and Wave 2 ($N = 585$)

Independent Variables	Model 1 ($N = 585$)	Model 2 ($N = 433$)
Age	.020 ^a (.007) ^b	.041 (.013)
Men	.013 (.052)	.044 (.166)
Education	.090 (.054)	.062 (.034)
White	.142*** (.569)	.150** (.551)
Married	.072 (.287)	.031 (.113)
Church attendance	.150*** (.196)	.151** (.213)
Private prayer	.060 (.093)	.012 (.020)
Bible study groups	.029 (.018)	.072 (.041)
Prayer groups	.121 (.085)	.154** (.096)
Spiritual support (Wave 1)	.050 (.038)	.054 (.039)
Negative interaction (Wave 1)	.114** (.175)	.116* (.154)
Spiritual support (Wave 2)	.-----	.101* (.069)
Negative interaction (Wave 2)	.----- .-----	.080 (.110)
Religious doubt Wave 1	.160*** (.170)	.116* (.125)
Multiple R ²	.143	.125

^aStandardized regression coefficient

^bAll coefficients in parentheses are unstandardized estimates

*
 $p < .05$;

**
 $p < .01$;

***
 $p < .001$

Table 3

Ordinary Least Squares Multiple Regression Analysis of Church-Based Social Relationships and Religious Doubt Coping Responses. Only Respondents Who Experienced Religious Doubt, Wave 2

Independent Variables	Suppression of Doubt (<i>N</i> = 283)	Seeking Spiritual Growth (<i>N</i> = 270)
Age	.054 ^a (.012) ^b	.002 (.001)
Men	.001 (.001)	.092 (.351)
Education	.199*** (.078)	.159** (.091)
White	.076 (.197)	.059 (.220)
Married	.120 (.312)	.060 (.223)
Church attendance	.007 (.006)	.258*** (.322)
Private prayer	.039 (.038)	.037 (.056)
Bible study groups	.041 (.017)	.130* (.077)
Prayer groups	.087 (.043)	.007 (.005)
Spiritual support	.068 (.034)	.084 (.059)
Negative interaction	.195*** (.218)	.015 (.024)
Multiple R ²	.130	.081

^a Standardized regression coefficient

^b All coefficients in parentheses are unstandardized estimates

*
p < .06;

**
p < .01;

***
p < .001

Table 4

Ordinary Least Squares Multiple Regression Analysis of Religious Doubt Coping Responses and Change in Self-Rated Health. ($N = 208$) Only Respondents Who Experienced Religious Doubt, Wave 2 and Wave 3

<u>Independent Variables</u>	
Age	.007 ^a (.002) ^b
Men	!.057 (!.201)
Education	.038 (.021)
White	.082 (.283)
Married	!.004 (!.015)
Church attendance	.081 (.097)
Private prayer	!.011 (!.016)
Bible study groups	.102 (.056)
Prayer groups	.013 (.008)
Spiritual support	!.106 (!.071)
Negative interaction	.042 (.067)
Suppression of doubt	!.108* (!.150)
Seeking spiritual growth	.033 (.032)
Self-rated health Wave 2	.486*** (.597)
Multiple R ²	.346

^a Standardized regression coefficient

^b All coefficients in parentheses are unstandardized estimates

* $p < .05$;

*** $p < .001$.

Note: One-tailed t-tests

Table A Bivariate Correlations for Multiple Regression Analysis in Model 1, ($N = 585$)

	Doubt Wave 2	Age	Men	Education	White	Married	Church Attendance	Private Prayer	Bible Study	Prayer Groups	Spiritual Support	Negative Interaction	Doubt Wave 1
Doubt Wave 2	1.0												
Age	.014	1.0											
Men	.059	&.055	1.0										
Education	.143	&.035	.066	1.0									
White	.192	.010	.063	.251	1.0								
Married	&.017	&.240	.331	.126	.235	1.0							
Church attendance	&.179	.012	&.082	.022	.033	.050	1.0						
Private prayer	&.198	.010	&.253	&.105	&.282	&.074	.241	1.0					
Bible study	&.110	&.037	&.113	.033	&.108	&.029	.429	.238	1.0				
Prayer groups	&.171	&.013	&.085	&.024	&.144	&.092	.289	.218	.475	1.0			
Spiritual support	&.116	&.148	&.040	&.097	&.229	&.044	.331	.273	.394	.321	1.0		
Negative interaction	.092	&.062	.031	.049	&.064	.013	.104	&.007	.084	.146	.084	1.0	
Doubt Wave 1	.250	&.023	.127	.118	.223	.023	&.139	&.302	&.123	&.145	&.255	.067	1.0

Table B

Bivariate Correlations for Multiple Regression Analysis in Model 2, ($N = 433$)

