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# Social Relationships in Religious Institutions and Healthy Lifestyles

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## Abstract

The purpose of this study is to see if encouragement from fellow church members helps older people develop and maintain healthy lifestyles. The findings indicate that informal church-based support is associated with healthy lifestyles among older African Americans but not older Whites. In addition, the influence of support from fellow church members on health behaviors is greater for study participants who closely identify with their congregations. The results further reveal that the adoption of healthy lifestyles is not associated with support from people outside the church nor is it linked to formal programs that churches provide to encourage good health behaviors. The theoretical and practice implications of these results are discussed.

### Keywords

church-based support; health behaviors

A growing number of studies convincingly demonstrate that people who are more deeply involved in religion tend to enjoy better physical and mental health than individuals who are less involved in religion (Ellison & Levin, 1998; Koenig, McCullough, & Larson, 2001). As this literature continues to develop, researchers have begun to tackle challenging issues that involve explaining how the salubrious effects of religion on health might arise. A number of potentially important theoretical perspectives have been devised. For example, some investigators argue that involvement in religion exerts a beneficial effect on health because it helps people cope more effectively with the deleterious effects of stress (Pargament, 1997), whereas other researchers maintain that the potentially important health-related effects arise from the sense of meaning in life that many people find through greater involvement in religion (Park, 2005).

An explanation that was proposed some time ago forms the focal point of the current study. More specifically, a number of researchers have argued that people who are more involved in religion tend to have better health because they are more likely to adopt beneficial health behaviors than individuals who are less involved in religion (Levin & Schiller, 1987). Subsequent research has provided support for this perspective. For example, a number of



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studies indicate that individuals who attend religious services often are more likely to avoid the use of tobacco and alcohol (Gillum, 2005; Strawbridge, Shema, Cohen, & Kaplan, 2001). Moreover, greater involvement in religion has been associated with more frequent exercise, a better diet, better sleep quality, and the regular use of seat belts (Hill, Burdette, Ellison, & Musick, 2006; Hill, Ellison, Burdette, & Musick, 2007). There is also some evidence that religious individuals are more likely to engage in a range of preventive health practices, such as getting a regular mammography, having a routine cholesterol screening, and obtaining flu shots (Benjamins, 2006; Benjamins & Brown, 2004; Benjamins, Trinitapoli, & Ellison, 2006).

Although there is broad-based empirical support for the notion that religious involvement is associated with beneficial health behaviors there is still a great deal that is not known about this relationship. One area that is in need of further development forms the focal point of the current study. More specifically, researchers have not devised well-articulated models that explain *how* involvement in religion promotes the practice of better health behaviors (e.g., Benjamins et al., 2006; Ellison et al., in press). This information is essential for the development of more effective interventions that are administered in religious institutions. As van Ryn and Heaney (1992) observe, “Clearly, application of well-defined and carefully tested theories to the program development process holds tremendous advantages for health educators in terms of coherence, effectiveness, and evaluation of interventions” (p. 328).

Three potentially important mechanisms have been identified in the research that has been done so far. The first involves the notion that certain religious beliefs encourage people to take better care of their bodies. Included among these beliefs is the notion that the body is the “temple of God” (Ellison et al., 2009) as well as the belief that better spiritual health is associated with better physical health (Benjamins et al., 2006). Second, a number of investigators provide evidence which suggests that some people take better care of themselves if they worship in congregations that provide formal programs that are designed to promote better health behavior (Campbell et al., 2007; DeHaven, Hunter, Wilder, Walton, & Berry, 2004). Third, other researchers report that people who attend church on a regular basis are more likely to adopt beneficial health behaviors because they are encouraged to do so by their fellow church members (Ellison et al., 2009).

The purpose of the current study is to probe more deeply into the relationship between informal encouragement from fellow church members to adopt better health behaviors, formal church programs that encourage the use of good health behaviors, and the actual practice of beneficial health behaviors. Although some investigators have already examined this issue (e.g., Ellison et al., 2009), four shortcomings in these studies are addressed in the analyses that are presented below. First, researchers have not taken steps to disentangle the influence of fellow church members from the influence that secular social network members may also exert on the decision to adopt good health behaviors. More specifically, findings from several studies indicate that support from social network members in secular settings may also increase the odds of engaging in beneficial health behaviors (e.g., Allen, Stoddard, & Sorensen, 2008). Consequently, it is not clear if the decision to adopt better health behaviors is influenced only by fellow church members, only by secular social network members, or by both church-based and secular social network members. The best way to resolve this issue is to explicitly compare and contrast the influence of church-based and secular support. However, there do not appear to be any studies in the literature that examine this issue empirically. Consequently, the first goal of the current study is to compare and contrast the influence of social network members inside as well as outside the church on the decision to use beneficial health behaviors.

Second, findings from an extensive number of studies reveal that there is substantial variation in the extent to which people in different racial groups are involved in religion. So far, most of this research has focused on Anglos and African Americans (Taylor, Chatters, & Levin, 2004). These studies suggest that compared to Whites, Blacks attend church more often, pray more frequently, and read the Bible more often when they are at home. Moreover, research consistently shows that Blacks also tend to have more well-developed social networks in the places where they worship than Whites (e.g., Krause, 2008). However, the measures of social support that were used in these studies did not focus on whether fellow church members specifically encourage the practice of beneficial health behaviors. Therefore, the second goal of the current study is to see if there are race differences in the extent to which recommendations to adopt beneficial health behaviors from secular and church-based social network members influence study participants to engage in better health behaviors.

Third, researchers have known for some time that informal social network members may not always convey information about health with the same degree of effectiveness (Lewis, DeVellis, & Sleath, 2002). Although these differences may be attributed to a number of factors, one is especially important for the purposes of the current study. Research indicates that the health-related recommendations of a significant other are more likely to be adopted if the recipient of this information feels that he or she has a close relationship with the provider (Tucker & Mueller, 2000). Otherwise, the health-related recommendations that are made by a significant other may be viewed as intrusive and the recipient may feel as though he or she is being manipulated. Because this issue has not been explored in religious settings, the third goal of the current study is to see if study participants who feel closer to fellow church members and identify with the members of their congregations are more likely to adopt health-related recommendations.

