Mortality Differentials by Religion in the U.S.

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This paper examines the relationship between adult mortality and religious affiliation in the contemporary U.S. using data from the Health and Retirement Study. Jews and Mainline Protestants have longer life expectancies, even when controlling for background characteristics such as gender and race. I test whether these mortality differences can be attributed to differences in education, health behaviors, or psychosocial support. The first two reduce but do not eliminate mortality differences. The effect of psychosocial support, measured separately by attendance and importance, varies dramatically by religion. These results show that studies examining the effect of "religiosity" on health and mortality need to consider differences by religious affiliation.

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Introduction

Mortality differentials exist by sex, socioeconomic status, race and ethnicity, and many other characteristics in the U.S. Less is known about the effect of religion on mortality. Some research points to a mortality advantage for the religious relative to the unreligious (Bagiella, Hong and Sloan 2005; Hummer et al. 1999; Koenig, McCullough and Larson 2001; McCullough et al. 2000), but studies have not examined mortality differentials by religion. (Hummer et al. 2004; Jarvis and Northcott 1987) Data that include both religious affiliation and mortality are difficult to find, because neither the Census nor vital statistics collect affiliation information.

The Health and Retirement Study (HRS), is a longitudinal panel study of older Americans. The HRS is representative of the population over age 50. Risks of developing chronic disease and of dying start to increase after age 50, making the HRS particularly useful for analyzing how religion affects mortality. Using HRS data, I find differences in life expectancy at age 55 by religious affiliation as large as 4.5 years, with mainline Protestants having the lowest mortality of any religious group. This gap is comparable to the difference between males and females (5.1 years) (National Center for Health Statistics 2007), Black and White males (6.2 years) (National Center for Health Statistics 2007), and educational subgroups (4.5 years) (Hayward et al. 2008).

Many mechanisms may link mortality and religions. The differences in mortality may be due to the socio-demographic composition of each religion or could be attributable to specific characteristics of different religions. For example, the rules or norms of a religion may forbid deleterious behaviors such as drinking or smoking and thus have strong effects on health. Being

part of a religious community may provide social support, which can in turn affect health. I document mortality differentials across Catholic, Jewish, three Protestant groups (Mainline, Evangelical, and Black), and those with no religious preference and examine the impact of socio-demographic composition, health behaviors, and psychosocial support to see how much these mechanisms explain differences in mortality.

Background

Much of what is known about religious differences in mortality is from historical studies. Historical mortality differentials by religion are well-documented, particularly for Jews in the U.S. in the early 20th century, (Condran and Preston 1994) and Catholics and Protestants in Europe in the 19th century (van Poppel, Schellekens and Liefbroer 2002). Most historical work was in response to Durkheim's work on suicide and the social integration of Catholics and Protestants. The mortality conditions today are very different than those 100 years ago. Effective health behaviors are now more widely known and the risk of infectious disease is much lower. Nonetheless, mortality differentials by religion have been observed recently in other parts of the world and the U.S. even when controlling for biological, behavioral, and socioeconomic differences (Lee and Newberg 2005; Koenig et al. 2001).

More recent studies on religious affiliation and mortality show an association but are based on data from Europe. A Finnish study of middle-aged men finds higher mortality for Eastern Orthodox over Lutheran and non-affiliated persons between 1984 and 1989 (Rasanen et al. 1996). Shkolnikov et al. (2004) find large life expectancy gaps (11 years for males) for Jews relative to non-Jewish Russians in Moscow between 1993 and 1995. O'Reilly and Rosato (2008) found elevated mortality risks for Catholics relative to Protestant groups in Ireland, and also large variations in mortality risks among Protestant sub-groups. These studies are in contexts that do not fit the U.S. well. For example, the U.S. has more religious diversity than Finland or Ireland.

Recent U.S. studies are limited. Dwyer, Clarke, and Miller (1990) find mortality differentials by concentration of religious affiliation by county, but do not address the direct effects of affiliation at the individual level. Many other studies compare the mortality of one specific religious subgroup to the rest of the population. Limited research on this subject restricts the conclusions that can be drawn about the effects of any religion on mortality or how this relationship may vary over time and place. (Lee and Newberg 2005; Rasanen et al. 1996) These studies do, however, suggest mechanisms explaining differences.