	Doubt Wave 2	Age	Men	Education	White	Married	Church Attendance	Private Prayer	Bible Study	Prayer Groups	Spiritual Support Wave 1	Spiritual Support Wave 2	Negative Interaction Wave 1	Negative Interaction Wave 2	Doubt Wave 1
Doubt Wave 2	1.0														
Age	.004	1.0													
Men	.001	&.041	1.0												
Education	.134	&.041	.043	1.0											
White	.171	&.003	.074	.273	1.0										
Married	.010	&.208	.358	.100	.260	1.0									
Church attendance	&.124	.125	&.098	&.028	.155	.026	1.0								
Private prayer	&.112	.067	&.238	&.139	&.264	&.123	.142	1.0							
Bible study	&.068	&.019	&.097	.016	&.082	&.032	.366	.212	1.0						
Prayer groups	&.169	.012	&.097	&.069	&.131	&.122	.217	.206	.448	1.0					
Spiritual support Wave 1	&.090	&.163	&.019	&.117	&.185	&.050	.201	.219	.373	.314	1.0				
Spiritual support Wave 2	&.148	&.052	.037	&.061	&.156	.038	.127	.170	.257	.150	.315	1.0			
Negative interaction Wave 1	.100	&.068	.034	.034	&.062	.003	.089	&.032	.049	.131	.038	.069	1.0		
Negative interaction Wave 2	.073	&.052	.101	.053	&.050	.069	.045	.045	.067	.055	.049	.103	.236	1.0	
Doubt Wave 1	.195	&.035	.095	.108	.231	.034	&.059	&.216	&.103	&.155	&.231	&.192	.097	&.013	1.0

Table C
Bivariate Correlations for Multiple Regression Analysis of Suppression of Doubt, Wave 2 Only ($N = 283$)

	Suppression of Doubt	Age	Men	Education	White	Married	Church Attendance	Private Prayer	Bible Study	Prayer Groups	Spiritual Support	Negative Interaction
Suppression of doubt	1.0											
Age	&.031	1.0										
Men	&.050	&.022	1.0									
Education	&.219	&.135	.109	1.0								
White	&.173	.092	.013	.228	1.0							
Married	&.139	&.194	.317	.116	.234	1.0						
Church attendance	.029	.056	&.008	.060	.136	.056	1.0					
Private prayer	.113	.004	&.180	&.120	&.199	&.022	.286	1.0				
Bible study	.091	&.112	&.024	&.021	&.095	.050	.388	.191	1.0			
Prayer groups	&.004	&.068	.003	&.043	&.216	.096	.198	.116	.356	1.0		
Spiritual support	.114	&.018	&.031	&.043	&.163	.048	.298	.342	.297	.288	1.0	
Negative interaction	.198	&.107	.101	.041	&.082	.075	.122	.050	.202	.132	.138	1.0

Table D
Bivariate Correlations for Multiple Regression Analysis of Seeking Spiritual Growth, Wave 2 Only ($N = 270$)

	Spiritual Growth	Age	Men	Education	White	Married	Church Attendance	Private Prayer	Bible Study	Prayer Groups	Spiritual Support	Negative Interaction
Spiritual growth	1.0											
Age	&.041	1.0										
Men	.077	&.024	1.0									
Education	.151	&.151	.119	1.0								
White	.019	.065	&.002	.238	1.0							
Married	&.022	&.177	.302	.167	.231	1.0						
Church attendance	&.155	.047	.015	.064	.118	.057	1.0					
Private prayer	&.043	.028	&.193	&.112	&.207	&.050	.339	1.0				
Bible study	.050	&.117	&.045	.001	&.063	.043	.397	.190	1.0			
Prayer groups	&.008	&.055	.005	&.040	&.174	.082	.205	.113	.330	1.0		
Spiritual support	.043	&.039	&.016	&.039	&.209	.017	.276	.332	.302	.287	1.0	
Negative interaction	.034	&.110	.144	.059	&.089	.045	.114	.056	.170	.120	.135	1.0

Table E
Bivariate Correlations for Multiple Regression Analysis in, Wave 2 and Wave 3 ($N = 208$)

	Self-rated Health Wave 3	Age	Men	Education	White	Married	Church Attendance	Private Prayer	Bible Study	Prayer Groups	Spiritual Support	Negative Interaction	Suppres sion of Doubt	Spiritual Growth	Self-rated Health Wave 2
Self-rated health Wave 3	1.0														
Age	&.039	1.0													
Men	.013	&.009	1.0												
Education	.141	&.086	.163	1.0											
White	.203	.077	&.007	.253	1.0										
Married	.097	&.175	.252	.185	.262	1.0									
Church attendance	.230	.059	&.004	&.006	.165	.083	1.0								
Private prayer	.028	.029	&.260	&.112	&.133	.038	.286	1.0							
Bible study	.191	&.072	&.043	&.089	&.058	.032	.340	.173	1.0						
Prayer groups	.056	&.041	.072	&.029	&.128	.182	.218	.111	.316	1.0					
Spiritual support	&.037	.019	&.024	&.058	&.261	.050	.226	.265	.334	.270	1.0				
Negative interaction	.044	&.123	.171	.071	&.073	.100	.058	.038	.192	.187	.194	1.0			
Suppression of doubt	&.169	&.047	&.051	&.224	&.214	&.166	&.048	&.008	.050	&.046	.055	.109	1.0		
Spiritual growth	.050	&.037	.108	.280	.076	.068	&.211	&.088	.028	&.070	&.044	.083	&.014	1.0	
Self-rated health Wave 2	.537	&.089	.098	.121	.112	.118	.255	.053	.199	.059	.077	.041	&.078	.024	1.0