Published in final edited form as:

J Relig Spiritual Aging. 2015 ; 27(4): 323–342. doi:10.1080/15528030.2015.1065540.

Religiosity among U.S Chinese Older Adults in Greater Chicago Area-Findings from the PINE Study

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Abstract

Background—Religiosity influences health and well-being. We assessed religiosity among U.S. Chinese older adults.

Methods—Data were drawn from the PINE study based on 3,159 community-dwelling U.S. Chinese older adults aged 60+ in the greater Chicago area. Two items retrieved from Duke University Religion Index (DUREL) were used to assess the frequency of participating in religious activities, and a separate item was used to assess the importance of religion.

Results—Overall, 35.4% of participants perceived religion to be important. This study correlated the higher frequency of participation in religious observances with older age groups of the sample, being female, having a higher income, being unmarried, longer duration of residency in the U.S., and not having been born in Mainland China. Higher frequency of participating in organized religious services was correlated with better quality of life.

Conclusions—Religion is important among U.S Chinese older adults. Future longitudinal research is needed to explore aging and religiosity.

Keywords

Population studies; older adults; religiosity; religious activities; Chinese aging

Introduction

Religion is a multidimensional construct, which involves beliefs, behaviors, rituals, and ceremonies that are developed and accepted over time within a community (Koenig, King, & Carson, 2012). Religiosity represents the quality of being religious, manifested by the adoption of religious beliefs and behaviors at both individual and organizational levels (Simmons, Bremer, Robbins, Walsh, & Fischer, 2000). In the conceptual model proposed by prior scholars, religiosity contains behavioral, affective, and cognitive components (Cornwall, Albrecht, Cunningham, & Pitcher, 1986). Participation in religious activities and the subjective perception of religiousness were often utilized in research as important indicators to measure religiosity (Hill & Hood, 1999).

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Religiosity can influence many aspects of an individual's quality of life and overall well-being. It has been suggested that religious involvement is associated with facets of mental health like optimism, positive expectations for the future, and higher life satisfaction in studies around the world (Koenig et al., 2012; Myers & Diener, 1995). In addition to mental health, religiosity also indicates stronger social ties and greater social support (Ellison & George, 1994), regulated health behaviors (Koenig et al., 2012), higher illness recovery and survival chances (Mueller, Plevak, & Rummans, 2001; Pargament, Koenig, Tarakeshwar, & Hahn, 2004), better pain management (Abraído Lanza & Revenson, 1996; Kabat-Zinn, Lipworth, & Burney, 1985), and improved immune function (Townsend, Kladder, Ayele, & Mulligan, 2002).

Religiosity may have special implications for older adults. Previous research in the U.S suggested that, compared to younger age groups, a larger proportion of older adults perceived religion to be important in their lives (Cox & Hammonds, 1989). Religion may function as an important source of “spiritual support and freedom” and guide adjustments to declining health, multiple losses, and a diminished social network as older adults approach the later stage of their lives (Hall, 1985). In the National Alcohol Survey of 7,432 U.S adults, 59.0% of participants aged 18 and over perceived religion to be very important in their lives while as high as 73.5% of older adults aged 60 and over indicated as such in the study (Michalak, Trocki, & Bond, 2007). Based on a representative sample of older adults in the U.S., the National Social Life, Health, and Aging Project (NSHAP) indicated that, on average, U.S. older adults attend religious activities once a month (Rote, Hill, & Ellison, 2013).

Minority groups are often overlooked in current studies on religiosity (Wong, Lonner, & Wong, 2007). Asian Americans have been consistently underrepresented and treated as a homogeneous group in most prior studies, which fails to distinguish the differences in cultural beliefs, health behaviors, and genetic inheritance among the diverse subgroups (Holland & Palaniappan, 2012). Specifically, there has been a paucity of research on the religious belief and religious involvement among Chinese older adults in the U.S. (Caplan, Sawyer, Holt, & Brown, 2014; Daverio-Zanetti et al., 2014; Lucchetti et al., 2014).

