Title: Mortality Differentials by Religion in the U.S.

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Abstract:

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 than other religions, even when controlling for background characteristics such as gender and race. I test whether these mortality differences can be attributed to differences in socioeconomic status, health behaviors, or psychosocial support. The first two reduce but do not eliminate mortality differences. The effect of psychosocial support, measured separately by marital status and attendance at religious services, 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.

Introduction

Mortality differentials exist by sex, socioeconomic status, race and ethnicity, and many other characteristics in the U.S. Less is known about the relationship between religion and mortality. Some research points to a mortality advantage for the religious relative to the unreligious (Bagiella, Hong, and Sloan 2005; Hummer, Rogers, Nam, and Ellison 1999; Koenig, McCullough, and Larson 2001; McCullough, Hoyt, Larson, Koenig, and Thoresen 2000), but studies have not examined mortality differentials by religion. (Hummer, Ellison, Rogers, Moulton, and Romero 2004; Jarvis and Northcott 1987) Contemporary studies in Europe have found a mortality disadvantage for Eastern Orthodox men in Finland in the 1980s (Rasanen, Kauhanen, Lakka, Kaplan, and Salonen 1996); and a mortality advantage for Jews in Russia in the 1990s (Shkolnikov, Andreev, Anson, and Mesle 2004); and a mortality disadvantage for Catholics in Ireland in the 2000s (O'Reilly and Rosato 2008). The studies done in the contemporary U.S. focus on the mortality advantage enjoyed by specific religions, particularly Mormons and Seventh-Day Adventists, ignoring all other religious groups. Many authors have lamented the lack of studies on mortality for different religions in different contexts (*e.g.*, Koenig, McCullough, and Larson 2001; Lee and Newberg 2005).

Data that include both religious affiliation and mortality in the U.S. are difficult to find, because neither the Census nor vital statistics collect affiliation information. The Health and Retirement Study (HRS), a representative, longitudinal panel study of Americans above age 50, does provide information on respondents' religious affiliation and other key measures of religious activity. 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 document mortality differentials across Catholic, Jewish, three Protestant groups (Mainline, Evangelical, and Black), and those with no religious preference. I find differences in life expectancy at age 55 by religious affiliation as large as five years, as shown in Table 1. Mainline Protestants and Jews have 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, Crimmins, Hummer, Hidajat, and Brown 2008).

---Table 1 about here---

Many mechanisms may link mortality and religions; here I will focus on three key explanations. The first is differences in *socio-demographic composition* by religion. The variation in life expectancy could be explained by differences in gender, race, education levels, wealth, or a host of other characteristics. Second, variation could be due to disparate *health behaviors*. The rules or norms of a religion may forbid unhealthy activities such as drinking or smoking and thus have strong effects on health. Lastly, being part of a religious community may provide *social support,* which can in turn affect health.

Background

The next sections of this paper will explain the three hypothesized mechanisms that may produce the mortality differentials shown in Table 1, as well as present previous findings from research on each of them.

Socio-demographic composition

Socio-demographic composition may be the underlying link between religion and mortality if adherents of different religions are sorted along class and/or racial dividers. Several studies in other contexts support this explanation. Differences in socioeconomic status (SES) explained much of the mortality differences between Catholics and non-Catholics in a study in contemporary Ireland (O'Reilly and Rosato 2008), as well as much of the mortality advantage for Jews in Russia in the early 1990s (Shkolnikov, Andreev, Anson, and Mesle 2004).

Members of different religions in the U.S. have documented differences in demographic composition and also SES; the SES distribution by religion has been remarkably stable over time (Smith and Faris 2005). Demographically, 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 other religions. Many (23%) are immigrants from 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. (Iannaccone 1994; Lehrer 2004; Pew Research Center 2008) So, the mortality advantage of Mainline Protestants could be due to their relatively wealthy and well educated socioeconomic composition.

Health behaviors

Health behaviors have been found to mediate the relationship between religion and mortality (George, Ellison, and Larson 2002). Those who attend religious services more frequently improve health behaviors compared to those who attend less frequently (Strawbridge, Shema, Cohen, and Kaplan 2001). However, health behaviors can only explain mortality differentials if religions differ in health behavior restrictions and/or norms.