Fourth, problems may be found with the samples that are used by some investigators to study the interface between religion and health behaviors. For example, the data in a study by Ellison et al. (2009) come from a nationwide survey of members of the Presbyterian Church USA. However, one third of the participants in this study had a graduate degree and an additional 35% had an undergraduate degree. Because people in Presbyterian congregations are more highly educated than individuals in other congregations, it is difficult to generalize the findings to a wider population. The fourth goal of the research that is presented below is to examine the relationship between church-based social support and health behaviors among a more representative sample of study participants.

## Social Relationships in the Church and Health Behavior

The theoretical foundation of the current study is developed below in four sections. First, a conceptual rationale is provided to explain why fellow church members may play an especially important role in the adoption of beneficial health behaviors. Second, an effort is made to show how the extent to which study participants feel tightly integrated into their congregations (i.e., feel they belong in their congregations) influences whether they adopt health-related recommendations that are made by their coreligionists. Third, the reason why there may be race differences in the relationship between church-based health recommendations and health behaviors is provided. Fourth, the data for this study come from an ongoing nationwide survey of older adults. Consequently, the importance of exploring the relationship between church-based social support and health behaviors in this age group is discussed briefly.

## How Fellow Church Members Influence Health Behavior Decisions

People who worship in the same congregation tend to share many of the same characteristics, attitudes, behaviors, and beliefs. Moreover, these individuals engage in shared activities and rituals on a regular basis (Ellison & Levin, 1998). These rituals are important for two reasons. First, they reinforce common values and principles (R. Stark & Finke, 2000). Second, rituals such as baptisms, weddings, and funerals bring people together to express and share common emotions that arise when major life transitions take place. These shared emotions further strengthen the bonds that exist among them. The organizational demography of congregations reflects yet another way in which similarities are found among people who worship together. More specifically, congregations are often homogeneous with respect to racial composition, level of educational attainment, and income (Davidson & Pyle, 2005).

The high degree of similarity within congregations has important implications for the social relationships that arise within them. According to the homophily principle (McPherson, Smith-Lovin, & Cook, 2001), high levels of social similarity breed connectivity. This means that communication flows more freely in homogeneous groups and a high degree of similarity makes it easier for people to feel more committed to each other. In addition, as McPherson et al. (2001) point out, levels of advice, respect, and support generally tend to be higher among people who are more alike. It is especially important for the purposes of the current study to note that a high degree of social homogeneity is especially conducive to the adoption of health behaviors because there is some evidence that people who are similar are more likely to encourage each other to adopt different kinds of innovations (McPherson et al., 2001).

Although the homophily principle may be applied to a number of different social settings, such as interpersonal ties that develop in different occupations, it is especially useful for assessing the influence of interpersonal relationships that arise within the church. There are two reasons why this may be so: The first has to do with general religious beliefs about how people should relate to each other whereas the second involves religious teachings that refer specifically to health issues. As Krause (2008) argues, many of the basic teachings of the major world religions have to do with the way people should relate to each other. For example, virtually every faith tradition emphasizes the importance of being nonjudgmental and forgiving (Rye et al., 2000). Moreover, the tenets of many faiths place a premium on being compassionate (Wuthnow, 1991) and helping others (Krause, 2008). These fundamental religious precepts create a milieu in which social interaction is enhanced by shared underlying religious motives. But more importantly, these general religious tenets may also create a more receptive environment for specific religious teachings that deal with health-related issues. As Benjamins (2007) points out, Christian teaching encourages church members to view health as a gift from God. In fact, the New Testament refers to the body as the “temple of God” (see 1 Cor. 3:16). If people share the same broad orientation about how they should relate to each other and if they endorse similar views about the importance of good health, then health-related recommendations from fellow church members should be especially influential.

## Social Integration and Church-Based Health Communications

The discussion that has been provided up to this point highlights the reasons why health-related communications that emerge in the church may be especially effective. However, this perspective only reflects what may happen under ideal conditions. Unfortunately, there is some evidence that the social environment in some congregations is less than ideal. For example, research reveals that social relationships may not always function smoothly in the church and from time to time they may erupt into open conflict (Krause, Ellison, & Wulff,

1998). In addition, a number of investigators report that some individuals have doubts about their faith (Krause & Ellison, 2009) that may further weaken their ties with fellow church members. When negative interaction or doubts about religion arise, people may not feel closely bound to their fellow church members, and as a result, the impact of health-related communications may be diminished. So in order to get better estimates of the degree to which fellow church members influence the decision to adopt health behaviors, it is important to determine whether study participants feel they are tightly integrated with the members of their congregation.

Although there are a number of ways to assess integration in a congregation, the analyses that are presented below focus on the extent to which study participants feel they belong in their congregation. The reason for focusing on this particular construct is found in the definition of religious belonging that was provided some time ago by Carrier (1965). Carrier argued that a person will feel they belong in a congregation when "the member sees himself as taking part in his group; he identifies himself with it, he participates in it, he receives his motivation from it; in a word, he is in a state or disposition of interaction with the group, which understands, inspires, and welcomes him" (p. 58). The emphasis on identity in this definition is important because extensive research reviewed by Oyserman (2007) indicates that "social identity (is) at the root of self-regulation" (p. 446). When a person identifies with a group, he or she will be more willing to perform the behaviors that are valued by members of the group. But if "the identity loses luster . . . then so too will the self-regulatory effort put into attaining goals relevant to the social identity" (Oyserman, 2007, p. 446). Cast within the context of the current study, this perspective suggests that when people feel they belong in their congregation they will be motivated to attain the goals that are esteemed by the members of the congregation, including the practice of sound health behaviors.