Religiosity needs to be interpreted within specific cultural and social contexts. China has been a multi-religion society where diverse religious and philosophical traditions coexist, like Confucianism, Buddhism, Taoism, Islam, Christianity, Catholicism, and other folk traditions (Miller, 2006). Throughout Chinese history, elements of these religious and philosophical beliefs have intertwined and interacted with each other (Hughes, & Hughes, 2014). As a result, the concepts of religiosity and spirituality among Chinese are often entangled. Many western scholars hold divergent opinions on how to distinguish between spirituality and religiosity (Koenig, 2012); it can be especially difficult to delineate these concepts in Chinese language and culture. Some studies on religion in China used religiosity and spirituality interchangeably (Chen, Wang, Phillips, Sun, & Cheng, 2014; Hughes, & Hughes, 2014). In our study, the assessment of religiosity focuses on the subjective perceptions of religion and participation in religious activities of Chinese older adults, while recognizing the complexity of religiosity in China.

The political environment of China is an important factor to consider when examining religiosity among Chinese. In the mid-twentieth century, the Chinese communist party enforced legal and regulatory restrictions on religious behaviors in mainland China (Potter, 2003). However, starting in the late 1970s, religious activities and organizations began to be revived in many parts of China due to China's economic liberalization. Still, retaining institutional and ideological control over the religious sectors has been a consistent high priority as congregational worship is often considered to be politically subversive by the Chinese government (Madsen, 2003). Due to the sensitive nature of conducting religion research in mainland China, we have a limited understanding of religious beliefs and activities among Chinese older adults.

In the U.S., the Chinese community is the oldest and largest Asian American subgroup (Bureau., 2010). Older adults constitute a large segment of the general Chinese population in the U.S., and 15.4% are aged 65 or older (Bureau., 2010). More than 80% of Chinese older adults were foreign-born, and approximately 30% of them immigrated to the U.S. after the age of 60. Chinese older immigrants face a number of challenges living in the U.S., including diminished social networks, increased risk of suffering from loneliness, depression, stress, and discrimination, as well as worsened physical health (Dong, Chang, Wong, Wong, & Simon, 2014; Dong, Chang, Wong, Wong, et al., 2011; Dong, Chen, Li, & Simon, 2014; Dong, Chen, & Simon, 2014a, 2014b; X. Dong, M. Zhang, & M. Simon, 2014; X. Dong, M. Zhang, & M. A. Simon, 2014; Simon, Chang, Zhang, Ruan, & Dong, 2014; Zhang, Simon, & Dong, 2014; Dong, & Zhang, 2015; Dong, 2014b; Dong, Chang, & Bergren, 2014; Dong, Chang, & Simon, 2011). However, religion could serve as an important coping resource in the face of overwhelming and unchangeable stressors (Wong, Lonner, & Wong, 2007).

Mainstream U.S. society is deeply tied to religion, and religious freedom is extensively protected, which can provide fertile ground to cultivate the growth of the religious belief and activities among Chinese older immigrants (Wald & Calhoun-Brown, 2014). Prior evidence has shown that religious involvement among U.S. Chinese immigrants is associated with greater life satisfaction (Lee, 2007; F. Yang & Ebaugh, 2001). However, most of these studies were based on relatively small sample sizes. To deepen our understanding on the link between religiosity and health among U.S. Chinese older adults, this study aims to 1) assess the endorsement of the importance of religion; 2) identify frequency of attending organized and in-home religious activities; 3) examine correlations between importance of religion, religious activities, socio-demographics, and self-reported health measures in a Chinese community-dwelling aging population.

Methods

Population and Settings

The Population Study of Chinese Elderly in Chicago (PINE) is an ongoing population-based epidemiological study of U.S. Chinese older adults aged 60 and over in the greater Chicago area. Briefly, the purpose of the PINE study is to collect community-level data of U.S. Chinese older adults to examine the key cultural determinants of health and well-being. The project was initiated by a synergistic community-academic collaboration among Rush

Institute for Healthy Aging, Northwestern University, and many community-based social services agencies and organizations throughout the greater Chicago area (Chang, Simon, & Dong, 2012; Dong, Chang, Simon, & Wong, 2011; Dong, Li, Chen, Chang, & Simon, 2013; Dong, Wong, & Simon, 2014; Matthew Magee et al., 2008).