Some religions have specific behavior restrictions that are good for health, particularly those that prohibit alcohol consumption or tobacco use. Many studies have investigated the noted longevity of sects such as Mormons (for example, Enstrom and Breslow 2008) and Seventh Day Adventists (Heuch, Jacobsen, and Fraser 2005), due in large part to good health behaviors. (George, Ellison, and Larson 2002; Hummer et al. 2004). Other religions might not explicitly ban bad health behaviors but might discourage them. Members of more conservative, strict Protestant religions have distinctive lifestyles with many more rules than their more liberal counterparts (Iannaccone 1994). Indeed, in the U.S., alcohol consumption patterns vary extensively by religion, with more conservative Protestant religions reporting higher proportions of abstainers than more liberal Protestants, Jews, and Catholics (Koenig, McCullough, and Larson 2001; Michalak, Trocki, and Bond 2007). Clearly, excessive alcohol consumption is unhealthy; however, moderate use may be protective.

Previous research found evidence supporting health behaviors as the religion-mortality link. For example, in Ireland members of fundamentalist, Protestant religions were less likely to die of respiratory diseases and alcohol-related diseases than members of other religions (O'Reilly and Rosato 2008). Although the study did not directly collect information on smoking and drinking behaviors, this pattern is highly suggestive of a connection between religion and health behaviors. On the other hand, a Finnish study reported large smoking and alcohol behavioral differences among religious groups, but that these differences did not account for the mortality differences among the various groups (Rasanen et al. 1996).

Social support

Finally, social support may link religion and mortality. Social support is directly associated with better mental and physical health (House, Umberson, and Landis 1988; Thoits 1995). Belonging to a religious group usually includes access to a social network (Jarvis and Northcott 1987) where one can receive critical social support. But how might different religions differ in the level of social support they provide?

First, religions differ on the extent to which they promote marriage and family. Spouses are a unique and powerful form of social support; being married is consistently associated with lower mortality (Waite and Lehrer 2003). Those who regularly attend religious services are more likely to be in stable marriages (Strawbridge, Shema, Cohen, and Kaplan 2001). Spouses who share religions are less likely to divorce (Waite and Lehrer 2003). If religions vary in rules related to marriage and divorce and vary in enforcement of these rules, spousal social support could mediate the relationship between religion and mortality.

Second, attending services is a big part of being part of a social organization and enjoying the beneficial social support. Those who attend services more frequently have better health (McCullough et al. 2000); in fact, attendance is the strongest predictor of all religious variables of mortality (George, Ellison, and Larson 2002). Weekly attendance at church is associated with improving and maintaining good social relationships (Strawbridge, Shema, Cohen, and Kaplan 2001). Religions differ on how often adherents are required or expected to attend services. Again, more conservative Protestant religions are stricter with regards to attendance than other, more liberal Protestants (Iannaccone 1994; Lehrer 2004). Catholics also are to attend church on a weekly basis. Durkheim theorized that this larger degree of social contact (relative to Protestants) would lead to lower rates of suicide for Catholics relative to Protestants. So, social support in the form of attendance should explain some of the mortality advantage of Catholics and mediate some of the disadvantage of conservative Protestants.

Also, some literature points to the extensive support in Black churches. Black churches may provide more support programs than White congregations. They may also encourage higher levels of attendance and provide more significant social support networks than churches in White communities (Ellison, Hummer, Cormier, and Rogers 2000). Attendance at services is a fundamental part of receiving social support. If social support is an important mediator between religion and mortality, we would expect controlling for church attendance to decrease the mortality disadvantage of Black Protestants.

It is important to note that attendance at religious services is complicated by health status. Those who are ill may be both less likely to attend and more likely to die. However, it is not

clear that this would vary by religion. Additionally, attendance may not be a perfect proxy for social support received. Nonetheless, differences in attendance behaviors by religion exist, and may be reflective of crucial variation in the level of social support received by affiliation.

