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Denominational Differences in Obesity Among Black Christian Adults: Why Gender and Life Stage Matter

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Abstract

Religiosity is a potential social determinant of obesity risk among black Americans, a group that tends to be highly religious and disproportionately suffers from this disease. Although religious engagement differs within this group, researchers often classify black Protestants into broad categories, making it challenging to determine which subgroups experience the worst outcomes. Using data from the National Survey of American Life, this study investigated whether black adults from various Christian denominations had comparable odds of having obesity and if these findings were consistent across life stage (i.e., young, middle, and late adulthood). Results suggest that for middle-aged Pentecostal women, and men and women who attend church most frequently, the odds of having obesity were comparably higher than their respective counterparts. These findings indicate that, even when denominational consolidation is appropriate in other religious research contexts, researchers should consider diaggregating black Christians by denomination when examining the relationship between religion and health.

Keywords

obesity; gender; denomination; black; health disparities; Christian; life stage

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Introduction

For the majority of black people in the United States, religion plays a key role in their daily lives (Mattis and Grayman-Simpson 2013; Pew Research Center 2014; Taylor, Chatters, and Brown 2014). As such, religion has been studied for its possible influence on health outcomes, including hypertension and obesity (Bentley-Edwards et al. 2020; Cline and Ferraro 2006; Kim, Sobal, and Wethington 2017; Robbins et al. 2020). Previous research highlights the complicated relationship between religion and health, since religious participation has been associated with both positive and negative health behaviors (Dodor 2012; Horton 2015; Reeves et al. 2012; Schlundt et al. 2008). Religious involvement has predicted health advantages, such as lower likelihood for obesity, which mostly has been attributed to the influence of religious doctrine outlining health considerations with regard to diet, exercise, smoking, and alcohol consumption (Koenig 2012; Montgomery et al. 2007). Alternatively, studies have found greater obesity among those who are heavily religiously involved (Bentley-Edwards et al. 2020; Cline and Ferraro 2006; Kim, Sobal, and Wethington 2017), suggesting that there is more to learn about the social mechanisms that connect religious participation and health.

Since religious engagement and adherence to doctrine can differ by sociodemographic characteristics, including denomination, race, life stage, and gender (Brown, Taylor, and Chatters 2015; Jones et al. 2011; Kim, Sobal, and Wethington 2017), subcategories of religious people may experience dissimilar health outcomes from participating in religious contexts. Although there are diverse religious experiences among black people who identify as Christian, much of the previous research on religion and obesity does not adequately evaluate the presence of within-group obesity differences. This study examines how denominational affiliation, gender, and life stage may work together to predict disparate obesity odds for black Christian men and women.

Literature Review

Obesity Differences in Adulthood

Obesity is a major health issue and a well-established risk factor for cardiovascular disease (CVD), diabetes, some forms of cancer, and other adverse health outcomes (Calle et al. 2003; Grundy 2004; Poirier et al. 2006; American Diabetes Association 2007; Assari and Caldwell 2015; Rahmouni et al. 2005). According to recent findings, non-Hispanic blacks have the highest obesity prevalence in the United States (Flegal et al. 2016). Data from the National Health and Nutrition Examination Survey indicate that in addition to racial disparities, obesity rates also differ by age and gender. According to Hales et al. (2017), adults 40–59 years old had a higher prevalence of obesity (42.8 percent) than adults 20–39 years of age (35.7 percent). Additionally, black women were more likely to be classified as having obesity (54.8 percent) than black men (36.9 percent) among adults aged 20 and older (Hales et al. 2017). Essentially, obesity is a health threat that is disproportionately ubiquitous within the black community.

Observed racial, gender, and age differences in obesity prevalence are likely related to wide ranging factors that may include physiological, neighborhood, or lifestyle differences

(Tauqeer, Gomez, and Stanford 2018), as well as stress and discrimination experiences (Byrd, Toth, and Stanford 2018; Cozier et al. 2014). First, there are potential age group factors that may contribute to a higher obesity risk. For instance, disproportionately heavy social demands may be placed on people during middle adulthood. These adults are often managing a combination of tasks involving career growth and maintenance, marriage, child or grandchild rearing, caregiving for their own parents, community involvement and changes in health and physical development, among other obligations. Additionally, black adults might face unique social stressors that contribute to disparate obesity prevalence and treatment by limiting access to resources that mitigate health risk (Byrd, Toth, and Stanford 2018). These factors create social contexts that increase exposure to discrimination and exacerbate the inflammation linked to chronic stress and worse health outcomes (Cozier et al. 2014). Given the level of risk and severity of obesity and CVD outcomes for black adults (Colantonio et al. 2017), and particularly black women and older people, precise and novel research that delineates the influence of specific social determinants on black health at different life stages is warranted.

Religion in the Black Community

Religious culture shapes the experiences of the majority of black Americans, and represents a principal contextual element within black communities (Mattis and Grayman-Simpson 2013). Compared to other racial and ethnic groups in the United States, blacks are more likely to believe in God and say that religion is important to them; they also attend church, pray, and engage with religious texts and media more regularly (Chatters et al. 2008; Chatters, Taylor, and Lincoln 1999; Hudson et al. 2015). Religious culture influences the beliefs and behaviors of many black Americans, including those who are not religiously engaged or affiliated.

