Therapeutic Health Benefits of Religion Among Elderly- A Population based Representative Survey from Iran

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Abstract

Background: We determined whether practice of religious beliefs influence health-related lifestyle among general elderly population.

Methods: We recruited elderly (60+years) subjects from among the general population who were invited to answer *practice of religious belief* and *healthy lifestyle in Iranian elderly* questionnaires.

Results: A total of 218 elderly subjects participated (51.3% males, mean age: 68.3 years, SD 9.2, range 60-92). The mean religious belief was 73.0 (SD 11.5) without male-to-female difference (p=0.9). The mean lifestyle was 100.9 (SD 14.7, range 61-138) with a 9.3% male-to-female difference, p=0.0001. The odds of better lifestyle with religion was 5.5 (p=0.001, effect-size=0.18, variance=29.5%). The most benefit was in prevention (effect-size 0.18), nutrition (effect-size 0.15), and social relationship (effect-size 0.12).

Conclusions: Based on a representative un-selected validated sample, and by using a systematic questionnaire, and after controlling for various possible confounders, and within current evaluation limits, we may conclude that religion may mitigate health-related lifestyle.

***Keywords:** Epidemiology**,** religion, mental health, transcultural, social, health,*

Introduction

Since the beginning of human history, religion has always had a strong association with the practice of medicine and healthcare in general [1, 2]. For instance, early community health and medical facilities up to French revolution had mostly been initiated by the religious institutions and clergies-cum-physicians [1, 3]. Thus, religion has not had a strong association with the early practice of medicine but still has a valid clinical context[4]; for instance 1/4th of all mental illness cases can be explained through religion [5].

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Despite considerable public and clinical significance, the research on this topic is often avoided [1] [6], and religious aspects are never or rarely enquired about in a day-to-day clinical practice[4]. Thus, by avoiding such topics, we may unintentionally devoid others, especially elders, of possible benefits from practicing religion. This is because elders have a different frequency of practicing religion [7], they have different spiritual [8] and health [1, 5] needs, and they are far more inclined to seek health and welfare benefits from religion [9]. The prevalence of aging is increasing [10]. Thus, continuing with our vision of establishing a reliable mental health (and neurological) profile and an international positive participation of scientifically-silent countries, and with an objective to examine an association between practice of religion and health-related lifestyle among general

elderly population, we performed this work in Ali Abad Katool (Iran).

Methods

Iran is one of the most prominent countries of the MENA region, and a country of our major interest. For many reasons, our choice of Iran was appropriate, figure 1. For instance, in principal, Iran is religiously unitary which is not the case in many countries. For instance, in UK, there are likely to be about 170 distinct religions [11]. Another reason was that, although other religions are allowed, Iran principally follows Islam, which was again advantageous in this contexte. For instance, in Hinduism, there are said to be 33 million god-bodies. In Christianity, although there is no exact number, but the sects and denominations are likely to be in 1000s. Thus, belief system is likely to change with each sect or denomination. The choice was further appropriate since Islam is already dose-defined (including the time, nature, and quantity) which is not likely to be in other religions. For instance, in Christianity, The Bible says "to pray without ceasing" (Romans New Testament 12:12).

Besides, all this, today, Islam is the fastest growing religion in the world and may sooner or later become the most prevalent. For instance, Islam grew 15.0% in the last five years in Australia; the Christians are reduced to 70.0% in Sweden; in 2008, 61.0% of those who annually migrated to France belonged to Meghreb [12]; by 2040 the Islam would become the 2nd largest religion in USA; in UK about 100,000 convert to Islam every year which showed a 12.0% growth in the last three years. It is also important to note that for MENA countries, like Algeria and Tunisia, having the nationality of their colonial country (i.e. France) is almost a right (Personal data, D Bhalla). Thus, a greater understanding through Islam populations is not a priviledge anymore but a full necessity.

The project was conducted in Ali Abad Katool (Iran). Ali Abad Katool is a mountaneous area covered with Alborz mountains with a general population of about 46000. A participation was invited from among the residents through three population-based sources (i.e. elder lesiure center, main mosque, main park). The participants were required to meet our inclusion criteria as below. Those who didn't meet these criteria were not invited. The inclusion criteria were:

- Muslim, age 60 years and above, any gender,
- Ability and interest to participate,
- Being cognitively intact, as defined through primary assessment and interview,
- No substance abuse or other conditions that may preclude participation

To determine practice of religion and health-related lifestyle, we used 25-item practice of religious belief (PRBQ) and 46-item healthy lifestyle among Iranian elderly (HLEQ) questionnaires. Both have earlier been demonstrated to be valid in our cultural contexte, and have a cronbach alpha of 0.91 [13] and 0.76 [14], respectively. For this work, PRBQ scores were categorized as <50, 51-74, and >74, while HLEQ scores were categorized as undesirable lifestyle (upto 98), medium desirable lifestyle (99-155), and fully desirable lifestyle (>155).