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 due to 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 social support is the important mechanism explaining the relationship between religion and mortality, then the main effects of attendance should be protective. Marital status will also be protective. Catholics, Black Protestants, and conservative Protestants would receive the biggest protective effects.

Liberal Protestants and Jews should receive weaker effects. Those who are unaffiliated should be disadvantaged in this respect.

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 also 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. Respondents who became lost to follow-up are censored at the date of their last interview. Otherwise, respondents are followed from entry until death or the date of the last survey in 2006.

To measure religion and religious affiliation, respondents were asked a series of questions, 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), which better reflect religious traditions. 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, which do not include denominations for Protestants. Therefore, the Protestant sub-groups only come from 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, Evangelical Protestants, and Black Protestants. More information on these categories is available in Steensland (2002).[2]

Respondents were asked about religious attendance. In most 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?)" I use each respondent's answer to this question the first time they were asked in order to minimize confounding effects, such as health status, that may affect attendance as death nears.

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+), wealth, 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 alcohol consumption, the categories used here are broad: those who never drink, those who drink moderately, and those who drink heavily. For attributes that may change over the course of the study (such as marital status), 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. Catholics include

more Hispanics than the other groups, and the Black Protestant group is (by definition) almost entirely Black.[3] Mainline Protestants and Jews include higher proportions of white people, higher mean years of education, and higher levels of wealth than the other religious groups. 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 attendance of all the groups, consistent with the literature on this subject (Lehrer 2004).

---Table 2 about here---

To estimate mortality differentials by religious affiliation, I use Cox proportional hazard models (Cleves, Gould, and Gutierrez 2004). Respondents enter the analysis at the date of their first interview or 50th birthday and continue until their death or the date of their last interview. I first estimate mortality by religion unadjusted for other characteristics, and then add in additional predictors according to the research hypotheses.

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-rank test for equality of survivor functions reports significant differences in hazard rates by affiliation (chi square = 238.89).

---Figure1 about here---

Table 3 shows the results from the Cox models. Model 1 shows the effects of religion on mortality with no covariates. Black Protestants have significantly higher mortality than all other groups. The next models test the first hypothesis, the extent to which differences in socio-demographic composition of religions explain mortality differences. Model 2 controls for race and gender. These controls reduce the disadvantage for Black Protestants relative to all other groups. However, Catholics, Jews, and Mainline Protestants still have significantly lower mortality.

I next test the hypothesis that socioeconomic status explains the religion-mortality variation by including household wealth in Model 3. Not surprisingly, mortality is strongly and negatively related to wealth. Wealth reduces the disparity between Black Protestants and all

other religious groups except for Evangelical Protestants, for whom the difference increases slightly. Model 4 includes controls for years of education. Education also reduces differences in mortality. The relative hazard of Evangelical Protestants and Catholics compared to Black Protestants decreases by a small amount; Evangelical Protestants, Catholics, and Black Protestants have similar levels of education. Mainline Protestants, Jews, and those with no religious preference have bigger reductions in relative hazard, but still remain significantly lower than Black Protestants. Including both wealth and education, as in Model 5, does not eliminate the mortality disadvantage of Black Protestants. This suggests that the Black Protestant mortality disadvantage is not attributable to socioeconomic status or race alone.

---Table 3 about here---

Health behaviors (hypothesis 2) seem to explain only a modest portion of the differences, as shown in Table 4. Not surprisingly, smoking increases the hazard of mortality. Former smokers have an elevated risk of dying, and current smokers have an even higher risk – over twice as large -- relative to those who have never smoked. The Black Protestant group has the highest proportion of current smokers, so it is not surprising that controlling for smoking behavior reduces the disparity for them relative to Evangelical Protestants, Catholics, and Mainline Protestants. The disparity increases slightly between Black Protestants and those with no religious preference because the group with no preference has a higher proportion of former smokers and a lower proportion of those who have never smoked.

