Religion and Disability among the Elderly in Brazil, 2006-2010

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Abstract

Religion may be an important factor for the future health of the global population. There is a study gap that proposes to study religion and health among the elderly in Brazil. The aim this study was to assess contribution of religion in disability among community-living older Brazilian people between 2006 to 2010. Data came from SABE Study (Saúde, Bem-Estar e Envelhecimento/Health, Wellbeing and Ageing). Multiple binary logistic regressions model were used to identify association between religious activity and difficult at least one ADL in 2010 adjusted by age, sex, marital status, employment status and self-rated health in 2006. The results revealed that those with rarely or never religious activity had a risk 28% higher to progress to difficulty with at least one ADL. No affiliation was a protective factor (RR=0.43). The findings of the present study make an important contribution to the literature in Brazil and in developing countries.

Keywords: Ageing, Older adults, Religion, Disability, Activities of daily living, Brazil

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Introduction

Brazil has experienced a rapid process of population aging. In parallel, the country has increased the longevity of its population. Life expectancy at birth has increased by 30 years between the 1940s and the 2000s (Carvalho and Garcia, 2003). Brazilian Demographic Census in 2010 indicated that life expectancy reached 73.8 years (IBGE, 2010).

In the next two decades, the city of Sao Paulo will have a faster time of aging. With the fertility rate in decline and the life expectancy increasing, the number of elderly will double in the city. The ageing index calculated as the number of persons 60 years old or over per hundred persons under age 15, will double between 2010 and 2030, changing from 6 elderly people to every 10 young people in 2010 to 12 elderly people to every 10 young people in 2030. By 2050 the proportion will be even higher: there will be 21 elders for every 10 young people. The forecast points that in 2027, Sao Paulo will have more seniors than young people living in the city (SEADE, 2018).

The aging of the population and longevity bring a number of other health concerns related to the elderly. Although aging population is a relatively recent phenomenon, religiosity has long been considered an important health-related factor in many parts of the world (George et al., 2000; O'Brien et al., 2007). Having a religion may be an important factor for the future health of the global population, since religiosity is one of the major health components in the context of societies that are undergoing demographic transition (Zimmer et al., 2016).

There has been growth in the volume of scientific studies that explore the connection between religion, spirituality and health outcomes (Zimmer et al., 2016).

Religious activity has been empirically linked to an array of attributes that impact upon health outcomes, such as personal values, locus of control, feelings of self, health related behaviors, intergenerational associations, and coping mechanisms (Ellison and Levin, 1998; Hummer et al. 1999, 2004; Hill et al., 2007).

According to Hidajat et al. (2013), the mechanisms that link religions and health conform to psychosocial characteristics that operate to increase the size and functionality of one's social network, which results in the provision and strengthening of received and perceived social support. For the author, some results of research have also suggested other ways in which religions can influence health outcomes for those that have one. Some level of religious activity can, for instance, relieve existential anxieties, provide direction when dealing with demanding and stressful situations and decision making, and offer reflective opportunities that can positively influence emotional health.

In Brazil, Roman Catholicism is the main religion. Despite this, the percentage of Catholics fell from 95% in 1940 to 65% in 2010. The proportion of Protestants increased from 3% to 22% during the same period. Moreover, there was an increase in the number of persons with no religious affiliation, which varied from 1% to 8% of the total (IBGE, 2010).

Past studies have suggested that older individuals are more religious than younger ones because of the proximity to death and the greater need for social contact after retirement, which causes this population to turn to the churches. This trend is due in part to the churches' role in providing social support and networks for the elderly (Levin et al., 2010).