## Assessing the Influence of Race

Nelsen and Nelsen (1975) provide an insightful discussion of the historical influences that shaped the development of the church in the Black community. As these investigators maintain, the church has been the center of the African American community since its inception. Because of centuries of prejudice and discrimination, Black people have turned to the church for spiritual, social, and material sustenance primarily because it was the only institution in their community that was built, funded, and wholly owned by Black people. As a result, the church became much more than a place of worship: It also became a conduit for the delivery of social services, and the first schools for Black children were located in them, as well.

The central role the church has played in the Black community helps insure that the relationships that are formed among fellow church members are especially close. Evidence of the strong social ties that exist in Black congregations is nowhere more evident than in the work of the noted Black theologian J. Deotis Roberts (2003), who states that "the Black church, as a social and religious body, has served as a kind of 'extended family' for Blacks. In a real sense then, thousands of Blacks who have never known real family life have discovered the meaning of real kinship in the Black church" (p. 78).

In addition to reflecting historical forces, the strong social ties that flourish in Black churches are influenced by wider cultural factors as well. J. A. Baldwin and Hopkins (1990) went to great lengths to identify the key elements of African American culture. They argue that African American culture is characterized by an emphasis on harmony, cooperation, collective responsibility, "groupness," and "sameness." Similar themes emerge in the work of Maynard-Reid (2000), who maintained that this collective worldview is expressed in worship services that take place in Black congregations: "Worship therefore is a community happening in which kinship and mutual interdependence are affirmed" (p. 61). Because

institutions reflect elements of the wider culture in which they are embedded, it follows that these key cultural characteristics should permeate the social milieu of Black church. And because the key elements of Black culture that are identified by Maynard-Reid (2000), as well as J. A. Baldwin and Hopkins (1990), deal directly with interpersonal issues, one would expect them to be especially evident in the social relationships that are formed in Black congregations.

The literature reviewed in this section suggests that social ties in the Black church may be especially well developed. In fact, a number of empirical studies provide evidence that is consistent with this view. More specifically, research consistently shows that older African Americans get more church-based social support than older Whites (Krause, 2002; Taylor, Chatters, & Levin, 2004). If social ties are generally stronger in Black than in White congregations, then perhaps the health-related recommendations that arise in Black congregations carry greater weight than the health-related recommendations of fellow church members in White congregations. However, researchers who study race differences in church-based social support systems have not assessed whether there are also race differences in the extent to which fellow church members encourage the adoption of beneficial health behaviors.

### Bringing Age-Related Issues to the Foreground

Recall that all participants in the current study are older adults. Although variations in church-based social relationships and health behavior across the life course cannot be assessed in this group it is, nevertheless, helpful to reflect on why it is important to examine the relationship between these constructs in samples that are composed solely of older people. Carstensen's (1992) socioemotional selectivity theory sheds some light on this issue.

Carstensen's (1992) socioemotional theory is concerned, in part, with the way in which social relationship preferences change over the life course. She argues that as people grow older, they become increasingly aware that they have relatively little time left to live. This revelation fosters a reevaluation of their social relationships. Carstensen (1992) maintains that by the time people reach late life, they place a greater emphasis on relationships that are emotionally close and disengage from more peripheral social ties. Recent evidence provided by E. Stark (2008) indicates that 32% of the people who attend church on a regular basis report that half or more of their friends are members of their congregations. If people develop an increasing preference for close ties as they grow older, and many close relationships are found in the church, it follows that fellow church members should have an especially important influence on older adults. If fellow church members become more influential as people grow older, then the relationship between church-based support and the decision to adopt beneficial health behaviors should be especially evident among older adults.

## Method

### Sample

The data for this study comes from an ongoing nationwide survey of older Whites and older African Americans. 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. A five-step process was used to draw the sample from these files (see Krause, 2002, for a detailed discussion of these steps).

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

The Wave 2 survey was conducted in 2004. A total of 1,024 study participants were reinterviewed 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 reinterview 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 reinterviewed 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 reinterview rate was 75%.

Wave 4 was completed in 2008. A total of 718 older study participants were reinterviewed successfully, 61 refused to participate, 92 could not be located, 77 were too sick to take part in the interview, and 153 had died.

The analyses presented below are based on data from the Wave 4 survey because questions on health behavior and the influence that fellow church members have on health behavior were not administered until this time. Data on the influence that fellow church members may have on health behaviors were obtained from some but not all study participants. Some respondents indicated they either never attend church or they go only once or twice a year. The members of the research team felt it was not appropriate to administer questions about the influence of fellow church members on health behaviors to these individuals. Consequently, 220 older people were eliminated from the analyses presented below. As a result, the sample used in the analyses presented below consists of currently practicing Christians.

A range of analyses were performed for the current study. As a result the number of respondents varies slightly. After using listwise deletion to deal with item nonresponse, complete data were provided by 426 to 443 older study participants. Preliminary analysis of the sample comprising 443 participants reveals that 32.3% are older men and 47.2% are older Whites. The average age of the respondents in this group at Wave 4 was 80.2 years (*SD* = 5.0 years). Moreover, the participants in this study reported that they had successfully completed an average of 11.8 years of schooling (*SD* = 3.3 years).

## Measures

Table 1 contains the measures that were analyzed in this study. The procedures that were used to code these indicators are provided in the footnotes of this table.

**Health behaviors—**As shown in Table 1, study participants were asked to report the number of days in the typical week in which they engaged in five health behaviors. These items were taken from the 2007 national panel survey of Presbyterians that was conducted by the Presbyterian Church USA (Research Services, Presbyterian Church USA, 2006). The majority of studies in the literature have focused on the relationship between involvement in religion and individual health behaviors, such as alcohol use only (Krause, 2003) or getting a mammography (Benjamins et al., 2006). Although this research has provided many valuable insights, it overlooks the fact that people often practice more than one health behavior at the same time. Consequently, some researchers argue that measures of healthy lifestyles are needed to capture wider patterns of health-related practices (Cockerham, 2005). Doing so is thought to provide a more comprehensive, and therefore a more accurate, assessment of the extent to which health behaviors influence physical health status. Consistent with this view, healthy lifestyles serve as the outcome measure in the analyses presented below.