Table 1 shows the differences in life expectancy at age 55 by religious affiliation of the HRS sample. Many religious groups exist in the U.S., here I look at the largest 6: Mainline Protestants, Evangelical Protestants, Black Protestants, Catholics, Jews, and those with no religious preference. Mainline Protestants have a clear mortality advantage over the other groups, and those with no preference are at a mortality disadvantage.

First, socioeconomic status may partly explain mortality differentials by affiliation. Some research on fertility differentials has pointed out that "what may seem to be a religious influence often reflects the fact that the members of any denomination are typically concentrated in a very few places in the social structure as defined by occupation, education, or any other of the usual indices." (Petersen in Mosher and Hendershot 1984). For example, the Russian and Irish studies both found that the differences in mortality by religious affiliation were mostly accounted for by the higher levels of socioeconomic status (O'Reilly and Rosato 2008; Shkolnikov et al. 2004).

Members of different religions in the U.S. have documented differences in demographic composition and socioeconomic status (Smith and Faris 2005). Catholic and Protestant religions

have a larger proportion of female members than Jews and the non-affiliated. Catholics also have a higher proportion (29%) of Latinos than all other denominations in the HRS sample. Many (23%) are immigrants from Mexico and other Latin American countries. On the other hand, Protestants are almost all (94%) U.S.-born. Protestants have a higher proportion Black (16%) than other denominations. (Pew Research Center 2008) Jews and liberal Protestants (such as Presbyterians and Episcopalians) have more education and income than other religious groups in the U.S. whereas those affiliated with Evangelical churches have a lower education distribution and levels of income. (Lehrer 2004; Pew Research Center 2008; Smith and Faris 2005) The mortality advantage of Mainline Protestants could be an artifact of their socioeconomic and racial composition.

Second, denominations vary in their behavioral expectations, which may lead to systematic health differences. Most contemporary work on religion and mortality differentials has focused on denominations with strict behavioral codes that prohibit drinking or smoking, such as Seventh Day Adventists (see Koenig et al. 2001 for a review) and Mormons (Enstrom and Breslow 2008; Lyon et al. 1983); both these sects have unusually long life expectancies. More broadly, religious involvement, particularly attendance, is inversely linked with alcohol use with important differences by affiliation. Conservative Protestants have more abstainers than other religions; Catholics and liberal Protestants have fewer abstainers and more heavy drinkers; and Jews drink less. (Koenig et al. 2001). Clearly, excessive alcohol consumption is unhealthy; however, evidence suggests that moderate alcohol consumption is protective. Religion may also affect how members respect their bodies, in that many religions teach that gratitude for good health is an important tenet. (George, Ellison and Larson 2002) Additionally, if religions differ in the amount

of social regulation they exert over their members, the impact of the restrictions may vary. So, the potential mortality impact of behavioral regulations is not quite clear.

Finally, psychosocial support may link religion and mortality. Involvement in religion is positively related to psychological well-being (Schnittker 2001), perhaps through access to supportive social networks and also spiritual comfort members derive from engaging in prayer and other private activities.

Belonging to a religious group often implies a 'community membership' or access to a social network (Jarvis and Northcott 1987). Social support, often measured in terms of participation and community activities, is known to be protective against mortality (House, Umberson and Landis 1988; Thoits 1995). Plus, attendance may be a reflection of commitment and integration into the religious community. Most famously, Durkheim theorized that religions with strong social ties and behavioral norms deterred suicide. Since Catholics are required to attend religious services more frequently than Protestants, Durkheim hypothesized that the increased social contact would lead to greater social integration and lower rates of suicide. Increased social contact and membership in a social network are both captured in variables that measure the frequency people attend religious services.