In order to ensure study relevance to the well-being of the Chinese community and enhance community participation, the PINE study implemented culturally and linguistically appropriate community recruitment strategies strictly guided by a community-based participatory research (CBPR) approach (Dong, Chang, Wong, & Simon, 2011). Over twenty social services agencies, community centers, health advocacy agencies, faith-based organizations, senior apartments and social clubs served as study recruitment sites. Eligible participants were approached during routine social service and outreach efforts serving Chinese Americans families in the Chicago city and suburban areas. Older adults, who were consented to participate in the study, were interviewed by trained bicultural research assistants in respondents' preferred languages and dialects including English, Mandarin, Cantonese, and Toisanese. Out of 3,542 eligible participants, 3,159 agreed to participate in the study, yielding a response rate of 91.9 %.

Our research team attributed our high response rate to the application of community-based participatory research (CBPR) approach, mixed recruitment strategies, and a multidisciplinary bicultural research team (Dong, Wong, & Simon, 2014). The community-academic partnership allowed us to develop appropriate research methodology in accordance with a Chinese cultural context, in which our community advisory board (CAB) provided invaluable inputs regarding the study design and implementation (Dong, 2014a). Our research team adopted mixed recruitment strategies, including a targeted community-based strategy integrated study recruitment with routine services to Chinese families, public advertisement through media, flyers, posters, and community-based workshops and activities, and word of mouth referrals through family members, neighbors, acquaintance, or friends. Our multidisciplinary team of bicultural research assistants mitigated cultural and linguistic barriers and ensured that participants can comfortably communicate in their preferred dialects during in-person interviews (Dong, & Chang, 2014).

Based on the available census data drawn from U.S. Census 2010 and a random block census project conducted in the Chicago's Chinese community, the PINE study is representative of the Chinese aging population in the greater Chicago area with respect to key demographic attributes, including age, sex, income, education, number of children, and country of origin (Simon, Chang, Rajan, Welch, & Dong, 2014). The study was approved by the Institutional Review Board of Rush University Medical Center.

Measurements

Socio-demographics—Basic demographic information was collected, including age (in years), sex, education, annual income (in USD), marital status, number of children, and living arrangement. Immigration data relating to participants' years in the U.S. and years residing in their current community were also collected. Education was assessed by asking participants the years of highest educational level completed, ranging from 0 to 17 years or more. Living arrangement was assessed by asking participants how many people live in their

household besides themselves. Self-reported annual income was from all sources and was categorized into four groups: 1) \$0-\$4,999 per year 2) \$5,000-\$9,999 per year 3) \$10,000-\$14,999 per year; 4) more than \$15,000 per year. Language was assessed by ability to speak and preference of English, Cantonese, Mandarin, or Toisanese. We created a dichotomous country of origin variable by categorizing respondents into the “China” group if they were born in mainland China and “other” group for other countries and regions.

Overall health status, quality of life, and health changes over the last year—

Overall health status was measured by “In general, how would you rate your health?” on a four point scale (1 = poor, 2 = fair, 3 = good, 4 = very good). Quality of life was assessed by asking “In general, how would you rate your quality of life?” also on a four point scale (1 = poor, 2 = fair, 3 = good, 4 = very good). Health change in last year was measured by the question “Compared to one year ago, how would you rate your health now?” on a five point scale (1 = much worse; 2 = somewhat worse; 3 = about the same; 4 = somewhat better; and 5 = much better than one year ago). Health changes were then categorized into three groups: 1) improved health; 2) same health; and 3) worsened health.

Religiosity—In our study, two questions were derived from Duke University Religion Index to measure the frequency of attending organized or in-home religious activities (H. G. Koenig & Büssing, 2010). The third question measures the importance of religion. This item was documented as one reliable measurement of subjective religiosity and was utilized in several national studies including National Survey of Families and Households, National Alcohol Survey, National Survey of Children, Americans’ Changing Lives (ACL) study, Myth and Reality of Aging (Michalak, Trocki, & Bond, 2007; Levin, Taylor, & Chatters, 1994; Taylor, Mattis, & Chatters, 1999; Gunnoe, & Moore, 2002; Sweet, Bumpass, & Call, 1988).

Participants were asked how important they perceived religion to be in their lives on a 4-point Likert scale (1= not at all important, 2=not very important, 3=important, 4=very important). In addition, based on a 7-point Likert scale (0=never, 6=daily), participants were asked how often they attended organized religious services, and had religion activities at home.