Previous studies have demonstrated consistent gender differences in religiosity and religious participation. Black women tend to be more religiously involved than black men, regardless of the metric (Pew Research Center 2014; Taylor and Chatters 2010). Researchers also have noted that men and women may rely on different modes of worship and differ in their practicing of public and private religious activities (Bryant 2007; Jones et al. 2011; Taylor, Chatters, and Brown 2014). The fact that black women are more and differently engaged than black men could uniquely influence how religion affects their health.

Additionally, there are notable age differences in religious beliefs and engagement between older and younger people (Pew Research Center 2014). Taylor et al. (2014) found that among African Americans, age was positively related to several measures of religious participation including frequency of attendance, prayer, reading religious text, and closeness to other churchgoers. These findings were consistent with additional research that has linked older age to black people attending church with greater frequency, having stronger beliefs in the importance of religion, and providing more social and material support to fellow congregants (Chatters, Taylor, and Lincoln 1999; Taylor et al. 2017; VanderWeele et al. 2017). As black religious people get older, their religious engagement also appears to strengthen. If a relationship exists between religion and obesity, age differences in religious

beliefs, adherence, and engagement could contribute to age-related variations in health outcomes.

Within each age group, societal and church-based cultural norms for appropriate levels and types of engagement may shape gender differences in participation. Thus, men and women may be expected to increase or sustain their church involvement depending on their gender and their life stage. For instance, it might be more culturally acceptable for young men to increase their church involvement after life events, such as finishing college, gaining full-time employment, getting married, or having children (Becker and Hofmeister 2001; Bryant 2007; Jones et al. 2011). These events may not have a similar effect on young women's religious involvement, which appears to be more consistent and less contingent on life events (Becker and Hofmeister 2001).

Aside from the potential gender and age group differences in increasing religious engagement, studies also have shown that age and gender may influence the types of activities in which religious people participate. For example, one study found that while older black women were more likely to attend services, participate in congregational activities, and be church members, older men reported spending more hours at church each week (Taylor et al. 2009). Taylor et al. (2009) attributed this difference to older black men having greater social access to church leadership and stewardship roles, especially as they begin to reduce their hours in the workforce. Having different roles and expectations based on gender or life stage could affect religious engagement and adherence to health doctrine, adding to the potential for disparate obesity outcomes.

Religious Affiliation and Obesity

Investigators have acknowledged the importance of considering religion as a social determinant of health because some religions provide health guidance and social support (Koenig 2012). Due to the social prominence that places of worship have in black communities, churches have been utilized as locations for health intervention (Morgan et al. 2012; Williams, Franklin, et al. 2016). However, access to and support for these faith-based interventions may vary based on church structure and a wide range of sociodemographic and cultural factors (Bopp and Fallon 2011; Campbell et al. 2007). Additionally, various social identities including gender, denomination, and life stage may affect religious engagement, health behaviors, and the willingness of black people to participate in health programming. Given the variability within this group, it has been difficult to conclude precisely who receives the potential health benefits associated with religious participation.

Researchers have sought to understand the influence of religious and denominational affiliation on obesity and other health outcomes, since doctrinal differences may guide health behaviors, such as diet and physical activity (Kim, Sobal, and Wethington 2017; Montgomery et al. 2007). Consistently, studies find denominational health differences when comparing groups like the Seventh-Day Adventists to non-Adventists (Kim, Sobal, and Wethington 2017). Scholars suggest that Adventists typically have lower body weight and reduced CVD risk, which likely is related to their dietary prescription promoting vegetarianism (Fraser 1999; Kim, Sobal, and Wethington 2017). Findings among Adventists illustrate how health disparities may occur both between and within denominations. For

example, black Adventists exhibit relatively healthier habits and outcomes than national black trends; however, their obesity prevalence was higher than that of white Adventists (Montgomery et al. 2007). Additionally, Fraser (1999) found that Seventh-Day Adventist men experienced greater relative risk for CVD than women.

Although the evidence is less consistent, differences have been observed among non-Adventist Christian denominations. Cline and Ferraro (2006) investigated the average weight among Christian denominations, finding that Baptists had a higher prevalence of obesity compared with other groups. Another study found that differences in body mass index (BMI), a common metric for obesity, were only present when comparing Conservative Protestant men to men who reported no religious affiliation (Kim, Sobal, and Wethington 2003). That study did not find denominational differences among women. Further, Schlundt et al. (2008) initially found that being an Evangelical Christian, Mainline Protestant, or Other Christian was associated with a higher BMI. However, denomination no longer predicted BMI after controlling for demographic characteristics and health behaviors. These studies are informative about the relationship between denomination and obesity for some Christians, but do not sufficiently investigate this relationship among black Christian men and women, in particular.

Obesity Variation Among Black Christians

Social and cultural group differences in levels of religious identity and engagement could mean that the connection between religion and obesity is dissimilar for black Christians when contrasted to their white counterparts. Although several studies conducted cross-racial comparisons revealing that religious effects on black obesity differ compared to whites (Bruce et al. 2007; Godbolt et al. 2018), there is limited research examining samples entirely composed of black Christians. This is especially true regarding investigations in which denomination and life stage are delineating factors. Along with gender, these characteristics could help to identify who experiences health risks or benefits from religious involvement and the mechanisms contributing to within-group differences in these outcomes.