Weekly attendance (versus less regular) at religious services has been shown to be protective (McCullough et al. 2000; Strawbridge et al. 2001) but the effect of attendance by religious affiliation is less clear. Given religious differences in values and norms as well as attendance patterns between religions, it would seem that the effect of attendance would vary by religion. In fact, many studies on the effect of religiosity ignore religious affiliation (Lehrer 2004). Increased

attendance could plausibly be linked with greater internalization of teachings and a deeper integration into religious networks, which in turn contribute to greater adherence to normative behaviors. Other studies looking at religion and fertility have, in fact, found regular attendance to be a better predictor of fertility than affiliation. (Philipov and Berghammer 2007) For Catholics, attendance also is necessary for social service provisions to affect fertility levels, an effect not found for Protestants, (Berman, Iannaccone and Ragusa 2007) implying that attendance may have different effects for different affiliations.

Attendance at religious services is complicated by health status. Those in poor health are both less physically able to attend services and more likely to die. Some studies have controlled for baseline health status and still found significant results, but remembering the limitations of this measure is important. Using denomination affiliation is advantageous because denomination is not subject to the endogeneity of attendance with respect to health and mortality.

Religion may be correlated with marital status, another commonly used way to measure social support (House et al. 1988). Marriage is strongly associated with better health and longer life (Waite and Lehrer 2003). Being married generally means having a partner to provide emotional support and leads to increases in economic well-being (Waite and Lehrer 2003). Marriage is clearly an important factor in adult health, and religions may vary in how they encourage and support marriage (Waite and Lehrer 2003), so this type of social support may be different across religions.

Religion can also impact health through spiritual comfort. Religions differ in how they approach problems; Lee & Newberg (2005) speculate that these differences may have

implications for managing health problems. For example, they say that Buddhist beliefs lead practitioners to endure pain "matter-of-factly", Hindus may detach themselves from discomfort, Jews and Muslims resist pain, and Christians seek "atonement and redemption" (p454). Although these practices may not affect health directly, they seem to suggest different thresholds and approaches to seeking medical care. These qualities, however, are difficult, if not impossible, to measure well, but may explain differences in mortality that cannot be accounted for with observed behaviors and characteristics.

The differences in psychosocial support by religion are less clear. If psychosocial support is the mechanism through which religion affects health, then affiliation may be less important than other indicators of religiosity. Mortality differentials may not be teachings or tenets but instead members' involvement. If social support is the mechanism, then frequency of attendance may matter more than affiliation. However, some religious groups are more community oriented while others are more individualistic. To the extent these differences exist, levels of support will vary by affiliation. Also, the differences between the religious and the unreligious should be largely eliminated once attendance – not affiliation – is controlled. If spiritual strength and comfort is the key mechanism through which religion affects health, then religious importance (measured) and private religious practices (unmeasured) should have strong effects. The effects might vary between religions, but controlling for importance should, in this instance, reduce the penalty of the unreligious, who are not exposed to the positive benefits associated with attending church. (Lehrer 2004)

Drawing on the prior literature, I test three possible explanations for the variation in longevity by religious affiliation.

- Hypothesis 1: If mortality differentials by religion are an artifact of the different socio-demographic compositions of religious affiliations, controlling for socioeconomic status and demographic composition should reduce or eliminate the advantage of Jews and Mainline Protestants. It should also reduce or eliminate the disadvantage of those with no religious preference (who have a higher proportion of males) and Black Protestants.

- Hypothesis 2: If the relationship between religious affiliation and mortality is a result of differing health behaviors, then controlling for smoking and drinking should decrease the advantage of small, strict sects, found mostly in the Evangelical group. It should also remove some of the disadvantage of the Evangelicals due to their forgoing the health benefits of moderate alcohol consumption.

- Hypothesis 3: If psychosocial support is the important mechanism explaining the relationship between religion and mortality, then the main effects of attendance and importance should be protective. It is difficult to predict how this may vary by affiliation.

Data & Methods

To analyze the mechanisms that may explain mortality differences by religion, I use data from the HRS[1], a panel study of older adults in the U.S. The HRS is representative of the non-institutionalized adult population over the age of 50, starting in 1992. It includes detailed data on respondents' health and health behaviors and financial and employment status, among other topics. Respondents included in this study are those who were recruited into the study by 2002. Those with missing data on key variables, such as religious affiliation, are excluded.[2] Respondents who became lost to follow-up are censored at the date of their last interview.