Participants were categorized into “less importance” group if they perceived religion to be “not very important” or “not at all important” in their lives. For those who deemed religion to be important or very important were subsequently categorized into the “more importance” group. We also created a continuous variable to estimate the frequency of religious activities by summing scores from 2 items—the frequency of attending organized religious service and having religious activities at home. Aggregate scores range from 0 to 36, with higher scores indicating higher frequency of attending or having religious activities. Content validity was assessed by a group of bilingual and bicultural study researchers and Community Advisory Board members with expertise in Chinese cultural issues in health and aging.

Data Analysis

Descriptive statistics were used to summarize the endorsements of the importance of religion and the frequency of religious activities. Crosstabs and Chi-square were used to examine whether the importance of religion was differed by socio-demographics. Kruskal-Wallis Test and Chi-square were used to examine whether means of having religious activities were differed cross socio-demographic groups. Pearson Correlation coefficients were used to examine the correlations between religiosity variables and socio-demographics and health measures. Statistical analyses were conducted using SAS, Version 9.2 (SAS Institute Inc., Cary, NC).

Results

Sample Characteristics

Of the 3,159 participants enrolled in the study, 58.9% were women, 71.3% were married, and 85.1% had an annual income below \$10,000. The mean age of our participants was 72.8 (SD = 8.3) and the average years of education completed was 8.7 (SD = 5.1). The majority (92.7%) of our participants were born in mainland China and 53.9% preferred to complete the interview in Cantonese. More than half (57.3%) of the participants have lived in the U.S. for less than 20 years. Overall, 39.0% of participants perceived their health status as good or very good, and 50.4% perceived their quality of life as very good or good.

Religiosity

Descriptive data for the importance of religion are presented in **Table 1**. A higher percentage of older adults perceived religion to be not at all important in their lives (38.8%), followed by not very important (25.9%), important (24.7%), and very important (10.7%). The frequency levels of attending organized and in-home religious activities are presented in **Table 2**. 24.2% of older adults attended organized religious services at least once a year, and 45.4% of them had in-home religious activities at least once a year. In particular, the proportion of participants who attended organized religious services once a month, once a week, and daily were 3.2%, 12.3%, and 0.6%, respectively. In comparison, the proportion of participants who had religious activities at home once a month, once a week, and daily were 10.3%, 3.2%, and 9.5%, respectively.

Religiosity by Socio-demographics

The self-perceived importance of religion differed by age ($p<0.05$), gender ($p<0.001$), marital status ($p<0.001$), living arrangement ($p<0.01$), years in the U.S. ($p<0.001$), country of origin ($p<0.01$), and language spoken ($p<0.001$) (**Table 3**). A larger proportion of females (72.7%) and older adults aged 80 and over (22.9%) perceived religion to be important or very important.

The mean of participation in religious activities differed by gender ($p<0.001$), income ($p<0.01$), marital status ($p<0.001$), living arrangement ($p<0.05$), years in the U.S. ($p<0.001$), years in community ($p<0.01$), country of origin ($p<0.001$), language spoken ($p<0.001$), overall health status ($p<0.01$), and quality of life ($p<0.001$). The subgroups who were more likely to engage in religious activities include older adults who were between the ages of 70

and 74, had an annual income higher than \$20,000, lived by themselves, came from Taiwan, and spoke Mandarin.

The Correlations between Socio-demographics and Religiosity

Correlations between socio-demographics and religiosity are shown in **Table 4**. Higher importance of religion correlated with more frequent organized and in-home religious activities (organized: $r=0.47$, $p<0.001$; in-home: $r=0.51$, $p<0.001$). Participants who attended organized religious services more frequently were also more likely to have religious activities at home ($r=0.22$, $p<0.001$).

Older age was correlated with perceiving religion of higher importance ($r=0.04$, $p<0.05$), and attending organized religious activities more frequently ($r=0.04$, $p<0.05$). Females perceived religion of higher importance in their lives ($r=0.22$, $p<0.001$), and were more likely to involve in organized and in-home religious activities (organized: $r=0.15$, $p<0.001$; in-home: $r=0.17$, $p<0.001$). Participants who were not born in mainland China perceived religion of higher importance in their lives, attended more organized religious activities ($r=-0.07$, $p<0.001$), and had more religious activities at home ($r=-0.06$, $p<0.001$).

Discussion

As the first population-based study to examine religiosity among U.S. Chinese older adults, our study indicates more than one third of our participants perceived religion to be important in their lives, and half of them attended organized religious activities at least once a year. Participants who endorsed higher levels of religiosity were more likely to attend religious activities. In addition, participants who were older, female, unmarried, with higher income, with more years of living in the U.S, and not born in mainland China were more likely to perceive religion to be important and to attend religious activities more frequently. In addition, we identified that attending organized religious services was positively correlated with quality of life.