Those who consume alcohol at moderate levels have a much lower risk than those who do not drink at all. The true magnitude of the effect is hard to know for sure as some who do not

drink at all abstain for health reasons. Heavy drinking increases the hazard of death, although the effect is not significant, probably because of the low number of respondents in this category. Controlling for alcohol use reduces the mortality differential between Black Protestants and those with no religious preference, Catholics, Mainline Protestants, and Jews; those groups have fewer respondents who never drink. Controlling for alcohol consumption slightly increases the difference between Black Protestants and those with no religious preference due to the higher proportion of heavy drinkers in the group with no preference. Lastly, including alcohol use in the model results in an increase in the disparity between Black Protestants and Evangelical Protestants, because Evangelical Protestants have more abstainers.

---Table 4 about here---

In sum, controlling for health behaviors weakens the advantage of the Catholic, Jewish, Mainline Protestant groups relative to Black Protestants. Black Protestants have less favorable smoking and drinking behaviors than these groups. Health behaviors increase the advantage of Evangelical Protestants and those with no religious preference relative to Black Protestants; Black Protestants have more favorable smoking and alcohol behaviors than those with no preference, and more favorable alcohol behaviors than Evangelical Protestants. Hypothesis two explains some, but not much, of the differences in mortality by religious affiliation.

Next I investigate the effects of social support (hypothesis 3); results are shown in table 5. Marriage is protective, relative to being separated, divorced, widowed, or never married. However, marriage does not have a large effect on mortality differentials by religion.

Attendance at religious services is protective. Attending regularly is highly protective relative to not attending at all, consistent with other research on religion and health (Hummer, Ellison, Rogers, Moulton, and Romero 2004). With the exception of Evangelical Protestants, each religious group shows an increase in the hazard of mortality relative to Black Protestants. Black Protestants and Evangelical Protestants have the highest reports of regular church attendance of all the groups. Attendance is, in fact, keeping mortality differentials among the groups lower than they otherwise would be. Particularly of note is the change in the hazard for those with no preference relative to Black Protestants. The relative hazard for this group drops to 0.49, showing what a strong effect church attendance has on mortality. Hypothesis three, social support explains the mortality differentials by religion, can be rejected.[5] Rather than explaining away mortality differentials by religion, controlling for social support makes differences bigger.

---Table 5 about here---

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 Black Protestants have mortality disadvantages relative to other religious groups, particularly Catholics, Jews, and Mainline Protestants. I tested three different explanations of these differentials: socio-demographic status, health behaviors, and psychosocial support.

Socio-demographic status reduces some of the differences, particularly between Black Protestants and Evangelical Protestants and those with no religious preference. Education and wealth both account for a big amount of the mortality differentials.

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 changes the pattern of mortality. Those with no religious preference fare much better than the other groups when these controls are added, indicating that social support is an important health attribute of religion. 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 attendees versus non-attendees. 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. Lastly, this study does not incorporate any measure of private practice of religion, such as prayer, which has been shown to be beneficial for health and may vary by religious affiliation.

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 (Gillum and Dupree 2007). 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.

Footnotes

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

2. Due to how the HRS religion information was collected, a few minor exceptions do not correspond precisely to the categories as proposed by Steensland et al. (2000).“Reformed” Protestants are in the Evangelical Protestant, not Mainline Protestant category. All non-denominational Protestants were included in the Evangelical Protestant category. Lastly, 72 Black Protestants were assigned to the Black Protestant category although they could alternately have been Evangelical Protestants.

3. 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 (*e.g.*, African Methodist Episcopal Church), not any Black who is a Protestant.

4. The sampling field of the HRS is adults over the age of 50 and their spouses, some of whom are under 50. If a respondent is not 50 at the time of their initial interview, they enter into this sample on their 50^{th} birthday.

5. A model including importance of religion found those who said religion was “somewhat” or “not very” important to be at higher risk of death than those who said religion was important. However, once attendance was included in the model, the effect of importance disappeared, further supporting the claim that social support is a key mediator between religion and health.

Tables & Figures

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

Affiliation	**e_{55}**
Black Protestant	21.0
None/No Preference	23.8
Evangelical Protestant	24.2
Catholic	25.7
Mainline Protestant	26.2
Jew	27.5

Table 2: Descriptive Statistics by Affiliation, HRS Sample

Proportion or Mean (S.D.)