Findings are inconsistent regarding the relationship between religion and obesity for black men and women (Bentley-Edwards et al. 2020; Bruce et al. 2007; Reeves et al. 2012; Taylor et al. 2013), and whether it applies to all denominations. The varied methods for categorizing black Christians have made it challenging to know which denominations are most likely to have obesity. For instance, one study grouped all Protestant denominations, separating by gender, and found that church activities were related to greater odds of being classified as overweight or obese for African American Protestant men, but unrelated for women (Taylor et al. 2013). Other researchers used more precise groupings to identify that Baptists and Reformation-era Protestants (e.g., Episcopal, Lutheran, Presbyterian) had the highest incidence of obesity among several groups of Christians and nonreligious black people (Dodor 2012). In contrast, a recent study of black Christian adults used narrower denominational classifications and found no differences in having obesity between Baptist men and women and members of other denominations (Bentley-Edwards et al. 2020). Inconsistent findings from these studies and others indicate that research on religion and

health among black Christians should consider whether within-group differences exist, as well as how participants are categorized when assessing those differences.

Although it is common for researchers to consolidate black people into broad religious categories (e.g., black Protestant), this overlooks the variation in religious attitudes, beliefs, and engagement associated with unique denominational cultures (Shelton and Cobb 2017; Taylor, Chatters, and Brown 2014). The previously identified mechanisms linking religiosity to health could vary across black Christian groups, even when two denominations are theologically similar. Thus, while some may find it acceptable to group African American Methodists, Baptists, and Pentecostals into a larger black Protestant category because of perceived or observed similarities in social, cultural, and faith traditions (Steensland et al. 2000), these groups may be meaningfully dissimilar with respect to the specific religious mechanisms that affect health outcomes.

Several factors could contribute to possible within-group health differences among black Christians, such as variations in affiliation-influenced health behaviors, beliefs, and attitudes. Also, since frequent church involvement has been associated with obesity outcomes among blacks (Bruce et al. 2007; Dodor 2012; Godbolt et al. 2018), members of groups with higher cultural expectations for religious engagement and involvement in social support networks may be exposed to different health risk than other groups (Robbins et al. 2020). Group variation in beliefs about the church's role in providing health maintenance messages and support programming could contribute to group differences in health outcomes. Additionally, attitudes about the acceptability of having obesity is not the same across all groups of black Christians (Cline and Ferraro 2006; Kim, Sobal, and Wethington 2017). Each of these factors can vary based on denominational affiliation, gender, or life stage, suggesting that intersecting cultural identities may shape participation in and exposure to religious contexts and the purported health effects.

Current Study

The black Christian community is composed of culturally diverse denominations that sometimes exercise different religious and health beliefs and practices (Taylor, Chatters, and Brown 2014; Taylor, Chatters, and Levin 2004). Despite the denominational diversity of black Christians in the United States (Shelton and Cobb 2017), much of the research on their health classifies them as a monolithic group (Sternthal et al. 2010; Sullivan 2010), rather than examining whether outcomes differ by their intersectional identities (Brown et al. 2016). Health outcomes may be influenced by unique doctrine or cultural customs (e.g., diet, physical activity, tobacco or alcohol use, social support) present in respective denominations (Cline and Ferraro 2006; Kim, Sobal, and Wethington 2017; Taylor et al. 2013). Also, by consolidating black people regardless of gender and age, past studies might have masked effects related to group differences in religious engagement, expectations, and responsibilities. Thus, researchers do not adequately examine underlying health disparities within and between black Christian groups. This study takes the novel approach of disaggregating data from black Christian men and women and to determine whether denominational differences in obesity odds vary by life stage.

Data and Methods

Participants

This study conducts an analysis of secondary data from the National Survey of American Life (NSAL; Jackson, Torres, et al. 2004), which used interviews to collect self-reported data. The purpose of the NSAL was to examine the mental and physical health of community-dwelling black adults living in the United States. Researchers used multistage probability sampling to identify participants who were then surveyed about topics that ranged from religious and spiritual experiences and social support to health background questions (Jackson, Torres, et al. 2004). A full account of the sampling technique and methodological design of the NSAL project is available in previous articles (Jackson, Neighbors, et al. 2004; Jackson, Torres, et al. 2004).

Although the data were collected in the early 2000s, the NSAL was utilized due to several important sample characteristics. First, the sample included a large, and religiously diverse group of black Americans. Second, participants were from wide-ranging age groups. These features, along with the ability to control for other health determinants (e.g., education, income, foreign born), allowed for more robust denominational and life stage comparisons. The subsample for this study included only those participants who identified as black (i.e., African American or Afro-Caribbean) and self-reported an affiliation with a Christian denomination.

Measures

Dependent Variable

Body mass index.: NSAL investigators used self-reported weight and height to calculate BMI and categorized participants into groups based on the Centers for Disease Control and Prevention (CDC) obesity guidelines. For the current analysis, obesity was dichotomized and participants were classified as having obesity (BMI ≥ 30 kg/m²) or not (BMI < 30 kg/m²).