Our study indicates 35.4% of U.S Chinese older adults in our study perceive religion to be important in their lives. Our finding is consistent with a study of Chinese older adults in New York suggesting that 41% of study participants deem religion as important in their lives (Carnes & Yang, 2004). In comparison, National Alcohol Survey suggested that 73.8% of older adults aged 60 and over perceived religion as important in their lives (Michalak, Trocki, & Bond, 2007). However, the Asian population only consists for 3% of the study sample and interviews were only available in English and Spanish. Our findings should be interpreted within the specific cultural and social context. Previous evidence suggested that 83.9% of U.S. general population identified themselves as religious (Lugo et al., 2008), while only 14% among the general population in mainland China identified as such (Jing, 2014). From this perspective, our study indicated higher levels of religiosity among U.S. Chinese older adults compared with the Chinese population in mainland China.

With respect to religious activities, 12.9% of older adults attended organized religious services at least once a week in our study, compared to 19% among Chinese older adults in New York (Carnes & Yang, 2004) and 39% among the U.S general population (Lugo et al.,

2008). Although only 24.2% of our study participants indicated that they attended organized religious services at least once a year, 45.4% of participants had in-home religious activities at least once a year. The difference may indicate potential barriers of attending organized religious activities for Chinese older adults, including longer distance, lack of transportation, or deteriorating physical health (Dong, Zhang, & Simon, 2014; Simon, Zhang, & Dong, 2014; Simon, Li, & Dong, 2014; Chang & Dong, 2014). It may also be partially explained by the fact that many Chinese folk religions, as well as Taoism and Confucianism, are more often practiced daily as moral orders in the home rather than institutional rituals. Previous research indicated that religiosity is associated with both religious experiences in their home country and host country among immigrants (Yang & Ebaugh, 2001); therefore, future research is needed to explore how immigration affects the involvement of religious activities among Chinese older adults.

We found that the oldest old are more likely to perceive religion to be important in their lives and participate in organized religious activities. However, we also found that older age is not associated with a higher frequency of having in-home religious activities. While our study finding is consistent with previous evidence indicating that religion is more important among older groups (Cox & Hammonds, 1989), our data contradict with common knowledge that organized religious activities will likely be replaced by in-home religious activities due to declining health in advanced age (Guy, 1982). As pointed out in another study in the U.S, older adults who are high in religiosity reported an increase of religiousness over their course of lives while persons who are low in religiosity reported a decrease (Hunsberger, 1985). Since our study could not delineate the temporal relationship between age and religion, further longitudinal study is needed to draw out the influence of the cohort effect.

In addition, older adults were more likely to perceive religion to be more important in their lives if they were female or had higher income. Our finding is consistent with a prior study suggesting women are generally more religious than men and perceive that their religious affiliation can help reduce risk behaviors in their lives (Miller & Stark, 2002). The gender differences in religiosity were also revealed in a study based on four national samples of U.S. older adults after other socio-demographic factors were controlled (Levin, Taylor, & Chatters, 1994).

While religious importance may be more likely to thrive in times of need (Paul, 2010), our study suggested the interaction between religion and socio-demographic factors, such as education, immigration experience, years in the U.S., and language spoken, may be far more complex among immigrant communities. Higher income may indicate a better social economic status, a higher educational level, and more years of living in the U.S. Thus, this subgroup of older adults is more likely to adhere to mainstream U.S values and ideologies and be more open to participate in religious activities and express their religious beliefs. Our extrapolation can be supported by our finding that Cantonese-speaking older Chinese perceived religion to be less important in their lives. Historically, Cantonese-speaking Chinese are more likely to have immigrated to U.S earlier than other subgroups. They often live scattered around Chinatown areas, and have lower educational levels and less social

capital (Koval, 2006). The interaction of those factors may influence their perceptions of religious behaviors and the motivation to search for spiritual belonging in the U.S. society.