The measure of healthy lifestyles was created by summarizing the extent to which individuals engage in a range of health behaviors (see Table 1). Researchers typically compute reliability estimates for multiple-item scales. However, this may not be the best practice for working with healthy lifestyle measures. As Mirowsky and Ross (2003) astutely observe, “The elements of a healthy lifestyle have nothing in common with each other except that they improve health” (p. 199). As a result, the correlation among the various health behaviors is low. And when the correlation among items in a scale is low, it does not make sense to compute reliability estimates (e.g., Cronbach's alpha) for an index. This view is consistent with Bollen's (1989) widely cited discussion of cause indicators. Most indicators in the social and behavioral sciences are thought to represent some underlying unobserved construct. For example, questions on depression are presumed to capture a larger unobserved depressive symptom construct. As a result, these indicators should be highly correlated. However, as Bollen (1989) points out, this does not hold in all cases. In some instances, the observed measures may cause the underlying construct. For example, education, income, and occupation are not caused by an unobserved construct representing social class. Instead, a person's education, income, and occupation determine their social class standing. As Mirowsky and Ross (2003) persuasively argue, health behaviors operate in much the same way as indicators of social class.

Because the metric of each health behavior indicator in Table 1 is the same, these measures were simply summed to provide an overall index of healthy lifestyles. The item that has to do with eating red meat (i.e., the only undesirable health behavior) was reverse scored prior to creating this composite. A high score on this scale indicates that respondents engage in healthy lifestyle behaviors more often. The mean of this index is 22.485 (*SD* = 6.712).

**Congregational support for healthy lifestyles—**Five indicators were used to assess the extent to which fellow church members encourage older study participants to adopt a healthy lifestyle. These items were created by modifying the indicators that were used by Ellison et al. (2009). These investigators ask how often someone in a study participant's congregation encourages them to practice specific health behaviors. However, research consistently reveals that people often worship with family members (Wilcox, 2005). When family members are included with other church members, it becomes more difficult to draw conclusions about the underlying motives for recommending healthy lifestyles. As argued

above, fellow church members presumably recommend a healthy lifestyle for religious reasons. However, family members may recommend that an older study participant adopt a healthy lifestyle solely out of a sense of duty or responsibility that may or may not be motivated by religious beliefs. Consequently, in order to help ensure that the findings from this study reflect the influence of religion per se, older study participants were asked not to include family members when answering questions about the extent to which fellow church members recommend adoption of healthy lifestyles.

The five items provided in Table 1 were summed to form an index of church-based health recommendations. A high score on this scale means that fellow church members recommend healthy lifestyles more frequently. The mean of this scale is 6.919 (*SD* = 3.297). The internal consistency reliability estimate for this composite is .884.

**Secular support for healthy lifestyles—**Study participants were asked if their secular social network members recommend healthy lifestyles, as well. These indicators were created especially for this study. As shown in Table 1, these items were phrased in the same manner as the church-based support items. The only difference is that respondents were asked to report how often family members and close friends outside their church encourage the use of health behaviors. A high score on the scale that was created to assess this construct means that secular social network members recommend health lifestyles more often. The mean of this brief composite is 9.438 (*SD* = 4.074). The reliability estimate for this index is .818.

**Sense of belonging in a congregation—**To capture whether study participants feel they are tightly integrated into their congregation, four items were administered that ask if they feel they belong in the place where they worship. A high score means that older study participants feel more tightly integrated into their congregations. The mean is 14.217 (*SD* = 2.135). The reliability estimate for this brief composite is .897.

**Formal church programs supporting healthy lifestyles—**As Ellison et al. (2009) point out, some churches have developed formal classes or distribute literature recommending that members of the congregation adopt various beneficial health behaviors. To properly gauge the relative importance of the informal influence of fellow church members, it is important to compare and contrast the extent to which formal church programs and fellow church members influence the decision to adopt a healthy lifestyle. Three items were taken from the study by Ellison et al. (2009) to assess the effects of formal church programs that support beneficial health behaviors. A high score on the scale that was created by summing these indicators reflects how often this type of information is made available in the congregations where study participants worship. The mean is 4.721 (*SD* = 2.311). The reliability of this brief composite is .896.

**Race—**The effects of race on the decision to adopt a healthy lifestyle were evaluated with a binary measure that contrasts older Whites (scored 1) with older African Americans (scored 0).

**Religion control variables—**Researchers have known for some time that religion is a vast, multidimensional construct. As a result, the various facets of religion are correlated, sometimes highly (Idler et al., 2003). Therefore, to get better estimates of the influence of fellow church members on healthy lifestyles, it is important to statistically control for the influence of other dimensions of religion. Four religion control measures are included in the analyses presented below. The first item assesses how often study participants attend religious services. A high score stands for more frequent church attendance. The mean is 7.515 (*SD* = 1.289). The second religion control variable measures how often older people

pray when they are alone. A high score reflects more frequent prayer. The mean is 7.370 (*SD* = 1.135). The third religion control variable assesses how often people attend Bible study groups. A high score means they attend Bible study groups more often. The mean is 4.463 (*SD* = 3.246). The fourth religion control variable measures how often study participants attend prayer groups. A high score means that older study participants attend prayer groups more often. The mean is 3.260 (*SD* = 2.985).

**Demographic control variables—**The relationship between the various indicators of religion and healthy lifestyles was estimated after the effects of age, sex, and education were controlled statistically. Age is scored in a continuous format. Education is also scored in a continuous format that reflects on the total number of years of schooling that were completed successfully by older study participants. In contrast, sex is scored in a binary format (1 = men, 0 = women).