The U.S. National Health Interview Survey showed that those that do not attend religious services have close to twice the risk of dying as opposed to those that do (Hummer et al., 2004). Association between religiosity, spirituality and health has been found with other health outcomes, including cardiovascular conditions common among older persons such as heart disease, blood pressure, cholesterol, myocardial infarction and stroke. Religion has specifically been found to exert positive impacts on disability, functional limitation and depressive outcomes of older persons (Lavretsky, 2010). Religious attendance has been shown to buffer the need for and length of hospitalization (Koenig et al., 1998). However, very little research has examined the impact of religion on health outcomes like healthy life expectancy, mortality, self-perceived health and disability. Although researchers have recognized the importance of religiosity and as a determinant of longevity, there is now a need to determine whether religiosity and spirituality associate with extra years of life being lived in good or poor health. That is, whether religiosity and spirituality contribute globally to health of the individuals (Zimmer et al., 2016).

There is a study gap that proposes to study religion and health among the elderly in Brazil. One important question appears in this scenario: are religion determinants of differential disability in Brazil? The potential for positive and negative effects of religion on health highlights the need for research of this nature, since religion may be a key determinant in the health-disease process among the elderly. Understanding the association between religiosity and health is necessary in order to more fully understand the determinants of quality of life in old age and in so doing suggest ways for improving human health within the context of global aging.

The aim this study was to assess contribution of religion in disability among community-living older Brazilian people between 2006 to 2010. Our research hypothesis is that there is a positive relationship between religion and health among the elderly.

Material and Methods

Data came from SABE Study (Saúde, Bem-Estar e Envelhecimento/Health, Wellbeing and Ageing). The SABE Study is a longitudinal study of three waves that began in the year 2000 with a probabilistic sample of 2,143 individuals male and female aged 60 years or older, representative of the urban population living in São Paulo, Brazil (Lebrão and Duarte, 2003).

In 2006, the cohort from 2000 was located and 1,115 individuals were interviewed a second time. Losses in the period corresponded to deaths (22.9%), refusals to participate (9.6%), changes of address to another city (2.5%), cases of institutionalization (0.4%) and individuals who were not located (12.6%). This cohort was denominated A_{06}. Further probabilistic, randomized sampling was performed for the inclusion of a cohort of 298 additional individuals between 60 and 64 years of age (cohort B_{06}). In 2010, the next wave of the SABE study was conducted. Cohorts A_{06} and B_{06} were located and interviewed again (n=990). Losses in the period were due to deaths (11.9%), refusals to participate, changes of address to another city, cases of institutionalization and individuals who were not located (18.0%). In 2011, probabilistic, randomized sampling was performed for the inclusion of a cohort of 355 additional individuals between 60 and 64 years of age (cohort C_{10}). Figure 1 illustrates the evolution of the cohorts over time.

Figure 1: Flowchart of cohorts of SABE study
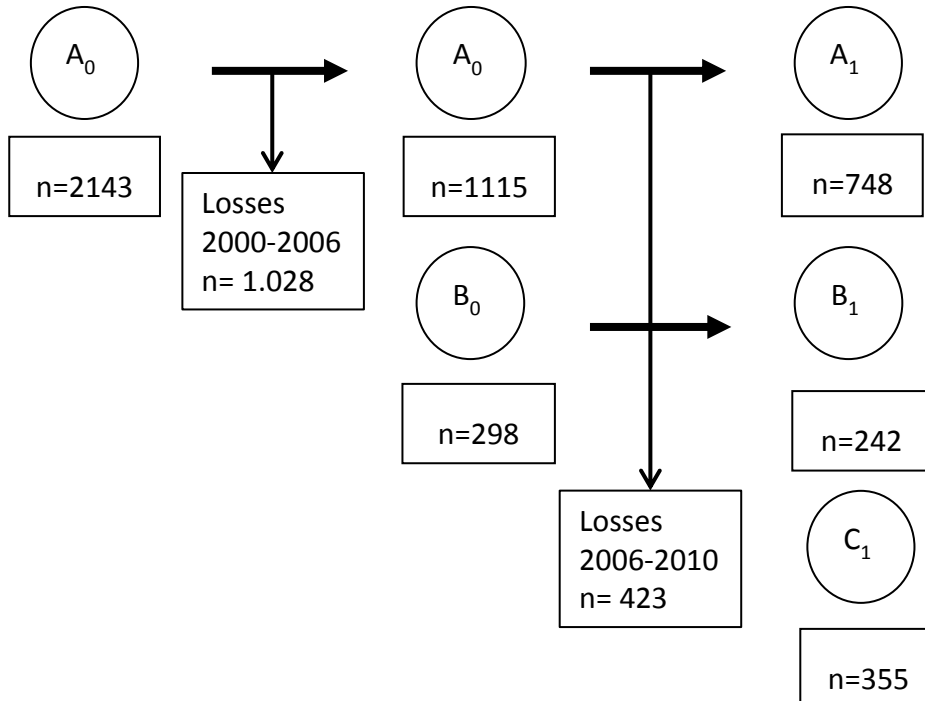
For the present investigation, among the 1,413 participants interviewed in 2006, only 800 elderly from cohorts A_{06} and B_{06} were included in the final sample, representing 662,927 elderly in the city of Sao Paulo. Of the 1,413 participants interviewed, the individuals with difficulty at least one activities of daily living (ADLs) in 2006 were excluded from the sample. A longitudinal study was carried out with baseline characteristics measured in the year 2006 and the outcome measured in 2010. Thus, the present observational cohort study involved elderly followed up from 2006 to 2010.