It is also worth of mentioning that participants who are not born in mainland China tend to be more religious and more likely to attend organized and in-home activities. This can be interpreted with social, political, and cultural factors in mind. Marxism was enforced by the communist government in mainland China as the core ideology to guide China against the oppression of western countries and to achieve its independence in 1949 (Meisner, 1999). From a Marxist perspective, religion is defined as a tool that oppressors utilized to create a servile and amenable lower class (Goldman, 1986). The negative perception of religious belief in China, as pointed out by historians, could be reflected by the common usage of the term “mi xin” (superstition misguided belief) to describe religion in modern Chinese language (Yang, 2008). Furthermore, since the Chinese government placed regulations and policies to control religious activities, it is likely that older adults from mainland China may be reluctant to report religiosity despite possible religious affiliation.

Interestingly, our study indicates that higher frequency of attending organized religious activities is correlated with better quality of life, which is consistent with a previous study that specifically identified the positive association between weekly public religious activities and well-being based on a representative U.S. sample (Maselko & Kubzansky, 2006). While participation in religious activities was widely recognized as an important indicator for religious coping in prior studies, religious coping can act on psychological and physical health through direct or indirect pathways (Wong, Lonner, Wong, 2007). Our findings contribute to existing knowledge by providing detailed information on the aspects through which religion may impact Chinese older adults' health and well-being. While a prior study based on the Chinese community in Malaysia illustrated no direct association between religiosity and health outcome (Moschis & Ong, 2011), our study implies religion may render a positive effect in many other aspects of personal well-being. A prior study on non-believers in mainland China suggests religion provide a meaning to life and keep moral standards (Jing, 2014).

This study has some limitations. First, the generalizability of our findings to other Chinese populations in the U.S. is uncertain. Second, our study assessed the importance of religion and the frequency of religious activities based on self-reported data from Chinese older adults. The belief and practice of religion may be underestimated since our participants could still be influenced by the Chinese central government's restrictions on expressing religious beliefs and practicing religious activities in public. Moreover, we did not collect data on the affiliation of religion, and therefore, we were unable to distinguish Abrahamic and non-theistic traditions in our analyses as other scholars have. Future study is needed to collect data on religious attachment to expand our current knowledge on the participation in organized and in-home religious activities. Third, we asked older adults to provide an overall estimate of their overall health status and quality of life subjectively, which may be biased in revealing how religion actually influences physical and psychological well-being. Future research is needed to further the analyses based on valid measures of health outcomes, for instance, participants' medical records. Fourth, the cross-sectional design and correlation analyses do not suggest temporal relationships between socio-demographic variables and

religion measures. Future longitudinal study is necessary to provide detailed interpretation on the correlates found in this study.

This research has wide implications for researchers, health professionals, social workers, and policy makers. Firstly, our study calls for future investigation on how aging process influences religiosity among Chinese older adults in the U.S. Future longitudinal research is needed to further the understanding of why Chinese older adults with an older age attended more organized religious services but fewer in-home religious activities. Moreover, as gender differences in religiosity were identified in our research, future research is needed to assess whether the gender differences in religiosity projected different health effects on older males and females.

Secondly, our study highlights that religion is still deemed as important in several Chinese subgroups. Clinical health practitioners and community social service employees, who may hold different religious beliefs, should be well-trained to provide healthcare services in a respectful and sensitive manner regarding patients' religious choices. Community educational programs could be implemented to increase the awareness of religious diversity and to foster the freedom of religious expression. Thirdly, religious organizations and groups can function as important coping resources for older adults and need to help older adults remove many barriers to participate in religious activities, such as transportation, language, etc. While it is notable that a fair number of Chinese older adults are not attached to any religion, they may be more vulnerable in addressing many of their language and cultural challenges living in the U.S. Policy-makers need to foster a variety of social activities in community-based organizations to supplement for the lack of religious activities for some Chinese subgroups.

Conclusion

In sum, our study suggests religion is important among U.S. Chinese older adults in the greater Chicago area. Almost half of Chinese older adults had in-home religious activities at least once a year. Older adults who are older, female, unmarried, with higher income, with more years of living in the US, from other regions other than mainland China perceived religion of higher importance and were more frequently involved in religious activities. Future longitudinal research with mixed statistical methods is needed to explore the several health outcomes associated with religiosity.

Acknowledgments

Funding Information

Dr. Dong was supported by National Institute on Aging grants (R01 AG042318, R01 MD006173, R01 CA163830, R34MH100443, R34MH100393 & RC4 AG039085), Paul B. Beeson Award in Aging, The Starr Foundation, American Federation for Aging Research, John A. Hartford Foundation and The Atlantic Philanthropies.