## Results

The findings from this study are presented below in three sections. The relationship between support from fellow church members and healthy lifestyles is provided in the first section. Then, the effects of encouragement from secular social network members on the decision to adopt healthy lifestyles is compared and contrasted with the influence of fellow church members. Following this, the influence of formal programs in the church on the decision to adopt healthy lifestyles is compared and contrasted with the effects of church-based support.

### Support From Fellow Church Members and Healthy Lifestyles

According to the theoretical rationale that was developed for this study, older study participants will be more likely to develop healthy lifestyles if they are encouraged to do so by their fellow church members. However, it was further hypothesized that this relationship would be more pronounced for African Americans as well as study participants who feel they belong in the congregations where they worship. Stated in more technical terms, this specification calls for a three-way statistical interaction effect between support from fellow church members, race, and belonging in a congregation on the decision to adopt a healthy lifestyle. Tests for this three-way interaction were performed with a hierarchical multiple regression analysis consisting of three steps. The additive effects of informal support from fellow church members, race, and belonging in a congregation as well as the control variables were added in Step 1 (Model 1). Then, the two-way interactions between church-based support and race, church-based support and belonging, and race and belonging were added in Step 2 (Model 2). Finally, a three-way cross product term was added to the equation in Step 3 to test for the proposed interaction between church-based support, race, and belonging on healthy lifestyles (Model 3). All independent variables were centered on their means before the analysis were performed. The findings from this analysis are presented in Table 2.

The results that are presented in the first column of Table 2 reveal that neither race (β = .093, $p = .090$), nor a sense of belonging in a congregation (β = .039, $p = .453$), nor support from fellow church members (β = .043, $p = .386$) appear to exert a statistically significant additive effect on healthy lifestyles (see Model 1). Taken at face value, these data seem to suggest that the decision to adopt a healthy lifestyle is not contingent on any of the core constructs in this study. However, as the estimates from the tests for higher order effects indicate, this conclusion may not be warranted. The data provided by Model 2 reveal that one of the two-way interactions is significantly associated with adopting a healthy lifestyle—the interaction between church-based support and belonging ($b = .129$, $p = .027$; unstandardized terms are presented when discussing interaction effects because standardized

estimates are not meaningful in this context). But rather than interpret the effect of this interaction term, it is more appropriate to assess whether the proposed three-way interaction is statistically significant. As the findings provided by Model 3 suggest, the three-way interaction between church-based support, race, and belonging on healthy lifestyles is significant ($b = –.296$, $p = .012$).

Even though a three-way statistical interaction effect has emerged from data, it may be somewhat difficult to determine if it is in the proposed direction. Although there are several ways to clarify these results, the strategy recommended by Aneshensel (2002) is followed here. She notes that the interpretation of higher order interaction effects (such as three-way interactions) can become quite complex. Consequently, she points out that subgroup analyses can be especially helpful under these circumstances (Aneshensel, 2002, see p. 228).

A subgroup analysis (not shown in Table 2) was performed by assessing the interaction effect between support from fellow church members and a sense of belonging in a congregation on healthy lifestyles solely among African Americans and solely among White study participants. The findings indicate that this two-way interaction was statistically significant among older Blacks ($b = .242$, $p = .001$) but not older Whites ($b = –.037$, $p = .683$). Additional steps were taken to further clarify the nature of the interaction effect within the African American subgroup by using the formula provided by Aiken and West (1991). This formula produces estimates of the effects of church-based support on healthy lifestyles at select scores on the measure of belonging in the church. Although any value of belonging could be selected for this purpose, researchers typically select minus one standard deviation below the mean, the mean, and one standard deviation above the mean. However, one standard deviation above the mean on the measure assessing feelings of belonging in a congregation (16.572) falls just outside the highest possible score on this scale (16). Therefore, estimates were derived for minus one standard deviation below the mean, the mean, and the highest possible belonging score. If the hypothesis that was derived earlier is valid, then encouragement from fellow church members should have an increasingly stronger effect on the decision to adopt a healthy lifestyle among older Blacks at successively higher values of belonging in a congregation.

The results of the additional hand calculations (not shown in Table 2) suggest that when feelings of belonging in a congregation are relatively low (i.e., one standard deviation below the mean), encouragement from fellow church members to adopt healthy lifestyles may actually go awry and lead to less healthy lifestyles among older Black study participants ($\beta = –.351$, $b = –.592$, $p < .001$). This may reflect the possibility that older people resent the recommendations of people they do not feel especially close to. In contrast, at average levels of belonging in a congregation, encouragement from fellow church members fails to exert a statistically significant effect on the decision to adopt healthy lifestyles among older Blacks ($\beta = –.050$, $b = –.090$, *ns*). Finally, the data reveal that support from fellow church members to adopt healthy lifestyles is more likely to promote healthy lifestyles among older Blacks, who feel strongly that they belong in their congregation where they worship (i.e., among older Blacks with the highest possible score on the measure of belonging in a congregation; $\beta = .151$, $b = .274$, $p < .05$).

## Encouragement to Adopt Healthy Lifestyles From Secular Network Members

The analyses discussed above were repeated after the effects of support from secular social network members to adopt healthy lifestyles was added to the model along with the measure of church-based support. The findings from this analysis are presented in Table 3. Before turning to these results, it is important to discuss how the interaction effect involving secular support was handled in this study. The analysis of church-based support is more complex because it calls for a three-way interaction between church-based support, race, and feelings

of belonging in a congregation. However, because support from secular social network members takes place outside the church, it does not make sense to take a sense of belonging in a congregation into account. Therefore, a two-way interaction between race and secular support is used in the analyses provided in Table 3.