The dependent variable was disability. We measure disability according to ADLs (walking across a room, feeding oneself, lying down and getting up from a bed, toileting, dressing/undressing and taking a bath/shower) (Katz et al., 1983). Participants who

reported difficulty or an inability to perform at least one of the tasks on each dimension were recorded as "having difficulty".

The independent variables were religion, age (60–64, 65–69, 70–74, 75–79, 80–84, and 85 years or older), sex, marital status (single, married/stable relationship, separated/divorced, widowed), employment status (employed, unemployed), and self-rated health (good, fair, poor) at baseline. The religion was measured by religious activity. The individuals were asks about the frequency with which an individual prays or is involved with his/her religious activity. Possible responses were often/sometimes, rarely/never or no affiliation.

Descriptive statistics were calculated for the all variables. Multiple binary logistic regressions model were used to identify association between religious activity and difficult at least one ADL in 2010 adjusted by age, sex, marital status, employment status, and self-rated health in 2006. All independent variables were included simultaneously in a single model. Risk ratios (RR) and 95% confidence intervals were estimated for the evaluation of factors associated with disability.

To ensure the representativeness of the total population, weights were incorporated to the data for the expansion of the sample. To impede cluster effects from causing a significant impact on the precision of the estimates, which could lead to erroneous conclusions in the analysis of the hypothesis tests, aspects that defined the complex sampling procedure of the SABE study were incorporated into the estimation of these measures.

All statistical analyses were performed with the R software, version 3.4.1.

Results

At baseline (2006), all interviewees were independent in ADL, age ranged from 60 to 95 years (mean: 68.7 ± 6.2 years; median: 68 years). Table 1 displays the characteristics of the sample. The population was predominantly female (60.3%); 59.5% were either married or in a stable relationship; 69.0% were not employed; and 92.2% had often/sometimes religious activity. Approximately 49.8% of the interviewees rated their health as good (Table 1).

Table 1 – Relative distribution (%) of demographic, economic and health conditions characteristics of the elderly in the city of Sao Paulo, Brazil, 2006 (baseline)

Variables	n (662,927)	Relative distribution (%)
Age (years)		
60-64	205,283	31.0
65-69	203,069	30.6
70-74	140,833	21.2
75-79	71,688	10.8
80-84	29,275	4.4
85 or older	12,779	1.9
Sex		
Male	263,423	39.7
Female	399,504	60.3
Marital status		
Single	24,433	3.7
Married/Stable relationship	394,262	59.5
Separated/Divorced	56,369	8.5
Widowed	186,872	28.2
Religious activity		
Often/sometimes	610,894	92.2
Rarely/never	35,558	5.4
No affiliation	16,475	2.5
Employment status		
Employed	205,466	31.0
Unemployed	457,461	69.0
Self-rated health		
Good	330,330	49.8
Fair	289,659	43.7
Poor	41,719	6.3

Source: SABE study, 2006.