Key Independent Variables

Denominational affiliation.: Denomination was determined by asking participants to report their current religious and denominational affiliation. Initially, NSAL researchers received more than 40 responses to this item, which they reclassified into 14 denominational categories (Taylor and Chatters 2010). The current analysis only included participants from one of five Christian affiliations: Baptist, Catholic, Methodist, Pentecostal, and Non-denominational Protestants. All other affiliations were excluded from the study due to small sample size and interpretation concerns related to groups like the denominationally heterogeneous Protestant Other group, those who practice non-Christian faiths, atheists, agnostics, and those who did not indicate a religious preference.

Life stage.: Participants were categorized into one of the following life stage groups: young adulthood (18–30), early middle adulthood (31–45), late middle adulthood (46–60), and late adulthood (61 or older). These cutoffs provide slightly more precision than the age categories used by the CDC, which conducted its obesity analyses using three age groups:

20–39 years, 40–59 years, and 60 years or older (Flegal et al. 2016). This modification was made to group participants into age categories that contain less variation in obesity rates and fewer differences in developmental responsibilities. Specifically, unlike the CDC’s classifications, this study anticipate that a 20-year old is more physically (Rothman 2008) and developmentally similar to someone who is 30 years old compared with a 39-year old.

Control Variables—To reduce the influence of other factors on the relationship between denomination, life stage category, and obesity the analysis included the following categorical control variables: *region* (i.e., Northeast, Midwest, South, or West), *birthplace* (i.e., U.S. born or foreign born), *work status* (i.e., employed, unemployed, or not in labor force), *household income* (in quartiles), *education* (i.e., 0–11, 12, 13–15, or greater than 15 years), and *marital status* (i.e., never married, divorced/separated/widowed, or married/cohabitating). Given the large number of Afro-Caribbean participants, it is necessary to ensure that denominational differences are independent of ethnic effects (Chatters et al. 2009). Rather than using identification as Afro-Caribbean to control for these effects, birth country was used as an ethnic cultural proxy in these models. The original variable for household income was collected in dollar amounts (i.e., \$0 to \$200,000). These values were divided into quartiles to create a variable with four categories.

Since religiosity was related to obesity in past studies (Cline and Ferraro 2006; Kim, Sobal, and Wethington 2017; Bentley-Edwards et al. 2020), the frequency of *church attendance* and *subjective religiosity* were included as control variables. Church attendance was measured by asking participants how often they usually attend religious services since turning 18, with the five response options ranging from *nearly every day* (4+ times per week) to *less than one time per year*. Those who indicated never attending religious service on a previous question were combined with those who attend church less than once a year, creating a once per year or fewer category. Participants also categorized their level of religiosity using one of four subjective religiosity options (i.e., *very religious*, *fairly religious*, *not too religious*, or *not religious at all*). The *not too religious* and *not religious at all* categories were combined into a single group to increase the cell size for analysis.

Statistical Analysis

Statistical analyses were conducted using the subpopulation survey commands available in Stata 16.1 to account for the NSAL’s use of a multistage probability sampling design. Logistic regression models estimated the effect of denomination and life stage on the odds of having obesity, while adjusting for confounding variables. Subsequently, the authors examined the interaction with denomination as the focal independent variable and life stage as a moderator, to determine whether denominational differences in obesity were consistent across all life stages. The denominational and life stage reference groups were Baptists and young adults, respectively. Given the documented differences between men and women regarding religious involvement and obesity prevalence outlined above, separate analyses were conducted for each gender.

Results

After excluding participants with missing data, the final analytic sample consisted of 2,037 women and 1,047 men who self-identified as being black and affiliated with one of the selected denominations. The average age of participants in the sample was 43.8 years. Baptist was the largest denominational group for both men and women, accounting for approximately 63 percent of participants in each gender. Nearly 39 percent of women and 26 percent of men were classified as having obesity. A complete gender-separated distribution of demographic characteristics is reported in Table 1.

Denomination and Life Stage Effects for Men

Model 1 shows that neither denomination nor life stage had a significant effect on the obesity odds of black men (see Table 2). Men from the Northeast had significantly higher odds of having obesity compared to men from the West. Those whose household income was in the fourth quartile had obesity odds that were twice as high as men in the first quartile. The odds of men who were foreign born having obesity were 84 percent lower than men who were born in the United States. Men who attended church 4 or more times per week were more likely to have obesity than those who attended regularly, but less frequently. Subjective religiosity did not predict differences in obesity odds since men who are very religious were no more or less likely to have obesity than other men. Education, employment status, and marital status were not significant obesity predictors for men.

The inclusion of an interaction term for denomination and life stage demonstrated that, for men, denominational differences in the odds of having obesity were consistent across life stages. This finding remained true regardless of the reference group. For men, significant differences in odds found among controls remained relatively consistent across models. Due to low cell counts in some groups and the fact that the interaction model for men was nearly identical to the initial model, these results were not reported.

Denomination and Life Stage Effects for Women

Among women, the initial model indicated there were no differences in obesity odds between Baptists and women in the other denominations. Women in late middle adulthood (46–60) had 52 percent higher odds of having obesity than young adult women. Being married or cohabitating was associated with higher obesity odds for women (see Table 3, Model 2). Being more educated, living in the West, being in highest income quartile, and being born outside of the United States predicted lower odds of having obesity. Women who attended church four or more times per week had higher obesity odds than women who attended church regularly, but less often than weekly. There were no differences in having obesity based on subjective religiosity or employment status.