To measure religion and religious affiliation, respondents were asked a series of questions about religion, starting with, "what is your religious preference, are you Protestant, (Roman) Catholic, Jewish, or something else?" Protestants were asked which denomination, and those who said other were asked to specify. Protestants are a large and heterogeneous group. Thus, I broke them into smaller, more theoretically interesting categories using the groups proposed by Steensland et al. (2000) The HRS data for 1992, 1994, and 1996 give specific denominations for Protestant respondents. For respondents from the AHEAD sample (1991 and 1993), as well as those entering the study in 1998 or later, the HRS only provides affiliation groups,[3] which are inconsistent with literature on religion. Therefore, the Protestant sub-groups only come from

[1] More information on the HRS is available elsewhere (http://hrsonline.isr.umich.edu/)

[2] Future drafts of this paper will have more detailed information on missing data.

[3] I am working to obtain access on the full spectrum of religion data collected by the HRS.

respondents who entered the HRS in 1992, 1994, or 1996, whereas the non-Protestant religion categories include all waves. Some religious groups were omitted. A few Protestant categories had very few respondents and the "other religion" (e.g., Muslim, Buddhism) category was too small and too diverse to be meaningful for analysis. Thus, the categories used here are Catholic, Jewish, None/No Preference, mainline Protestants[4], Evangelical Protestants[5], and Black Protestants[6].

Respondents were asked about religious attendance and importance. In some waves, they were asked, "About how often have you attended religious services during the last year? (Would you say more than once a week, once a week, two or three times a month, one or more times a year, or not at all?)" Respondents who previously said they had no religious preference were not asked this question in the second wave. In other waves respondents were asked, "How important would you say religion is in your life; is it very important, somewhat important, or not too important?"

Covariates used in this analysis include self-reported sex (male or female), race/ethnicity (non-Hispanic White, non-Hispanic Black, Hispanic, and Other), years of education (0-17+), marital status (married/partnered, divorced/separated, widowed, and never married), and smoking and alcohol consumption. The HRS asks about current and former smoking behaviors, as well as alcohol consumption. Due to slight changes in how respondents were asked about

[4] Due to HRS data, "Reformed" Protestants are in the Evangelical, not mainline category

[5] All non-denominational Protestants were included in this category.

[6] Due to slight differences between HRS and Steensland categorization, 72 Black Protestants were assigned to this category when they may be Evangelical Protestants.

alcohol consumption, the categories used here are broad: those who never drink, those who drink moderately, and those who drink heavily. For time-varying covariates, I use the respondent's status at their first interview.

Table 2 presents characteristics of the sample by religion. Variation in mean year of birth by affiliation is due to the limited availability of Protestant affiliation in select waves. The proportion male in the no affiliation category is much higher than the others. Mainline Protestants and Jews include higher proportions of white people and higher mean years of education. Catholics include more Hispanics than the other groups, and the Black Protestant group is (by definition) almost entirely Black.[7] Black Protestants and those with no preference have the highest proportion of current smokers; Evangelical Protestants, as expected, have the highest proportion of those who do not drink. Mainline and Evangelical Protestants have the highest proportion of currently married people, although this is due at least in part to the slightly younger age distribution relative to Catholics, Jews, and those with No Preference. Black Protestants and those with No Preference have higher proportions separated or divorced than the other religions. Evangelical Protestants and Black Protestants report the highest proportion of those who say religion is very important to them and also have the highest reported attendance of all the groups, consistent with the literature on this subject (Lehrer 2004).

To estimate mortality differentials by religious affiliation, I use survival analysis (Cleves, Gould and Gutierrez 2004). Respondents enter the analysis at the date of their first interview and

[7] The religious categories, as mentioned above, are based on those by defined by Steensland et al., not by race, so Black Protestant refers to denominations that are traditionally Black, not to Blacks who are Protestants.

continue until their death or the date of their last interview. I first estimate mortality by religion unadjusted for other characteristics, and then adjusted for other characteristics: gender, race/ethnicity, and years of education.