Numbers and percentages that are missing refer to the category without information.

At the follow-up, 85.7% of those who were independent in ADL at baseline had remained in the same state (Figure 1). Among those who had progressed to difficulty with at least one ADL, 39.7% were men.

Figure 1: Prevalence (%) of difficulty with at least one ADL among older adults in city of Sao Paulo, Brazil, 2010
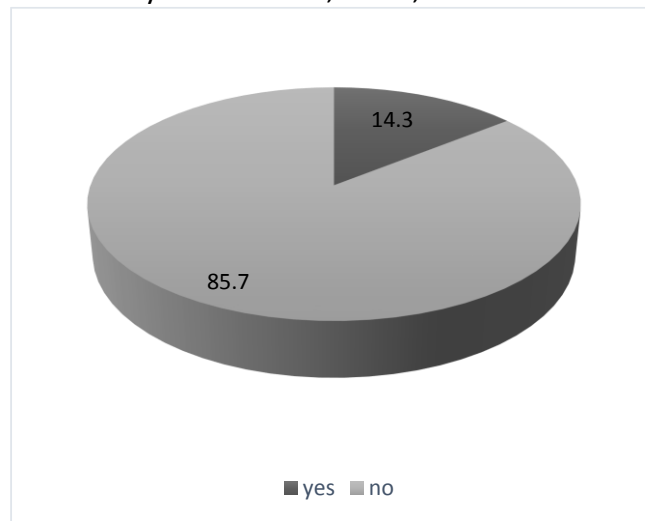
Source: SABE study, 2006-2010

Table 2 shows the risk ratio to religious activity with difficulty with at least one ADL among older adults in city of Sao Paulo, Brazil, 2010 adjusted for demographic, socioeconomic and health condition factors. The results revealed that those with rarely or never religious activity had a risk 28% higher to progress to difficulty with at least one ADL compared to those with often or sometimes. No affiliation was a protective factor (RR=0.43) (p<0.01).

Among the control variables, advancing age (85 or more) had a 9.95 times greater risk of becoming disability in relation to the reference category. Sex was not statistically significant (p>0.05). The elderly widowed (RR=1.40) and with poorest self-rated health (RR=2.88) had a highest risks of progressed to difficulty with at least one ADL compared to married/stable relationship and good, respectively. Employment

status proved to be a protective factor. The elderly employed had a 29% lower risk compared to those unemployed (RR=0.71) (p<0,01).

The results of the residual analysis showed that model has a good adjusted.

Table 2 - Risk Ratio to factors associated with difficulty with at least one ADL over 4 years in multiple logistic regressions of elderly in the city of Sao Paulo, Brazil, 2006 and 2010

Variable	Risk Ratio	95%CI
Religious activity		
Often/sometimes	1.00	
Rarely/never	1.28	1.24-1.33
No affiliation	0.43	0.40-0.46
Age		
60-64	1.00	
65-69	1.48	1.44-1.51
70-74	2.54	2.49-2.60
75-79	3.53	3.44-3.62
80-84	3.79	3.67-3.91
85 or older	9.95	9.56-10.36
Sex		
Male	1.00	
Female	0.99	0.97-1.00
Marital status		
Married/Stable relationship	1.00	
Separated/Divorced	0.71	0.69-0.73
Widowed	1.40	1.38-1.43
Single	0.87	0.83-0.91
Employment status		
Unemployed	1.00	
Employed	0.71	0.70-0.72
Self-rated health		
Good	1.00	
Fair	1.58	1.56-1.61
Poor	2.88	2.81-2.96
Intercept= - 2.750	p<0.01	

Source: SABE study, 2006-2010.
    ADL = activity of daily living

Discussion

With the greater longevity and ageing of the population, disability has become an important public health problem among elderly. The study of religion and religiousness and health is a field of research that is evolving (Aldwin et al., 2014). Religion is thought to influence mental and physical health through health behaviors, stress reduction, increased social support (Koenig, 2012). However, the direction of the relationship in the literature has been mixed (Ahrenfeldt et al., 2017; Ahrenfeldt et al., 2018). Little is known regarding the relationship between religion and health in Brazil. This was the first study to examine the relationship between disability and religion among Brazilian elderly.