	Black Protestant *n*=1,500	**Evangelical Protestant** *n*=3,314	**None/No preference** *n*=1,372	**Catholic** *n*=6,856	**Jewish** *n*=640	**Mainline Protestant** *n*=2,820
Year of birth	1936.3 (5.3)	1936.6 (5.3)	1932.3 (11.6)	1930.4 (11.4)	1925.9 (12.5)	1936.1 (5.4)
% Male	42.0	46.3	60.6	43.1	45.0	47.7
Race/ Ethnicity						
% White	0.6	88.0	83.3	72.3	98.4	94.5
% Black	99.2	4.9	9.5	3.1	0.6	3.0
% Hispanic	0.0	4.9	4.0	22.7	0.8	0.8
% Other/Missing	0.2	2.2	3.1	1.8	0.2	1.7
SES						
Yrs of educ. (0-17)	11.0 (3.2)	11.7 (2.9)	12.4 (3.6)	11.2 (3.9)	13.7 (3.0)	13.1 (2.5)
Wealth (in $2000)	77,272 (154,398)	225,943 (513,907)	297,870 (613,567)	239,517 (460,616)	475,947 (675,597)	333,582 (603,430)
Health Behaviors						
Smoking						
% Current	32.5	28.0	28.3	20.6	9.3	25.8
% Former	30.9	32.9	43.5	40.0	52.4	38.8
% Never	36.6	39.0	28.2	39.3	38.3	35.5
Drinking						
% Frequent	1.8	1.4	3.6	1.5	0.5	1.6
% Moderate	49.5	41.1	64.6	62.5	66.7	71.4
% Never	48.7	57.4	31.8	35.9	32.8	27.0
Social Support						
Marital status						

(baseline)						
Married/ partnered	63.9	84.4	72.3	73.3	74.7	84.6
Separated/divorced	19.9	9.2	13.5	7.5	6.1	9.8
Widowed	10.8	4.9	11.0	15.8	17.2	3.3
Never married	5.4	1.5	3.1	3.5	2.0	2.2
Attendance Frequency						
> 1 per week	20.7	26.1	2.2	11.8	4.1	6.4
Once per week	27.1	17.9	5.2	37.1	6.0	19.1
2-3 per month	24.2	12.0	4.2	13.2	11.7	18.0
1 or more per year	18.4	19.5	22.4	21.1	50.0	29.8
Not at all	9.5	24.4	66.0	16.9	28.1	26.7
# deaths	401	611	421	2,068	244	469

Table 3. Cox Proportional Hazard Model Results, Socio-demographic Characteristics

Hazard Ratio (Standard Error)

	Model 1	Model 2	Model 3	Model 4	Model 5
Religion					
(ref = Black Prot.)					
Evan Prot	0.66*** (0.04)	0.86 (0.08)	0.87 (0.08)	0.84 (0.08)	0.84 (0.08)
None/No Pref	0.72*** (0.05)	0.88 (0.09)	0.94 (0.09)	0.92 (0.09)	0.94 (0.09)
Catholic	0.58*** (0.03)	0.80** (0.07)	0.83* (0.08)	0.82* (0.08)	0.83 (0.08)
Jewish	0.51*** (0.04)	0.70***(0.08)	0.79* (0.09)	0.77* (0.09)	0.80 (0.09)
Mainline	0.55*** (0.04)	0.71*** (0.07)	0.76**(0.08)	0.76 **(0.08)	0.77**(0.08)
Gender (Female)		0.65*** (0.02)	0.65***(0.02)	0.61***(0.02)	0.61***(0.02)
Race/Ethnicity					
(ref = white)					
Black		1.36***(0.10)	1.29***(0.10)	1.07 (0.08)	1.06 (0.08)
Other /Missing		1.15 (0.14)	1.11 (0.14)	0.90 (0.11)	0.91 (0.11)
Hispanic		0.96 (0.05)	0.78***(0.04)	0.74***(0.04)	0.69***(0.04)
SES					
Yrs of Education			0.96***(0.00)		0.98***(0.00)
Wealth					
(ref = <=2,000)					
2,001-50,000				0.74***(0.04)	0.76***(0.04)
50,001-150,000				0.60***(0.03)	0.62***(0.03)
151,001-300,000				0.49***(0.03)	0.52***(0.03)
300,001+				0.38***(0.02)	0.40***(0.03)
Generalized R^2	0.01	0.02	0.02	0.03	0.04
Log likelihood	-33041	-32940	-32900	-32782	-32777