Results

Figure 1 shows the survival rates of the various groups. Jews and Mainline Protestants have lower mortality levels than their counterparts. Black Protestants, Evangelical Protestants, and those who report no religious preference have higher levels of mortality than the other groups, and those who report no religious affiliation have an earlier increase in mortality than those in each religious group. The curves for the Protestant denominations are not as smooth because of the smaller samples due to missing affiliation data in some waves. A log-likelihood ratio test reports significant differences in hazard rates by affiliation.

Table 3 shows the results from the Cox models. Model 1 shows the effects of religion on mortality with no covariates. As compared to Catholics, Mainline Protestants and Jews experience significantly lower mortality. Other types of Protestants and the non-religious have significantly higher mortality rates.

Models 2 and 3 test the first hypothesis, the extent to which the gender and race composition of religions explain mortality differences. This strengthens the effect of being a Mainline Protestant or Jew, probably due to the higher proportion of Hispanics in the Catholic group. It reduces the disadvantage for Black Protestants and those with no preference by over half, probably due to the proportion male and/or Black.

I next test the hypothesis that socioeconomic status explains the religion-mortality variation by including years of education. Education is very protective; each additional year of education decreases one's hazard of dying by 4.5% and is highly significant. Controlling for education

reduces the differences in relative risk of religious groups only modestly. Thus, socioeconomic status does not seem to explain the disparities fully, but Jews' advantage disappears, and Evangelical Protestants' disadvantage decreases but is still significant.

Health behaviors (hypothesis 2) also seem to explain a modest portion of the differences. Not surprisingly, smoking increases the hazard of mortality. Former smokers have a highly elevated risk of dying, and current smokers have an enormously elevated risk. Those who consume alcohol at moderate levels have a much lower risk than those who do not drink at all. The magnitude of the effect is hard to know for sure as some who do not drink at all abstain because they are ill. The effect of heavy drinking is insignificant, probably due to the very low number of respondents in this category. Controlling for health behaviors increases the advantage of Mainline Protestants, even though they have among the best health behaviors. It again weakens the disadvantage of the Black and Evangelical Protestants and those with no preference.

Next I investigate the effects of social support (hypothesis 3). Marriage is protective, relative to being separated, divorced, widowed, or never married. Attendance displays a roughly u-shaped pattern of effect. Attending more often than once a week is worse for longevity than once per week. Attending 2-3 times per month or 1 or more times per year have approximately the same effect. Not attending at all is associated with a much higher risk than attending regularly.

Table 4 focuses on the importance of religion. The models in Table 4 control for gender and race/ethnicity. Respondents who had missing data for attendance are excluded from this model; the sample is slightly unbalanced between table 3 and 4 so this has a small effect on the results. Model 1 is the same as model 3 in the previous table except for the slightly smaller sample due

to missings on importance. Model 2 controls for importance but not affiliation. If denomination is causally affecting mortality, those who have the strongest feelings should have the biggest effect; however, this does not seem to be the case. Although those who say religion is very important have a lower risk of mortality than those who say religion is somewhat or not too important, the effect of religion being somewhat or not too important is similar. It does not appear that there is a dose-response relationship of religious importance and mortality. Model three includes affiliation and importance. Controlling for both affiliation and importance does not affect the denomination variables a lot, with the exception of Jews and the None/No Preference group, both of whom see a small decrease in their hazard ratios relative to Catholics. Given that importance is protective, the relatively low mortality of Jews is in spite of low importance.

The effect of importance differs by affiliation, as shown in model 4.[8] Model 4 has dummy variables for importance by affiliation. For Catholics and Evangelical Protestants, the importance of religion has a positive relationship with mortality. Mainline Protestants and Jews seem to have the largest mortality advantage when religion is somewhat important. On the other hand, the None/No Preference group is worst off when religion is somewhat important. Black Protestants who say religion is not too important seem to have very low mortality, but this is probably an artifact of the very small number of people in that category. Surprisingly, the effect of importance of religion does not follow a consistent pattern across religions.

[8] A future version of this paper will analyze the effect of importance in greater detail.