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Table 1

What is the level of importance of religion in your life N(%)

Not at all important	1216 (38.8)
Not very Important	810 (25.8)
Important	773 (24.7)
Very important	336 (10.7)

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Table 2

The Frequency of Attending Religious Activities N (%)

	Organized	In-Home
Never	2382(75.8)	1714(54.6)
Once a year	144 (4.6)	129(4.1)
Once every 6 month	52 (1.6)	174(5.6)
Once every 3 month	62(2.0)	400(12.7)
Once a month	99(3.2)	322(10.3)
Once a week	385(12.2)	101(3.2)
Daily	18(0.6)	299(9.5)

Table 3

Perceived Importance of Religion by Socio-demographics

	Less Importance	More Importance	χ^2 , df	p-value
Age, N (%)				
60-64	457 (22.6)	223 (20.0)		
65-69	405 (20.0)	234 (21.2)		
70-74	416 (20.5)	187 (16.9)		
75-79	340 (16.8)	211 (19.0)		
80 and over	408 (20.1)	254 (22.9)	12.1, 4	0.02
Gender, N(%)				
Female	1013 (50.0)	806 (72.7)		
Male	1013 (50.0)	303 (27.3)	151.3, 1	<0.001
Education (years), N (%)				
0	118 (5.8)	71 (6.4)		
1-6	741 (36.7)	435 (39.3)		
7-12	739 (36.6)	361 (32.6)		
13-16	360 (17.8)	214 (19.3)		
17 and over	61 (3.1)	26 (2.4)	6.9, 4	0.14
Income (USD), N (%)				
\$0 - \$4,999	704 (35.1)	332 (30.1)		
\$5,000 - \$9,999	1015 (50.6)	594 (53.9)		
\$10,000 - \$14,999	196 (9.8)	114 (10.3)		
\$15,000-\$19,999	43 (2.1)	25 (2.3)		
\$20,000 and over	50 (2.4)	37 (3.4)	9, 4	0.06
Marital Status, N (%)				
Married	1513 (75.3)	710 (64.4)		
Separated	33 (1.6)	23 (2.0)		
Divorced	49 (2.4)	24 (2.2)		
Widowed	415 (20.7)	346 (31.4)	46.4, 4	<0.001
Number of Children, N (%)				
0	88 (4.4)	40 (3.6)		
1-2	821 (40.6)	442 (39.9)		
3 or more	1113 (55.0)	625 (56.5)	1.3, 2	0.53
Number of Sons N (%)				
0	413 (20.4)	211 (19.1)		
1-2	1372 (67.9)	773 (69.8)		
3 or more	236 (11.7)	123 (11.1)	1.3, 2	0.53
Number of Daughters N (%)				
0	398 (19.7)	205 (18.5)		
1-2	1266 (62.6)	702 (63.4)		

	Less Importance	More Importance	χ^2 , df	p-value
3 or more	358 (17.7)	200 (18.1)	0.6, 2	0.73
Living Arrangement, N (%)				
0	391 (19.3)	280 (25.3)		
1	866 (42.8)	440 (39.7)		
2-3	322 (15.9)	156 (14.0)		
4 or more	446 (22.0)	233 (21.0)	15.4, 3	0.002
Years in the U.S., N (%)				
0-10	575 (28.5)	263 (23.8)		
11-20	627 (31.1)	331 (30.0)		
21-30	488 (24.2)	273 (24.7)		
31 and more	328 (16.2)	237 (21.5)	16.9, 3	<0.001
Years in the Community, N (%)				
0-10	1191 (58.9)	606 (54.9)		
11-20	451 (22.3)	284 (25.7)		
21-30	249 (12.3)	134 (12.1)		
31 and more	130 (6.5)	80 (7.3)	6.3, 3	0.10
Origin N, (%)				
Mainland China	1903(94.0)	998(10.0)		
Other	121 (6.0)	111 (90.0)	17.0,1	<0.001
Languages Spoken N (%)				
English	19 (0.9)	14 (1.3)		
Cantonese	1113 (54.9)	555 (50.1)		
Mandarin	406 (20.1)	296 (26.6)		
Toishaness	488 (24.1)	244 (22.0)	19.4, 3	<0.001
Overall Health Status, N (%)				
Very good	94 (4.6)	45 (4.1)		
Good	702 (34.7)	389 (35.1)		
Fair	838 (41.3)	474 (42.8)		
Poor	392 (19.4)	201 (18.0)	1.5, 3	0.69
Quality of Life, N (%)				
Very good	126 (6.1)	89 (8.0)		
Good	899 (44.4)	476 (43.0)		
Fair	929 (45.9)	518 (46.8)		
Poor	72 (3.6)	25 (2.2)	7.8, 3	0.05
Health Changes Over the Last Year, N (%)				
Improved	167 (8.3)	108 (9.7)		
Same	1004 (49.5)	522 (47.1)		
Worsened	854 (42.2)	479 (43.2)	2.9, 2	0.23