For women, the interaction effects indicate the presence of denomination by life stage variation in the odds of having obesity (see Table 3, Model 3). Specifically, there were significant differences in life stage comparisons between the obesity odds of Baptist and Pentecostal women. The odds of having obesity were similar for Baptist women whether they were in young adulthood or one of the other life stage groups. In contrast to

comparisons between young adult Baptist women and the two middle adult Baptist groups, obesity odds for early middle adult (OR = 3.64, 95 percent CI = 1.18–11.26) and late middle adult Pentecostals (OR = 3.50, 95 percent CI = 1.38–8.92) significantly differed from young adult Pentecostal women. Thus, the obesity odds ratio comparing young adult Pentecostal women to middle-aged Pentecostal women was more than triple the ratio attained when doing a similar comparison among Baptist women. The interaction term for denomination and life stage in Model 3 affected the significance of the employment status control; unemployed women were now less likely to have obesity than women who were employed. All other controls predicting dissimilar obesity odds for women in Model 2 maintained significance in Model 3.

Discussion

The main objective of this study was to assess whether denominational differences in the odds of having obesity vary by life stage among black Christian adults in the United States. Disaggregating participants based on gender, denomination, and life stage highlighted the presence of within- and between-group variation in health outcomes among black Christians. Also, results indicated that frequent church attendance was associated with greater odds of having obesity for both men and women. Overall, these findings suggest that the obesity benefits and risks experienced by black Christians are not uniform and that religious researchers should be careful when consolidating this diverse group while conducting health research.

The present findings, which suggest that denominational differences in obesity may vary by life stage among black Christian women, are novel. Previous research about the relationship between denomination and obesity found that Baptists were most likely to have obesity (Cline and Ferraro 2006; Dodor 2012). Past studies also found no denominational differences (Schlundt et al. 2008; Bentley-Edwards et al. 2020) or that obesity differed only among men (Taylor et al. 2013; Kim, Sobal, and Wethington 2003). Since all participants in this study were black, differences in the racial composition of other samples may have contributed to the observed discordance (Cline and Ferraro 2006; Kim, Sobal, and Wethington 2003; Schlundt et al. 2008). For researchers using entirely black samples, methodological decisions to examine only young adults (Dodor 2012) or to consolidate Protestant men (Taylor et al. 2013) and all age groups (Bentley-Edwards et al. 2020) might have generated discrepancies. The divergence between the current findings and previous work shows the importance of considering the effects of multiple, intersecting social identities (Brown et al. 2016) when examining the relationship between religion and health.

Health researchers have identified a pattern for which women in middle adulthood experience obesity at higher rates than both younger and older women (Flegal et al. 2016). It is beyond the scope of this study to outline the combined biological and social mechanisms that contribute to the previously observed life stage differences in obesity rates. However, the current findings suggest that the magnitude of life stage differences in obesity odds may not be the same across women from all denominations. Given that black women in the faith affiliations contrasted in this study likely face similarly dispersed physiological and nonreligious social challenges, it is unclear why women from the two middle-aged groups

of Pentecostal women were so much different from their younger counterparts. Perhaps, unique cultural and contextual factors influence the religious experiences and, ultimately, the obesity outcomes of middle-aged Pentecostal women.

Prior research may provide insight into why the life stage differences in obesity odds were larger for Pentecostal women than the Baptist reference group. First, there is extensive literature among black Americans indicating that Pentecostals, women, and older people tend to be more religiously engaged than Baptists, men, and younger people, respectively (Taylor, Chatters, and Brown 2014; Taylor et al. 2009; Taylor, Chatters, and Joe 2011). If greater involvement in church is related to having obesity, as the current findings suggest, then it is plausible that people who belong to multiple heavily involved groups would have the highest obesity odds (Brown et al. 2016). Further, a recent study found that Pentecostal women in young adulthood (i.e., aged 24–32) were more likely to have hypertension, a condition commonly comorbid with obesity, compared to Baptists (Robbins et al. 2020). Although hypertension is not the cause of the obesity differences observed in this study, it is notable that Pentecostal women had unfavorable health outcomes in two unrelated data sets. Both studies signal the need to further investigate whether this is related to unique cultural socialization and health behavioral norms within this denomination or if there are larger systemic issues that contribute to greater odds that Pentecostal women have both hypertension and obesity.

Group differences in messages about health and self-care are other possible explanations for the current findings. Pentecostal women often are expected to be highly religiously committed, which is an attribute that has been linked to having a higher likelihood for underestimating weight (Kim 2007). Misjudging weight may be related to social norms about having obesity or perhaps the elevation of spiritual matters over secular issues (Calhoun-Brown 1998). High religious commitment and an “otherworldly” orientation are prominent features in the Pentecostal culture (Tangenberg 2007), which could contribute to women being less concerned about managing obesity.