Conclusion

I have examined mortality differentials by religious affiliation, an understudied subject, using a large and representative longitudinal dataset from the U.S. I find that Mainline Protestants have a large and robust mortality advantage over Black Protestants, Catholics, and Evangelical Protestants. Jews also have a mortality advantage, although the advantage is mostly explained by higher levels of education. I tested three different explanations of these differentials: socio-demographic status, health behaviors, and psychosocial support.

Socio-demographic status reduces some of the differences. It reduces much of the disadvantage of Black Protestants and those with no religious preference, and some of the disadvantage for Evangelical Protestants. Surprisingly, the advantage of Mainline Protestants increases when these controls are added.

Controlling for smoking and drinking behaviors (health behaviors that some religions explicitly prohibit) also mediates the differentials. Mainline Protestants, however, still have a sizeable, significant advantage. The Black and Evangelical Protestants are adversely affected by their health behaviors. Controlling for drinking and smoking reduces their disadvantage.

Lastly, controlling for psychosocial support using marriage and attendance and importance changes the story dramatically. These results tell us that mortality differentials by religion exist beyond socioeconomic status, and that the psychosocial support that practicing members of a denomination receive has large effects on mortality.

These findings are similar to other research that has found protective effects for attendance, but with large qualifications. Most other studies focus on only religiosity, looking at attenders versus non-attenders. Little research has looked at the effects of any particular denomination. The results here show that religiosity differs by affiliation, and that attendance and importance have different effects for different affiliations. Hummer et al. (1999) point out that the effect of religion disappears for those with 16+ years of education, an important qualifier given the different educational distributions by religion. Using attendance to measure the relationship between mortality and religion is inherently problematic; however, because illness may interfere with one's ability to attend services. New research needs to consider these issues more carefully.

There are some important limitations to this research. The effect of religion, particularly on health behaviors, is only effective to the extent that members obey guidelines. There are also issues of reverse causation and selectivity. It seems likely that religious commitment may change with age or with the onset of illness. Illness might affect religious commitment, although how so is difficult to speculate. Also, we do not have information on the religion in which respondents were raised. Religion switching may mask early life effects of membership in different religions, and those who change religions may be unique.

Understanding more about how different religious affiliations impact health and mortality can follow many directions. Future research should look into cause-specific mortality differentials by religion to see if any diseases show an affiliation differential. Future research should also address the specific psychosocial support from religion more directly. Is religion a unique type of social support, or do other organized groups offer the same mortality advantage?

The U.S. is a unique context to study religion because of its exceptional diversity and extent of religious involvement. As religion continues to play in important role in American society, it is important to understand more about the relationship between religion and health and mortality.

Tables & Figures

Table 1: Life Expectancy by Religious Affiliation at Age 55, HRS

Affiliation	e_{55}
None/No Preference	24.11
Black Protestant	25.00
Catholic	25.35
Jew	26.86
Evangelical Protestant	27.85
Mainline Protestant	29.70

Table 2: Descriptive Statistics by Affiliation, HRS
Proportion or Mean (S.D.)