Tests for the additive effects of secular support and church-based support on healthy lifestyles are provided in Table 3 (see Model 1). As the results from this step in the analyses reveal, neither secular support (β = –.040, $p$ = .516.) nor church-based support (β = .067, $p$ = .284) exert a statistically significant effect on the decision to adopt a healthy lifestyle. However, when the proposed interaction effects are examined jointly in Model 3, the interaction between encouragement from secular network members to adopt healthy lifestyles and race is not statistically significant ($b$ = –.377, $p$ = .066). In contrast, the three-way interaction between church-based support, race, and feelings of belonging in a congregation are still significant at the .022 level ($b$ = –.271).

Viewed more broadly, the results in Table 3 indicate that encouragement from fellow church members appears to have a greater effect on the decision to adopt a healthy lifestyle than encouragement from secular social network members. This is somewhat surprising because findings from a simple $t$ test (not shown in Table 3) indicate that even though secular social network members are more likely to encourage the adoption of healthy lifestyles ($M$ = .9438) than fellow church members ($M$ = 6.919, $p$ = .000), support from people at church appears to exert a greater effect on the decision to adopt a healthy lifestyle (see Table 3).

### Formal Church Programs to Adopt Healthy Lifestyles

Table 4 contains the results of the analyses that were designed to compare and contrast the effects of support from fellow church members with formal church programs that are designed to promote healthy lifestyles. Consistent with the analyses that have been provided so far, the results in the left-hand column of Table 4 (Model 1) indicate that neither church-based support (β = .061, $p$ = .298) nor formal church programs (β = –.055, $p$ = .350) exert a statistically significant additive effect on the decision to adopt healthy lifestyles. However, when the joint influence of race and a sense of belonging in the congregation are taken into account, the three-way interaction involving support from fellow church members ($b$ = –.399, $p$ = .009) but not the three-way interaction involving formal church programs ($b$ = –.008, $p$ = .968) is statistically significant. Viewed more generally, these results suggest that encouragement from fellow church members appears to have a greater influence on the decision to adopt a healthy lifestyle than formal programs that are offered by the church.

## Conclusions

Researchers have been arguing for decades that deeper involvement in religion appears to be associated with healthy lifestyles. However, the specific ways in which healthy lifestyles are encouraged in religious institutions have not been studied extensively. The current study was designed to see if support from fellow church members, support from secular social network members, and participation in formal church programs can shed some light on this issue. The results indicate that only encouragement from fellow church members appears to influence the decision to adopt a healthy lifestyle. However, these findings are more complex than this. The analyses reveal that support from fellow church members may promote healthy lifestyles, but only among African Americans who feel they belong in (i.e., identify with) the congregations where they worship. These contingencies help infuse research on health behaviors with fundamental insights from social identity theory. As discussed above, the basic tenets of social identity theory specify that people who feel they are part of a social group are more highly motivated to pursue the goals that are endorsed by the group.

There are two reasons why the findings from the current study are noteworthy. First, this appears to be the first time that the interface between support from fellow church members, race, and feelings of belonging in a congregation has been empirically linked with healthy lifestyles. Second, this appears to be the first time that the influence of fellow church members, secular social network members, and formal church programs on the decision to adopt healthy lifestyles has been evaluated in the same study.

Even though the findings from this study may have contributed to the literature, a considerable amount of work remains to be done. One promising area involves further refining the analyses by focusing on the influence of a specific church member instead of all members of the congregation taken together. This suggestion is based on the premise that all church members may not have the same influence on a person's decision to adopt a healthy lifestyle because older people are likely to feel closer to some individuals in their congregation than others. For example, research by Krause (2008) suggests that about 64% of older adults have an especially close relationship with a particular member of their congregation (i.e., a close companion friend). Moreover, the participants in that study indicated that the relationship with a close friend is characterized by a high level of interaction, strong feelings of trust, and greater openness to views that are held by the close friend. This suggests that researchers should assess whether an older person may be even more likely to adopt beneficial health behaviors if they are recommended by a close friend at church.

A second way in which research can be further developed has to do with the way input from fellow church members is measured. The measures that are used in the current study ask about the positive ways in which fellow church members may influence the use of beneficial health behaviors. However, as Rook, Thuras, and Lewis (1990) argue, significant others sometimes resort to the use of negative social sanctions in order to motivate a loved one to adopt good health behaviors. Unfortunately, there do not appear to be any measures of this type of church-based negative social sanctioning in the literature. Developing such items and assessing their impact on healthy lifestyles should be a high priority in the future.

The findings from the current study suggest that support from fellow church members may exert a greater influence on the decision to adopt healthy lifestyles than formal programs that are run in the church. However, these findings only reflect the direct effects of fellow church members and formal church programs on healthy lifestyles. A third way to improve research involves focusing on the indirect effects of formal programs on health behaviors that may operate informally through fellow church members. Simply put, formal programs in the church may influence the decision to adopt healthy lifestyles indirectly by motivating church members to informally discuss the benefits of healthy lifestyles among themselves.

Another way to improve research in this field involves taking into account the length of time that an older person has been in the same congregation. This is an important area to explore because older adults who have been going to the same church for a longer period of time may be more tightly integrated into the congregation than older people who have been attending a church for a relatively short period of time. And as a result, older individuals who are more tightly integrated into a congregation should be more responsive to the efforts of fellow church members to adopt healthy lifestyles.

## Implications for Practice

Researchers have recently become interested in developing church-based health promotion programs (Campbell et al., 2007). A number of these studies have focused specifically on churches in the African American community (e.g., Campbell, James, Hudson, Carr, & Jackson, 2004). Some of these interventions have used church members as lay advisors or

peer educators to promote intervention messages. The findings from our study support the continued use of fellow church members in this manner. However, efforts to use church members as peer educators may be improved in at least two ways. First, as our findings suggest, it may be useful to determine the extent to which study participants identify with their congregations. This is important because people who do not feel especially close to their fellow church members may resent or ignore the health-related messages that coreligionists attempt to convey. This in turn suggests that separate intervention strategies may be needed to more effectively reach people who are more tightly integrated and less tightly integrated into the places where they worship. Second, researchers need to learn more about how church members encourage each other to adopt healthy lifestyles when they are informally interacting. More specifically, greater insight into the ways that the importance of healthy lifestyles is conveyed and the language that is used to do so may help frame formal church programs and provide specific guidance on how to more effectively utilize peer educators.