Many middle-aged black women have internalized the expectation that they will balance numerous religious and life tasks, while requesting minimal external assistance as a display of personal strength (Abrams et al. 2014; Woods-Giscombé 2010). However, striving to appear graceful in the face of unsustainable responsibilities might be greater among Pentecostal women, who are socialized to believe that overexertion is both a symbol of black womanhood and a sign of devotion to their faith (Walker-Barnes 2014; Casselberry 2017). Casselberry (2017) noted that Pentecostal women aged between 25 and 50 have heavier service expectations than women of other ages. Since socialization toward a similar path of leadership and sacrifice begins during the latter half of young adulthood (Abrams et al. 2014), these women may begin experiencing the cumulative effects of their extensive service during middle adulthood. High secular life demands in conjunction with religious role expectations likely leave minimal time for important health maintenance behaviors. Thus, it is plausible that the larger obesity odds gaps between younger and middle-aged Pentecostal women compared with those seen in other denominations are a sign of protracted exposure to cumulative obligations. Though, this claim can only be verified using longitudinal study designs.

Regarding religious measures aside from denomination, men reported lower subjective religiosity and less frequent church attendance than women, but both groups were relatively religiously engaged. Given the age of the NSAL data set and the documented declines in black religiosity (Brown, Taylor, and Chatters 2015), these percentages would likely be lower and obesity rates would likely be higher if the data were collected today. Despite changes in religiosity, prior research notes that people who attend church regularly may have increased access to health supporting structures, such as wellness screenings and collective encouragement to participate in physical activity and healthful eating (Aldwin et al. 2014; Morgan et al. 2012; Debnam et al. 2012). Though, many of these health support structures may not have been as widely used when the data were collected.

In this study, both men and women who attended church nearly every day had higher obesity odds than those who attended regularly, but less frequently. This suggests that any potential health support that church communities provide may not extend to those who invest the most time. Again, extensive church involvement in addition to nonreligious duties may reduce one's ability or inclination to coordinate healthy meals or participate in physical activity. In addition, gender differences in which church attendance categories predicted lower obesity odds provides further evidence that the mechanisms relating religion to health risk and resilience may be dissimilar for men and women (Robbins et al. 2020; Godbolt et al. 2018; Bruce et al. 2007). This reinforces the need to study the health effects on these groups separately before deciding to consolidate men and women.

Although several of the control variables predicted significant differences in obesity odds, education and income were of particular interest as possible explanations for these obesity differences, especially given their relationship to religious participation (Taylor, Chatters, and Brown 2014) and obesity outcomes. Reporting at least some higher education predicted lower obesity odds for women, but this factor was not protective for men. The findings regarding income were also different for men and women, with 4th quartile income predicting higher obesity odds for men and lower odds for women. Significant differences were not present between the lowest income quartile and the two middle quartiles. Any lack of protection provided by education or income might have resulted from the use of an entirely black sample. Previous studies consistently find that higher socioeconomic status (SES) is less protective and explains less variation in health differences for black people (Case et al. 2018; Williams, Priest, and Anderson 2016). This is likely related to systemic factors that affect blacks regardless of class, which can include chronic exposure to discrimination (Colen et al. 2018) and limited differences between the median black household in each income and wealth quintile (Darity, Addo, and Smith 2020). Considering this information and the significance of the interaction even after controlling for SES, denominational class differences are a less compelling explanation for the current findings.

Limitations and Future Directions

Although this study improves upon previous research by examining how gender and life stage may predict differential obesity odds among some black American Christians, several limitations should be addressed with future research. First, the weight and height data used to calculate BMI were self-reported. Although BMI was the best obesity measure used

in the NSAL, sometimes the standard BMI cutoff for obesity is an inaccurate proxy for cardiometabolic risk, especially for women (Tomiya et al. 2016; Rothman 2008). Clinical or researcher-collected data and the use of diverse adiposity metrics will add precision to future religion and obesity studies.

This study used secondary data that were unable to sufficiently control for group differences in physical activity and diet. Similarly, certain denominations may be more able to participate in health promotions that target obesity because of contextual factors (e.g., urbanicity, access to resources). The inability to control for these differences might have impacted these results. Future researchers should attempt to determine whether accounting for diet and physical activity or health promotion access fully explains the differences observed in this study.

This study did not include an assessment of nontraditional Christian faiths and non-Christian faiths due to methodological and sample size limitations. Although this study included members of five of the largest Christian affiliations in the United States, future studies should include participants from a wider range of faiths. This is especially true given that denominational trends are likely much different now than they were when the NSAL data were collected. Finally, the cross-sectional design prevents this study from making causal links between denomination, life stage, and obesity, as data were only collected at one timepoint. Thus, it was impossible to determine whether exposure to specific denominational cultures and behaviors over time can cause one to develop obesity. Furthermore, this study was unable to account for the likelihood that some participants transferred denominations prior to data collection. Therefore, this analysis could not conclude whether current BMI was more closely related to the current or a previous affiliation. Researchers should attempt to replicate these findings using longitudinal designs that adjust for denominational changes over time.

Conclusions

To accurately evaluate whether religion provides health protections for black Americans, researchers must consider the diverse religious experiences found among members of this group. The current findings emphasize the interacting role religious affiliation and developmental life stage may play in predicting the health outcomes of black Christian women in the United States. The results from this study highlight the importance of stratifying black adults based on demographic and contextual factors when conducting research on religion and health, as some groups might experience different outcomes than others. Thus, religious researchers must assess the appropriateness of merging black Protestants of varying denominations and ages into a single category when conducting health research, even if such a merger is appropriate when studying other outcomes. Also, this study provides support for the assertion that attending church regularly may be a protective factor, but attending too frequently may expose black Christians to added health risk.