Table 4

Correlations between Religiosity and Socio-Demographics

	Age	Sex	Edu	Income	MS	Child	Living	Yrs U.S	Yrs com	Mainland	LP-CT	OHS	QOL	HC	Impt	Org	Home
Age	1.00																
Sex	0.01	1.00															
Edu	-0.12 [#]	-0.21 [#]	1.00														
Income	0.05 ⁺	0.00	0.01	1.00													
MS	-0.33 [#]	-0.32 [#]	0.22	-0.03	1.00												
Child	0.32 [#]	0.09 [#]	-0.38 [#]	0.00	-0.13 [#]	1.00											
Living	-0.35 [#]	-0.07 [#]	0.02	0.16 [#]	0.24 [#]	-0.07 [#]	1.00										
Yrs U.S.	0.35 [#]	0.03	-0.10 [#]	0.35 [#]	-0.20 [#]	0.15 [#]	-0.13 [#]	1.00									
Yrs com	0.23 [#]	0.02	-0.11 [#]	0.24 [#]	-0.13 [#]	0.10 [#]	0.05 ⁺	0.66 [#]	1.00								
Mainland	0.04 [*]	-0.01	-0.08 [#]	-0.20 [#]	0.05 ⁺	0.04 [*]	-0.05 ⁺	-0.20 [#]	-0.15 [#]	1.00							
LP-CT	-0.02	-0.01	-0.56 [#]	-0.03	-0.06 [#]	0.06 [#]	0.27 [#]	0.18 [#]	0.20 [#]	0.06 ⁺	1.00						
OHS	-0.08 [#]	-0.06 ⁺	0.06 [#]	0.12 [#]	0.05 ⁺	-0.00	-0.00	-0.01	0.05 [*]	-0.03	-0.01	1.00					
QOL	0.06 [#]	0.05 ⁺	0.09 [#]	0.08 [#]	0.03	-0.01	0.04 [*]	0.00	-0.02	-0.04 [*]	0.12 [#]	0.32 [#]	1.00				
HC	-0.11 [#]	-0.03	0.02	0.05 ⁺	0.07 [#]	0.01	-0.02	-0.04 [*]	0.03	-0.00	-0.03	0.15 [#]	0.15 [#]	1.00			
Impt	0.04 [*]	0.22 [#]	-0.02	0.05 [#]	-0.11 [#]	-0.02	-0.05 ⁺	0.07 [#]	0.04 [*]	-0.07 [#]	-0.08 [#]	0.00	0.02	0.00	1.00		
Org	0.04 [*]	0.15 [#]	0.20 [#]	0.04 [*]	-0.11 [#]	-0.10 [#]	-0.10 [#]	0.05 [*]	0.00	-0.11 [#]	-0.32 [#]	0.03	0.11 [#]	0.00	0.47 [#]	1.00	
Home	-0.02	0.17 [#]	-0.13 [#]	0.05 ⁺	-0.07 [#]	0.08 [#]	0.01	0.06 [#]	0.08 [#]	-0.06 [#]	0.03	0.00	0.00	0.00	0.51 [#]	0.22 [#]	1.00

Notes: Edu=Education; Child=Number of Children; MS=Marital Status; Living=Living Arrangement; Yrs in U.S. =Years in the US; Yrs in com=Years in the Community; Mainland=Country of Origin as Mainland; OHS=Overall Health Status; QOL=Quality of Life; HC=Health Changes over the Last Year; Impt=perceiving religion important; Org= the frequency of attending organized religious services; Home=the frequency of attending religious activities at home.

* p<0.05

⁺ p<0.01

[#] p<0.001.