If earlier speculation about the potentially important influence of close companion friends in church proves to be valid, then formal church-based programs can be fine-tuned by using close friends as peer-educators or lay advisors. This efficacy of this strategy could be assessed within the context of an experimental design whereby separate experimental groups consisting of close companion friends and church members who are not close friends are compared to a control group where no effort is made to improve the health behaviors of older church members.

## Study Limitations

As in any survey, there are limitations in the work that has been presented here. Consequently, it is important to keep six shortcomings in mind as the findings from this study are reviewed. First, the data in this study are cross-sectional. As a result, no claims can be made about the direction of causality that has been specified. A more convincing case could be made for the theoretical framework that has been devised for this study if the influence of fellow church members on healthy lifestyle decisions was evaluated over time. Second, although the influence of formal church programs was assessed in the current study, data were not available on the nature of the specific programs in each congregation. As a result, it was not possible to see if some formal programs were more effective than others. Third, not enough data were obtained about the specific ways in which fellow church members encourage the use of beneficial health behaviors. So, for example, some coreligionists may have been fairly low key in making their recommendations whereas others were more assertive. Clearly, pinpointing more precise communication practices would lead to the development of more effective intervention strategies. Fourth, the measure of formal church programs to promote healthy lifestyles can be improved. The indicators in the current study ask study participants if their congregation has this type of formal program, but information was not gathered on whether they participated in them. Measures of involvement and exposure to formal church programs may sharpen study estimates. Fifth, there are more precise ways to assess the influence of people in the church on the decision to adopt healthy lifestyles. The measures in the current study focus on all church members taken together. However, some individuals in the church may exert a greater influence on the decision to adopt healthy lifestyles than others. For example, there is some evidence that pastors occupy an especially influential role in the church, particularly in Black congregations (Maynard-Reid, 2000). Sixth, even though study participants were asked to provide separate estimates of the influence of people inside and outside the church, no effort was made to see if they were able to successfully differentiate between these two groups. The best way to address this issue is to conduct cognitive interviews in which study

participants are given the items on church-based and secular support and then asked to identify the people they had in mind when they were answering these questions.

For more than 100 years, researchers have argued that religion is an inherently social product. For example, James Mark Baldwin, an early president of the American Psychological Association, wrote in 1902: “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 blessings alone” (p. 325). Although the early theorists made invaluable contributions to the literature, they did not explore the more pragmatic implications of their insights. The current study was designed to contribute to more recent efforts by a new generation of scholars who have begun to assess health-related effects that appear to arise from deeper involvement in religion. We hope the findings from the current study and the theoretical perspective we have devised encourage further research in this field.

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## Table 1

Core Study Measures

1. Health behaviors[a]

   A. On how many days in a typical week do you engage in moderate exercise, like playing golf, bowling, dancing, walking, working in the yard, or gardening?

   B. On how many days in a typical week do you eat at least five servings of fruits and vegetables?

   C. On how many days in a typical week do you eat red meat?

   D. On how many days in a typical week do you limit your fat intake?

   E. On how many days in a typical week do you take vitamins or other dietary supplements for your health?

2. Congregational support for healthy lifestyles[b]

   A. Not counting family members who worship with you, how often has someone in your congregation encouraged you to exercise?

   B. Not counting family members who worship with you, how often has someone in your congregation encouraged you to avoid cigarettes and alcohol?

   C. Not counting family members who worship with you, how often has someone in your congregation encouraged you to eat healthy foods?

   D. Not counting family members who worship with you, how often has someone in your congregation encouraged you to get a physical examination?

   E. Not counting family members who worship with you, how often has someone in your congregation encouraged you to take your medications?

3. Secular support for healthy lifestyles[b]

   A. How often have family members or close friends outside of church encouraged you to exercise?

   B. How often have family members or close friends outside of church encouraged you to avoid cigarettes or alcohol?

   C. How often have family members or close friends outside of church encouraged you to eat healthy foods?

   D. How often have family members or close friends outside of church encouraged you to get a physical examination?

   E. How often have family members or close friends outside of church encouraged you to take you medications?

4. Sense of belonging in a congregation[c]

   A. I feel like I really belong in my congregation.

   B. Being a member of my congregation is an important part of who I am.

   C. I feel like I play a meaningful part in the life of my church.

   D. I feel welcomed in my congregation.

5. Formal church programs supporting healthy lifestyles[b]

   A. How often has your church distributed things like pamphlets or newsletters that deal with health-related issues?

   B. How often has your church held classes or informal groups that deal with issues involving your health?

   C. How often has your church sponsored any programs or services related to your health or health care?

6. Religion control variables

   A. How often do you attend religious services?[d]

   B. How often do you pray by yourself?[e]

   C. How often do you attend adult Sunday school or Bible study groups?[d]

   D. How often do you participate in prayer groups that are not part of regular worship services or Bible study groups?[d]

[a] Answers to these questions reflect the number of days in the typical week.

[b] These items were scored in the following manner (coding in parenthesis): *never* (1), *once in a while* (2), *fairly often* (3), *very often* (4).

[c] These items were scored in the following manner: *strongly disagree* (1), *disagree* (2), *agree* (3), *strongly agree* (4).

[d]These items were 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 or 3 times a month* (6), *nearly every week* (7), *every week* (8), *several times a week* (9).

[e]This item was scored in the following format: *never* (1), *less than once a month* (2), *once a month* (3), *a few times a month* (4), *once a week* (5), *a few times a week* (6), *once a day* (7), *several times a day* (8).

