Journal of the American Society of Hypertension 9(7) (2015) 553–562

Research Article

The relationship between religiosity and cardiovascular risk factors in Japan: a large–scale cohort study

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Manuscript received December 8, 2014 and accepted April 10, 2015

Abstract

The goal of this study was to examine the relationship between religiosity and cardiovascular risk factors in a Japanese population. A retrospective cohort study was conducted involving individuals who underwent annual health check–ups at St. Luke's International Hospital from 2005 to 2010. Data collected included self–reported demographics, clinical information, and health habits, as well as religiosity, baseline examination, and laboratory measures. We conducted multivariable regression analyses to examine the associations between religiosity and cardiovascular risk factors at baseline and longitudinally. The analyses were performed in 2012. A total of 36,965 participants were enrolled, and 13,846 (37.8%) reported being at least somewhat religious. Compared with those who were not religious at baseline, religious participants (n = 3685) were less likely to be current smokers (odds ratio [OR], 0.59; 95% confidence interval [CI], 0.53–0.67) and to report excessive alcohol consumption (OR, 0.74; 95% CI, 0.67–0.82), and more likely to exercise at least three times a week (OR, 1.27; 95% CI,1.16-1.39) and to be obese (OR, 1.32; 95% CI, 1.19–1.47). There were no significant differences in the rate of hypertension, diabetes mellitus, or dyslipidemia prevalence. In longitudinal data analyses, religiosity was associated with a lower likelihood of smoking and excessive alcohol consumption, and a higher likelihood of regular exercise and a lower incidence of diabetes over time. Individuals who were more religious were significantly more likely to have favorable health habits and fewer cardiovascular risk factors, except for a higher prevalence of overweight/obesity at baseline. Religiosity was also associated with better health habits over time and less likely to be associated with future diabetes but not with blood pressure or lipid levels. J Am Soc Hypertens 2015;9(7):553–562.

Keywords: Cohort study; diabetes; obesity; religious people.

Introduction

Previous studies have reported positive relationships between religiosity, general health, and mortality.[1] Some studies suggested that more frequent participation in religious activities led to lower rates of smoking,[2,3] and others reported that practicing religion may be related to lower all–cause mortality.[4,5] Three systematic reviews and meta–analyses supported these associations,[6–8] with most studies using cross–sectional data.[1] More recent studies, however, have shown conflicting results. A recent large prospective cohort study challenged the positive relationships between greater religiosity and reduced cardiovascular

Dr Kobayashi was a fellow of Shigeaki Hinohara MD, International Primary Care Fellowship, which is supported by the Ryoichi Sasakawa Health fund, when the study was conducted. Dr Wee is supported by the Midcareer Career Mentorship Award from the National Institutes of Health (K24DK087932).

Conflict of interest: none.

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1933-1711/$ - see front matter
http://dx.doi.org/10.1016/j.jash.2015.04.003

risk factors.[9] Moreover, while some studies reported that religiosity was associated with increased obesity,[9,10] others did not find this association.[11] The relationship between religiosity and lower blood pressure also conflicted.[12,13] Therefore, additional evidence is necessary to further evaluate these relationships.

Religiosity may improve health through several mechanisms. Religiosity may improve stress levels by providing an outlet to cope; it also encourages people to live healthy lives, including the prevention of substance or alcohol abuse. Social support among believers may also provide positive effects on their health. Prayer and meditation as a part of religious activities may also be a form of relaxation.

Most prior studies on relationship between religiosity and cardiovascular risk factors have been conducted in Western and American populations. Few studies have examined populations in Asian countries, including Japan, where religiosity may be different and have a different cultural context. Japan has a different religious profile in comparison to Western countries where the most common religious practices are based on the Judeo–Christian tradition. One national Japanese survey reported that 51% of the Japanese population identified themselves with the Shinto religion,[14] 42% with Buddhism, and only 1% with Christian.[15] Another study suggested that the majority practiced a mixture of Shinto religion and Buddhism.[16,17] There are some similarities between Christianity and Buddhism or Shninto. For instance, people gather at religious places to commemorate someone's death with sacred songs. However, most practices in Eastern–based religions are quite different from those of Western religions. For one, there are almost no regular institutionalized participation in religious practices similar to a regular Saturday or Sunday worship in the Judeo–Christian tradition.[17] In addition, gatherings with snacks among believers are less common in Japanese religious culture, while they are held frequently in Christian culture. As a result, there may be less social support relating to health in Eastern religions. However, Japanese tend to visit religious places, such as temples, shrines, and mountains independently, instead of in a group. Although there is no specific rule to gather in these places, they come together to share a common sense of unity. These spirituality may be different between Japanese and Western cultures. The goal of this study was to examine the cross–sectional and longitudinal relationship between religiosity and cardiovascular risk factors in a Japanese population.

Methods

Study Participants

Our study included all individuals who participated in the annual health check–up program in 2005 provided at the Center for Preventive Medicine of St. Luke's International Hospital in Tokyo, Japan. The purpose of this program was to promote health through the early detection of chronic diseases, related risk factors, and cancers in individuals. As a part of the annual health check–up, participants completed a questionnaire eliciting demographic information, health habits, religiosity, and medical history. Then they underwent physical examinations and laboratory testing. We collected the same information from members at each subsequent annual check–up they attended between 2006 and 2010. Approximately 80% of the participants were employees of various companies and local governmental organizations in Tokyo or their affiliates. The other 20% of participants independently registered for the program at the center. We excluded those who had past medical history of cardiovascular disease, cerebrovascular disease, and pulmonary disease, including lung cancer. We excluded adults with prior chronic diseases since we suspected that a subset of participants who develop chronic disease may be more religious, which would bias our findings. This study was conducted retrospectively, and all data were extracted from electronic medical records.

The St Luke's International Hospital Ethics Committee institutional review board and the Committee on Clinical Investigation at Beth Israel Deaconess Medical Center approved this study.

Measures

Religiosity

Religiosity was determined by the response to a question about the participants' degree of religiosity (translated from Japanese: ''Are you religious? [Religious, somewhat, slightly, and not at all.]''). We classified participants into four groups based on their answers: religious, somewhat religious, slightly religious, and not religious at all.

Health Habits

Participants were asked about the types of alcohol they consumed in a week, the frequency of consumption in a week, and the number of servings on a typical day. We classified the subjects into two categories, excessive alcohol consumption versus non–excessive alcohol consumption. Excessive alcohol consumption was defined as consuming more than 28 g/d (two drinks) for males and 14 g/d (one drink) for females, based on the recommendation of the Centers for Disease Control and Prevention.[18] Participants were also asked about the number of years they smoked and the average number of cigarettes smoked in a day. Participants were classified as current smoker, former smoker, and never smoker. Participants were also asked how many times they exercised in a week and were classified as those who exercised regularly (at least three times a week) versus those who exercised less than three times a week.