***significant at $p<0.001$

**significant at $p<0.01$

*significant at $p<0.05$

Table 4. Cox Proportional Hazard Model Results, Health Behaviors

Hazard Ratio (Standard Error)

	Model 1	Model 2	Model 3	Model 4
Religion				
(ref = Black Prot.)				
Evan Prot	0.84 (0.08)	0.87 (0.08)	0.81* (0.07)	0.82* (0.08)
None/No Pref	0.94 (0.09)	0.92 (0.09)	0.93 (0.09)	0.91 (0.09)
Catholic	0.83 (0.08)	0.85 (0.08)	0.85 (0.08)	0.87 (0.08)
Jewish	0.80 (0.09)	0.84 (0.10)	0.81 (0.09)	0.84 (0.10)
Mainline	0.77** (0.08)	0.78* (0.08)	0.79* (0.08)	0.80** (0.08)
Gender (Female)	0.61***(0.02)	0.67***(0.02)	0.60***(0.02)	0.65***(0.02)
Race/Ethnicity				
(ref = white)				
Black	1.06 (0.08)	1.09 (0.09)	1.05 (0.08)	1.08 (0.08)
Other /Missing	0.91 (0.11)	0.94 (0.12)	0.88 (0.11)	0.91 (0.11)
Hispanic	0.69***(0.04)	0.73***(0.04)	0.67* (0.04)	0.71*** (0.04)
SES				
Yrs of Education	0.98***(0.00)	0.99** (0.00)	0.99**(0.00)	0.99 (0.00)
Wealth				
(ref = <=2,000)				
2,001-50,000	0.76***(0.04)	0.80***(0.04)	0.77***(0.04)	0.81***(0.04)
50,001-150,000	0.62***(0.03)	0.67***(0.03)	0.63***(0.03)	0.68***(0.03)
151,001-300,000	0.52***(0.03)	0.58***(0.03)	0.54***(0.03)	0.60***(0.03)
300,001+	0.40***(0.03)	0.47***(0.03)	0.43***(0.03)	0.50***(0.03)
Health Behaviors				
Smoking (ref= never)				
Former		1.30***(0.05)		1.34***(0.05)
Current		2.10***(0.09)		2.17***(0.09)
Drinking (ref=never)				
% Moderate			0.78***(0.03)	0.73***(0.02)
% Frequent			1.37** (0.15)	1.14 (0.12)
Pseudo-R^2	0.04	0.05	0.04	0.06
Log likelihood	-32777	-32225	-32674	-32154

***significant at $p<0.001$

**significant at $p<0.01$

*significant at $p<0.05$

Table 5. Cox Proportional Hazard Model Results, Social Support

Hazard Ratio (Standard Error)