**Table 2**

Congregational Support and Healthy Lifestyles ($N$ = 443)

| Independent Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Age | –.015[a] | –.020 | –.026 |
| | (–.020)[b] | (–.027) | (–.034) |
| Sex | –.008 | –.006 | –.004 |
| | (–.120) | (–.088) | (–.054) |
| Education | .080 | .092 | .094 |
| | (.162) | (.186) | (.191) |
| Race | .093 | .102 | .101 |
| | (1.245) | (1.367) | (1.352) |
| Church attendance | .081 | .084 | .084 |
| | (.422) | (.438) | (.435) |
| Private prayer | –.013 | –.008 | –.010 |
| | (–.077) | (–.049) | (–.060) |
| Bible study groups | –.030 | –.026 | –.023 |
| | (–.063) | (–.054) | (–.048) |
| Prayer groups | .062 | .051 | .052 |
| | (.139) | (.115) | (.116) |
| Congregational support | .043 | .026 | –.020 |
| | (.088) | (.052) | (–.040) |
| Belonging | .039 | .060 | .041 |
| | (.121) | (.187) | (.130) |
| Congregational Support × Belonging | – | – | – |
| | – | (.129)* | (.106) |
| Congregational Support × Race | – | – | – |
| | – | (.102) | (.138) |
| Belonging × Race | – | (.466) | (.265) |
| Congregational Support × Belonging × Race | – | – | – |
| | – | – | (–.296)** |
| Multiple $R^2$ | .034 | .049 | .063 |

[a] Standardized regression coefficient.

[b] Metric (unstandardized) regression coefficient.

* $p < .05$.

** $p < .01$.

## Table 3

Congregational Support, Secular Support, and Healthy Lifestyles ($N$ = 441)

| Independent Variables | Model 1 | Model 2 | Model 3 |
|---|---|---|---|
| Age | –.017[a] | –.024 | –.029 |
| | (–.023)[b] | (–.032) | (–.039) |
| Sex | –.008 | –.006 | –.00l |
| | (–.113) | (–.08l) | (–.0l6) |
| Education | .079 | .092 | .094 |
| | (.161) | (.l86) | (.l9l) |
| Race | .091 | .l00 | .098 |
| | (1.222) | (l.347) | (l.320) |
| Church attendance | .079 | .08l | .085 |
| | (.412) | (.425) | (.442) |
| Private prayer | –.012 | –.006 | –.007 |
| | (–.068) | (–.035) | (–.040) |
| Bible study groups | –.029 | –.025 | –.025 |
| | (–.060) | (–.052) | (–.052) |
| Prayer groups | .059 | .046 | .036 |
| | (.l33) | (.l05) | (.080) |
| Congregational support | .067 | .063 | .039 |
| | (.l37) | (.l28) | (.080) |
| Secular support | –.040 | –.060 | –.075 |
| | (–.066) | (–.l00) | (–.l24) |
| Belonging | .038 | .060 | .052 |
| | (.l20) | (.l90) | (.l63) |
| Congregational Support × Belonging | – | – | – |
| | – | (.135)* | (.ll5)* |
| Congregational Support × Race | – | – | – |
| | – | (.l20) | (.454) |
| Belonging × Race | – | – | – |
| | – | (.490) | (.295) |
| Congregational Support × Belonging × Race | – | – | – |
| | – | – | (–.27l)* |
| Secular Support × Race | – | – | – |
| | – | – | (–.377) |
| Multiple $R^2$ | .035 | .05l | .073 |

[a] Standardized regression coefficient.

[b] Metric (unstandardized) regression coefficient.

* $p < .05$.

## Table 4

Congregational Support, Formal Church Programs, and Healthy Lifestyles ($N$ = 426)

| Independent Variables | Model l | Model 2 | Model 3 |
|---|---|---|---|
| Age | –.011[a] | –.0l4 | –.026 |
| | (–.0l4)[b] | (–.0l9) | (–.036) |
| Sex | –.0l2 | –.0ll | –.008 |
| | (–.l76) | (–.l60) | (–.ll4) |
| Education | .08l | .09l | .087 |
| | (.l65) | (.l85) | (.l77) |
| Race | .088 | .089 | .090 |
| | (l.l87) | (l.208) | (l.22l) |
| Church attendance | .09l | .087 | .083 |
| | (.477) | (.459) | (.439) |
| Private prayer | –.007 | .00l | –.00l |
| | (–.043) | (.008) | (–.008) |
| Bible study groups | –.0l4 | –.006 | .00l |
| | (–.028) | (–.0l2) | (.00l) |
| Prayer groups | .04l | .029 | .033 |
| | (.094) | (.066) | (.075) |
| Congregational support | .06l | .033 | –.032 |
| | (.l29) | (.070) | (–.068) |
| Formal church programs | –.055 | –.059 | –.025 |
| | (–.l62 | (–.l73) | (–.075) |
| Belonging | .047 | .058 | .0l6 |
| | (.l52) | (.l85) | (.052) |
| Congregational Support × Belonging | – | – | – |
| | – | (.l70)* | (.l56)* |
| Congregational Support × Race | – | – | – |
| | – | (.060) | (.l4l) |
| Belonging × Race | – | – | – |
| | – | (.347) | (.043) |
| Formal Programs × Belonging | – | – | – |
| | – | (–.097) | (–.l85) |
| Formal Programs × Race | – | – | – |
| | – | (–.l37) | (–.l4l) |
| Congregational Support × Belonging × Race | – | – | – |
| | – | – | (–.399)** |
| Formal Programs × Belonging × Race | – | – | – |
| | – | – | (–.008) |
| Multiple $R^2$ | .036 | .05l | .07l |

[a] Standardized regression coefficient.

[b] Metric (unstandardized) regression coefficient.

[*] $p < .05$.

[**] $p < .01$.