	Mainline Protestant *n* = 2,846	**Black Protestant *n* = 1,526**	**Evan-gelical Protestant *n* = 3,364**	**Catholic *n* =7,121**	**Jewish *n* =663**	**None/ No Pref. *n* =1,464**
Year of Birth	1936.2 (5.7)	1936.6 (5.6)	1936.9 (5.7)	1930.7 (11.8)	1926.0 (12.6)	1933.3 (12.4)
% Male	47.3	41.6	45.8	42.8	44.3	59.9
Race/Ethnicity						
% White	94.4	0.6	87.8	72.1	98.3	82.8
% Black	3.0	99.2	5.0	3.2	0.6	9.5
% Hispanic	0.8	0.0	4.9	22.9	0.8	4.3
% Other	1.8	0.2	2.2	1.8	0.3	3.4
SES						
School Yrs (0-17)	13.1 (2.53)	11.0 (3.17)	11.7 (2.90)	11.2 (3.86)	13.8 (2.99)	12.4 (3.56)
Behaviors						
Smoking						
% Current	18.1	22.1	20.2	15.4	6.6	22.3
% Former	46.4	42.1	40.7	45.6	55.1	49.3
% Never	35.5	35.8	39.1	39.1	38.2	28.4
Drinking						
% Never	27.0	48.6	57.4	36.2	33.0	32.0
% Moderate	71.4	49.4	41.1	62.2	66.5	64.1
% Frequent	1.6	2.0	1.5	1.6	0.4	3.9
Marital Status						
% Married	84.7	64.7	84.5	73.4	74.5	72.9
% Separated/ Divorced	9.7	19.5	9.2	7.5	5.9	13.3
% Widowed	3.3	10.5	4.8	15.7	17.6	10.7
% Never Married	2.2	5.3	1.6	3.4	2.0	3.1
Importance of Religion						
Very	51.3	88.2	72.8	64.0	32.2	21.5
Somewhat	36.2	9.9	21.1	27.4	44.1	25.9
Not very	12.5	2.0	6.1	8.6	23.8	52.6
Attendance Frequency						
> 1 per week	6.4	20.5	26.1	11.7	4.3	2.3
Once per week	19.1	27.0	17.8	36.7	5.9	5.4
2-3 per month	18.0	24.4	12.0	13.4	11.7	4.5
1 or more per year	29.9	18.4	19.7	21.2	49.9	22.0
Not at all	26.6	9.7	24.5	16.9	28.2	65.9
# Deaths	351	323	493	1,596	188	321

Table 3. Cox Proportional Hazard Model Results
Hazard Ratio (z statistic)

	Model 1	Model 2	Model 3	Model 4	Model 5
Religion					
(ref = Catholic)					
Mainline Prot.	0.930 (-1.12)	0.858 (-2.34)	0.880(-1.95)	0.869 (-2.10)	1.016 (0.22)
Black Prot.	1.786 (8.62)	1.211 (1.81)	1.153 (1.35)	1.136 (1.20)	1.417 (2.90)
Evan. Prot	1.199 (3.08)	1.110 (1.76)	1.064 (1.04)	0.989 (-0.18)	1.312 (4.11)
Jew	0.880 (-1.65)	0.849 (-2.08)	0.937 (-0.83)	0.927 (-0.94)	0.864 (-1.61)
None/No Pref.	1.219 (3.23)	1.065 (1.00)	1.084 (1.28)	1.005 (0.08)	0.525 (-7.00)
Gender (Female)		0.624 (-13.08)	0.622 (-13.18)	0.645 (-11.47)	0.599 (-11.93)
Race/Ethnicity					
(ref = white)					
Black		1.421 (4.08)	1.341 (3.39)	1.291 (2.93)	1.347 (2.92)
Other		1.026 (0.17)	0.995 (-0.04)	0.970 (-0.20)	0.999 (-0.01)
Hispanic		0.873 (-2.18)	0.685 (-5.49)	0.695 (-5.22)	0.699 (-4.54)
Material					
Yrs of Education			0.954 (-8.76)	0.972 (-5.01)	0.962 (-6.25)
Behavioral					
Smoking					
(ref = Never)					
Former				1.380 (7.44)	
Current				2.764 (19.15)	
Alcohol					
(ref = None)					
Moderate				0.687 (-9.81)	
Heavy				0.998 (-0.02)	
Psychosocial					
Marital Status					
(ref = Married)					
Separated/Divorced					1.440 (5.46)
Widowed					1.092 (1.42)
Never Married					1.361 (2.96)
Attendance Frequency					
(ref = > 1 per week)					
Once per week					0.987 (-0.18)
2-3 per month					1.280 (3.09)
1 or more per year					1.318 (3.78)
Not at all					1.781 (8.21)
Chi sq	96.10	288.00	364.19	799.42	537.46