	Model 1	Model 2	Model 3	Model 4
Religion (ref = Black Prot.)				
Evan Prot	0.84 (0.08)	0.84 (0.08)	0.85 (0.09)	0.85 (0.09)
None/No Pref	0.94 (0.09)	0.92 (0.09)	0.48***(0.06)	0.47***(0.06)
Catholic	0.83 (0.08)	0.82* (0.08)	0.70***(0.07)	0.69***(0.07)
Jewish	0.80 (0.09)	0.81 (0.09)	0.62***(0.08)	0.62***(0.08)
Mainline	0.77** (0.08)	0.77**(0.08)	0.73** (0.08)	0.73***(0.08)
Gender (Female)	0.61***(0.02)	0.60***(0.02)	0.63***(0.02)	0.62***(0.02)
Race/Ethnicity (ref = white)				
Black	1.06 (0.08)	1.04 (0.08)	1.15 (0.10)	1.13 (0.10)
Other /Missing	0.91 (0.11)	0.91 (0.11)	0.95 (0.14)	0.95 (0.14)
Hispanic	0.69***(0.04)	0.70***(0.04)	0.74***(0.05)	0.74***(0.05)
SES				
Yrs of Education	0.98***(0.00)	0.98***(0.00)	0.99** (0.01)	0.99***(0.01)
Wealth (ref = <=2,000)				
2,001-50,000	0.76***(0.04)	0.78***(0.04)	0.78***(0.04)	0.80***(0.04)
50,001-150,000	0.62***(0.03)	0.65***(0.03)	0.64***(0.04)	0.67***(0.04)
151,001-300,000	0.52***(0.03)	0.55***(0.03)	0.56***(0.04)	0.60***(0.04)
300,001+	0.40***(0.03)	0.43***(0.03)	0.46***(0.03)	0.48***(0.03)
Social Support				
Marital Status (ref=married)				
Divorced/separated		1.25***(0.07)		1.22***(0.07)
Widowed		1.10* (0.05)		1.00 (0.05)
Never Married		1.16 (0.10)		1.09 (0.10)
Attendance (ref=more than once/week)				
Once per week			1.03 (0.06)	1.03 (0.06)
2-3 per month			1.24** (0.09)	1.24** (0.09)
1 or more per year			1.32***(0.08)	1.31***(0.08)
Not at all			1.66***(0.10)	1.65***(0.10)

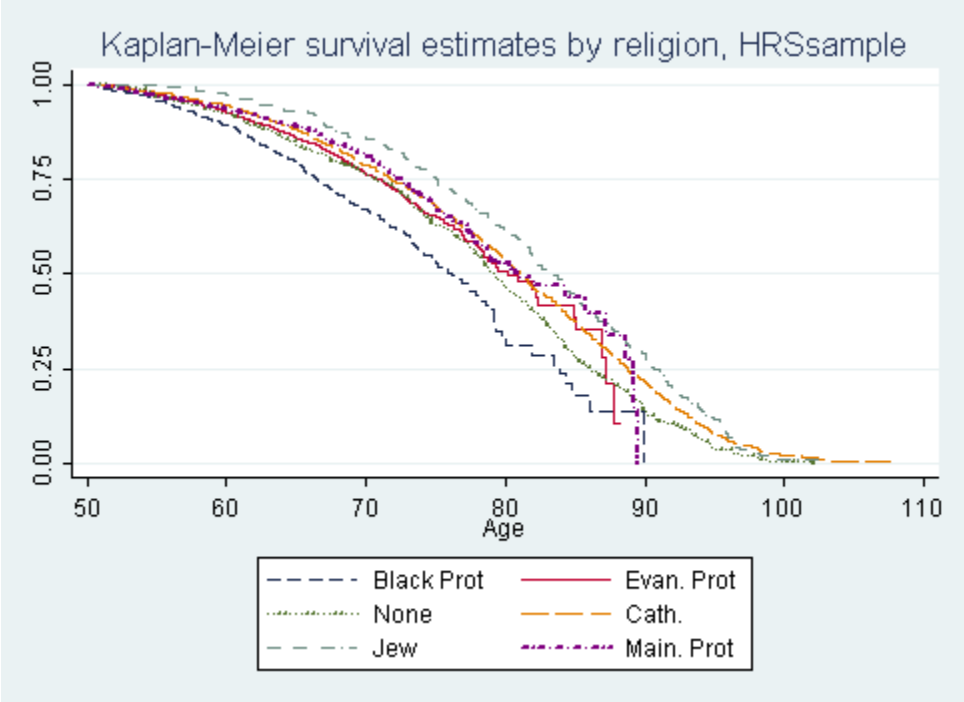
Generalized R^2	0.04	0.04	0.04	0.04
Log likelihood	-32777	-32620	-26946	-26827

***significant at $p<0.001$

**significant at $p<0.01$

*significant at $p<0.05$

Figure 1: Survival Estimates by Affiliation



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