The religion and health association persists across cultures and different religions (Hidajat et al., 2013). Our results indicated that having rarely or never religious activity is associated to developing difficulty in at least one ADL over four years (RR = 1.28) compared with the baseline of more religious involvement (often/sometimes). Having no affiliation was protective to ADL (RR = 0.43). No affiliation was more advantageous than rarely/never. These results seem to suggest the frequency of religious activity may matter to the development of disability over time, with the higher level of disability observed in the group rarely/sometimes. These findings are somewhat in line with other research that focused on older persons using longitudinal data from the Survey of Health, Ageing and Retirement in Europe (SHARE), which showed that taking part in religious organization was associated with positive disability outcomes but no affiliation was associated with negative ADL outcomes (Ahrenfeldt et al., 2017; Ahrenfeldt et al., 2018). Other literature has shown similar results. For instance, the study conducted by

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Crozen and colleagues pointed out that increased participation in religious organizations was a predictor for decline in depressive symptoms (Croezen et al., 2015), but the study did not focus on disability.

A study that used data from the Health and Retirement Study (HRS) found a dose-response for the relationship between attendance at religious services with mortality, showing that those that attended frequently had a 40% lower hazard of mortality compared with those that never attended (Idler et al., 2017).

Those who declared not having an affiliation had the best ADL prospects. These results go in a different direction from the bulk of the literature on religion and health (Chida et al., 2009). Nevertheless, two cohort studies did not find a protective association between religious affiliation and morbidity and mortality. The studies suggested a higher risk of cardiovascular disease among more religious people (Schnall et al., 2010; Salmoirago-Blotcher et al., 2013).

Mechanisms beyond social support may be key explanatory factors that link religion and good health. Many religions promote healthy practices. Many also promote strong intergenerational networks and social support through the celebration of festivals and religious holidays (Hidajat et al., 2013). Koenig et al. (2012) considered that the main pathways between religiosity and health were likely to be improved coping with adversity, support from one's religious community, and behavioral avoiding excessive alcohol and drug use, living a healthier lifestyle.

No affiliation was healthier. However, the present study focused on religious activity and attendance. It is likely that attendance at religious activity tends to be beneficial but have not demonstrated direct benefits of believing in God or any harmful

effects of disbelief. According to Galen (2015), the majority of studies usually contrast frequent church attendees with non-attenders. However, the latter group is not necessarily atheists. In fact, most non-attenders or no affiliation in these studies are believers in God who are uncommitted or unengaged with religious practices.

Another possible explanation would be the fact that it is not necessary to be a religious person or having religious activity to be part of a group that has good health. Some of the nonaffiliated could pursue other activities that result in the same benefits as those that often engage in religious activity. Being part of social groups, for instance, may have similar impacts on social support (Hidajat et al., 2013).

Conclusion

Regarding our analyses, the findings of this study confirm our initial hypothesis that there is a positive relationship between religion and health among the elderly. Having rarely or never religious activity is associated to the increase of difficulty in at least one ADL over four years.

Evidence on the relationship between disability and religion/spirituality is scarce in developing countries. Furthermore, the current literature findings on religion and spirituality are inclusive and deserve further research. Our study used a probabilistic sample of community-dwelling of older adults in Brazil. Thus, the findings of the present study are innovative and make an important contribution to the literature in Brazil and in developing countries.

The present study underscore the importance of cohort studies, which constitute an essential tool for the monitoring, evaluation and discussion on health of the elderly.

Due to the multidimensional nature of these relationships, future studies should incorporate mediating variables in the causal pathway between religion and health. This may assist in gaining a better understanding of the phenomenon.

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