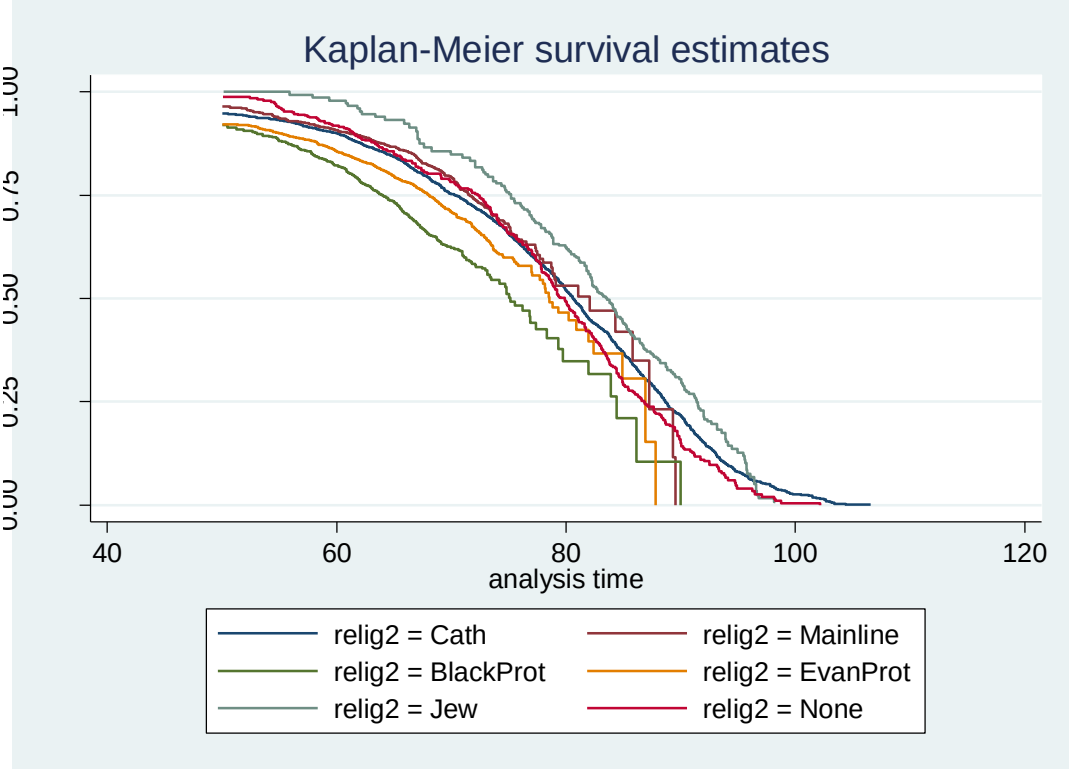
Table 4. Survival Model of Importance with Interaction effects

Note: This table has smaller ns because of missing data

Note: Table controls for gender, race/ethnicity, and education (coefficients not shown)

	Model 1	Model 2	Model 3	Model 4
Catholic (*n*= 6,293)	1.000 (Ref)		1.000 (Ref)	
Very important				1.000 (ref)
Somewhat important				1.182 (2.72)
Not too important				1.219 (2.17)
Mainline Protestant (*n*= 2,681)	0.827 (-2.49)		0.815 (-2.67)	
Very important				0.889 (-1.17)
Somewhat important				0.766 (-2.21)
Not too important				1.066 (0.38)
Black Protestant (*n*= 1,386)	0.991 (-0.08)		0.996 (-0.03)	
Very important				1.029 (0.23)
Somewhat important				1.659 (2.53)
Not too important				0.655 (-0.83)
Evangelical Protestant (*n*= 3,116)	1.013 (0.19)		1.025 (0.35)	
Very important				1.073 (0.88)
Somewhat important				1.203 (1.48)
Not too important				1.489 (2.03)
Jew (*n*= 569)	0.950 (-0.64)		0.916 (-1.08)	
Very important				1.050 (0.39)
Somewhat important				0.817 (-1.65)
Not too important				0.971 (-0.18)
None/No Preference (*n*= 1,303)	1.113 (1.63)		1.070 (0.94)	
Very important				1.077(0.53)
Somewhat important				1.658 (4.37)
Not too important				1.026 (0.28)
Importance (ref = v important)				
Somewhat		1.115 (2.39)	1.132 (2.67)	
Not too		1.120 (1.97)	1.100 (1.50)	
Chi sq	232.19	230.28	244.36	207.87

Figure 1: Survival Estimates by Affiliation



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