This study identifies some key background characteristics that researchers, healthcare practitioners, and clergy should consider when implementing faith-based or faith-placed

health initiatives. The current findings can inform better targeted strategies for community health engagement efforts in order to effectively implement prevention and intervention programs that address denominational and life stage appropriate issues, rather than administering a one-size-fits-all program to black people who have varying obesity risk. By recognizing that certain groups, such as middle-aged black Pentecostal women and those who are engaged at church most frequently, might be expected to balance inordinate church and life responsibilities, faith communities and health practitioners can expand obesity interventions to include guidance on role management and realistic role expectations. To reduce the rates of obesity and improve the overall cardiovascular health of the black community, researchers must continue exploring how cultural and behavioral differences may support or diminish health outcomes for black people from dissimilar backgrounds within religious contexts.

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Table 1:

Characteristics for total sample, women, and men

Variable	Total <i>n</i> = 3,336 <i>n</i> (%)	Women <i>n</i> = 2,223 <i>n</i> (%)	Men <i>n</i> = 1,113 <i>n</i> (%)
Obesity			
Not obese (BMI < 30)	2,033 (65.0)	1,250 (60.6)	783 (73.6)
Obese (BMI ≥ 30)	1,095 (35.0)	814 (39.4)	281 (26.4)
Denomination			
Baptist	2,119 (63.5)	1,424 (64.1)	695 (62.4)
Methodist	276 (8.3)	176 (7.9)	100 (9.0)
Pentecostal	282 (8.5)	215 (9.7)	67 (6.0)
Non-Denom. Protestant	154 (4.6)	90 (4.1)	64 (5.8)
Catholic	505 (15.1)	318 (14.3)	187 (16.8)
Life stage			
Young (18–30)	771 (23.1)	531 (23.9)	240 (21.6)
Early middle (31–45)	1,196 (35.9)	816 (36.7)	380 (34.1)
Late middle (46–60)	794 (23.8)	507 (22.8)	287 (25.8)
Late (61 or older)	575 (17.2)	369 (16.6)	206 (18.5)
Education years			
0–11	883 (23.6)	541 (24.3)	292 (26.2)
12	1,219 (35.6)	807 (36.3)	412 (37.0)
13–15	779 (23.4)	531 (23.9)	248 (22.3)
16 or greater	505 (15.1)	344 (15.5)	161 (14.5)
Region			
Northeast	798 (23.9)	537 (24.2)	261 (23.5)
Midwest	402 (12.1)	273 (12.3)	129 (11.6)
South	1,979 (59.3)	1,310 (58.9)	669 (60.1)
West	157 (4.7)	103 (4.6)	54 (4.9)
Birthplace			
U.S. born	2,713 (82.3)	1,817 (82.7)	896 (81.6)
Foreign born	582 (17.7)	380 (17.3)	202 (18.4)
Employment status			
Employed	2,234 (67.1)	1,442 (64.9)	1,066 (71.7)
Unemployed	307 (9.2)	226 (10.2)	115 (7.7)
Not in labor force	789 (23.7)	553 (24.9)	306 (20.6)
Marital status			
Married/cohabiting	1,222 (36.7)	683 (30.8)	539 (48.5)
Divorce/separated/widow	1,076 (32.3)	799 (36.0)	277 (24.9)
Never married	1,034 (31.0)	739 (33.3)	295 (26.6)
Income			
1st quartile	969 (29.1)	734 (33.0)	235 (21.1)
2nd quartile	851 (25.5)	606 (27.3)	245 (22.0)
3rd quartile	810 (24.3)	491 (22.1)	319 (28.7)

Variable	Total <i>n</i> = 3,336 <i>n</i> (%)	Women <i>n</i> = 2,223 <i>n</i> (%)	Men <i>n</i> = 1,113 <i>n</i> (%)
4th quartile	706 (21.2)	392 (17.6)	314 (28.2)
Church attendance			
Once/year or fewer	454 (13.6)	257 (11.6)	197 (17.7)
A few times/year	642 (19.2)	366 (16.5)	276 (24.8)
1–3 times/month	861 (25.8)	573 (25.8)	288 (25.9)
1–3 times/week	1,212 (36.3)	902 (40.6)	310 (27.9)
4+ times/week	167 (5.0)	125 (5.6)	42 (3.8)
Subjective religiosity			
Very religious	1,115 (33.6)	794 (35.8)	321 (29.0)
Fairly religious	1,833 (55.2)	1,208 (54.5)	625 (56.5)
Not religious	375 (11.3)	215 (9.7)	160 (14.5)
	Mean (<i>SD</i>)	Mean (<i>SD</i>)	Mean (<i>SD</i>)
Age	43.8 (16.1)	43.4 (16.1)	44.7 (16.1)

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Table 2:

Logistic regression analysis predicting obesity odds for men

	Model 1	
	OR	95% CI
Denomination [ref. = Baptist]		
Methodist	.60	(.25–1.44)
Pentecostal	1.40	(.52–3.81)
Non-Denom. Protestant	.94	(.39–2.29)
Catholic	1.05	(.69–1.58)
Life stage [ref. = young adult (18–30)]		
Early middle (31–45)	1.50	(.76–2.95)
Late middle (46–60)	1.20	(.66–2.19)
Late (61 or older)	.66	(.30–1.41)
Education [ref. = 0–11 years]		
12 years	.66	(.41–1.05)
13–15 years	.60	(.33–1.08)
16 years or greater	.92	(.48–1.77)
Employment status [ref. = Employed]		
Unemployed	.89	(.37–2.14)
Not in labor force	.99	(.53–1.87)
Marital status [ref. = never married]		
Married/cohabiting	1.30	(.84–2.03)
Divorced/separated/widow	.92	(.51–1.66)
Income [ref. = 1st quartile]		
2nd quartile	1.64	(.96–2.80)
3rd quartile	1.40	(.78–2.52)
4th quartile	1.95*	(1.01–3.77)
Region [ref. = Northeast]		
Midwest	.54	(.26–1.12)
South	.64	(.39–1.03)
West	.33*	(.13–.82)
Birthplace [ref. = U.S. born]		
Foreign born	.16***	(.07–.38)
Church attendance [ref. = 4+ times/week]		
Once/year or fewer	.39	(.15–1.02)
A few times/year	.44	(.17–1.14)
1–3 times/month	.29**	(.12–.66)
1–3 times/week	.38*	(.15–.95)
Subjective religiosity [ref. = very religious]		
Fairly religious	1.20	(.80–1.79)
Not religious	.61	(.28–1.33)

Notes: OR = odds ratio; CI = confidence interval; $n = 1,047$.

*
 $p < .05$

**
 $p < .01$

 $p < .001$.

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Table 3:

Logistic regression analysis predicting obesity odds for women

	Model 2		Model 3	
	OR	95% CI	OR	95% CI
Denomination [ref. = Baptist]				
Methodist	.77	(.51–1.17)	2.05	(.61–6.91)
Pentecostal	1.43	(.97–2.12)	.59	(.26–1.34)
Non-Denom. Protestant	1.06	(.44–2.52)	.97	(.18–5.25)
Catholic	1.01	(.66–1.54)	.86	(.44–1.66)
Life stage [ref. = young adult (18–30)]				
Early middle (31–45)	1.32	(.91–1.91)	1.18	(.80–1.73)
Late middle (46–60)	1.52 *	(1.07–2.17)	1.32	(.88–1.99)
Late (61 or older)	.89	(.46–1.72)	.81	(.39–1.69)
Education [ref = 0–11 years]				
12 years	.86	(.66–1.13)	.87	(.65–1.18)
13–15 years	.63 *	(.44–.91)	.60 **	(.41–.88)
16 years or greater	.46 ***	(.29–.74)	.45 ***	(.28–.71)
Employment status [ref. = employed]				
Unemployed	.74	(.53–1.04)	.71 *	(.51–.99)
Not in labor force	.93	(.68–1.27)	.94	(.69–1.27)
Marital status [ref. = never married]				
Married/cohabiting	1.69 ***	(1.26–2.26)	1.67 ***	(1.25–2.22)
Divorced/separated/widow	1.26	(.91–1.74)	1.27	(.91–1.77)
Income [ref. = 1st quartile]				
2nd quartile	.77	(.55–1.07)	.77	(.55–1.08)
3rd quartile	.85	(.63–1.14)	.88	(.65–1.17)
4th quartile	.57 *	(.36–.92)	.58 *	(.37–.91)
Region [ref. = Northeast]				
Midwest	1.31	(.96–1.79)	1.25	(.89–1.76)
South	.98	(.72–1.32)	.95	(.68–1.31)
West	.65 *	(.44–.96)	.64 *	(.42–.98)
Birthplace [ref. = U.S. born]				
Foreign born	.33 ***	(.21–.51)	.30 ***	(.20–.45)
Church attendance [ref. = 4+ times/week]				
Once/year or fewer	.81	(.45–1.46)	.80	(.44–1.47)
A few times/year	.61 *	(.38–.96)	.60 *	(.38–.96)
1–3 times/month	.62 *	(.39–.99)	.61 *	(.37–.99)
1–3 times/week	.71	(.45–1.13)	.69	(.44–1.10)
Subjective religiosity [ref. = very religious]				
Fairly religious	1.23	(.93–1.61)	1.22	(.93–1.58)

	Model 2		Model 3	
	OR	95% CI	OR	95% CI
Not religious	1.05	(.65–1.70)	1.01	(.63–1.63)
Denomination x age cohort				
Methodist x early middle			.28	(.07–1.06)
Pentecostal x early middle			3.64*	(1.18–11.26)
Non-Denom. x early middle			1.17	(.21–6.41)
Catholic x early middle			1.29	(.49–3.36)
Methodist x late middle			.41	(.10–1.70)
Pentecostal x late middle			3.50**	(1.38–8.92)
Non-Denom. x late middle			1.07	(.14–8.09)
Catholic x late middle			1.34	(.48–3.75)
Methodist x late			.38	(.07–2.15)
Pentecostal x late			2.43	(.50–11.76)
Non-Denom. x late			1.05	(.08–13.47)
Catholic x late			1.08	(.24–4.84)

Notes: OR = odds ratio; CI = confidence interval; $n = 2,037$.

*
 $p < .05$

**
 $p < .01$

 $p < .001$.