The required sample size was estimating by using a simple formulae after assuming a type1 error as 0.05, type2 error as 0.2 and correlation factor of 0.2 [15]. This required a sample of 194 subjects however we aimed to recruit additional 10.0% to this. All data was entered into MS-Excel. The statistical approach was according to the type of variable and purpose. The data was described in number, range, frequency, standard deviation (SD), mean, median, 95% confidence interval (CI). The statistical significance testing of a group proportion (eg. gender) and means was done for parameters we deemed suitable. By using an ordinal regression, religion was regressed with lifestyle to determine respective odd ratios (OR) and respective statistical significance. A Tukey's posthoc test was thereafter performed to determine value of contrast and significance between different religion score categories. Similarly, five lifestyle domains (prevention, physical activity, nutrition, social relationship, stress management) were regressed with religion to identify which domains are likely to be affected by religion. By using an independent t-test, the means of both religion practice and health-related lifestyle were seperately examined for all possible sociodemographic indicators ((including number of children (categorised as <5 children or >5 children), literacy (illiterate or literate), marital status (married or unmarried), employment (employed or unemployed), age (<75 years or >75 years)). Those factors which were found to be statistically significant above were later controlled-for in the regression while determining relationship between religion and lifestyle. The proportion of variance (r^2) in the dependent variable

that can be explained by our independent variable was also determined. The effect size (ES) was also calculated by using means, SD, 95% CI, and population size. The ES is more intuitive since it is independent of the sample size. Lastly, we had taken informed consent prior to allowing participation alongwith an ethic permission from the institutional review board of the Islamic Azad University. The funding agency had no undesirable role during this project.

Results

Overall, a total of 218 elderly subjects participated, and they had an overall mean age of 68.3 years (SD 9.2, range 60-92, 95% CI 63.8-66.2). Of them, 112 (51.3%) were males. A comparison of two proportions (male-female) was not statistically significant, p=0.9. The remaining details are provided in table 1 below.

The mean *religious score* among overall population was 73.0 (SD 11.5, range 35-95, 95% CI 71.5-74.5). Among males and females, the religious score was 73.0 (SD 11.5, range 43-95) and 72.9 (SD 11.5, range 35-92), p=0.9, respectively. Similarly, the mean *lifestyle score* among overall population was 100.9 (SD 14.7, range 61-138). Among males and females, this score was 110.9 (SD 14.7, range 61-138) and 101.0 (SD 14.7, range 61-129), p=0.0001, respectively. To simplify, both religious and lifestyle scores were medium, and, religious score was nearly identical for males and females (p=0.9), while, lifestyle score was significantly better among males than females by about 9.3% (p=0.0001).

Lifestyle domains:

The mean lifestyle score across individual domains was: *prevention* (39.2, SD 6.1, range 24-53), *nutrition* (25.6, SD 4.9, range 15-39), *physical activity* (10.5, SD 2.6, range 6-19), *stress management* (8.8, SD 3.0, range 4-18) and *social relationships* (16.5, SD 3.7, range 7-26). By gender, only social relationship domain (17.0±3.4 *vs* 16.0±4.0, p=0.04, ES= 0.01, respectively) was statistically different between males and females.

Associators and predictors (sociodemographic factors) of lifestyle and religious belief:

By using an independent t-test, the *mean religious score* was both numerically and statistically higher among *those with >5 children* (75.1, 95% CI 72.7-77.4 *vs.* 71.2, 95% CI 69.3-73.2, ES=0.02), p=0.007, and *the literate ones* (76.7, 95% CI 74.4-79.0 *vs.* 70.2, 95% CI 68.2-72.1, ES=0.07), p=0.0001. By using an independent t-test, the *mean lifestyle score* was higher for *those with <5 children* (103.0, 95% CI 100.5-105.4 *vs.* 98.5, 95% CI 95.3-101.6, p=0.01, ES=0.02), and *the unmarried ones* (108.2, 95% CI 105.1-111.3 *vs.* 99.2, 95% CI 96.9-101.4, p=0.0002, ES=0.10).

Interaction between religious beliefs and lifestyle, and role of moderators:

Based on an ordinal regression, for a one unit increase in religion category, the odds of having a high lifestyle was estimated to be 5.5 (95% CI 3.1-9.7, p=0.001, ES=0.18, r^2=29.5%), given that all of the other variables in the model are held constant. Based on a Tukey post-hoc test, all three religion categories were statistically different as follows: between <50 and >75 (contrast 24.4, 95% CI 12.8-35.9, p=0.001), between <50 and 51-74 (contrast 12.8, 95% CI 1.4-24.3, p=0.02), and between 51-74 and >75 (contrast 11.5, 95% CI 7.1-15.8, p=0.001). After controlling for above three moderator factors (marital status, number of children, and employment), for a one unit increase in religion category, the odd of having a high lifestyle was estimated to be 5.8 (95% CI 3.1-10.5, p=0.001, ES=0.19).

According to five lifestyle domains, by using an ordinal regression, the religion practice successfully predicted the domains of *prevention* (OR=0.18, 95% CI 0.11-0.28, p=0.001, ES=0.18), *nutrition* (OR=0.21, 95% CI 0.13-0.34, p=0.001, ES=0.15), *social relationship* (OR=0.25, 95% CI 0.16-0.40, p=0.001, ES=0.12). The other two domains did not have any significant prediction.

Discussion

Aging is a period of life in which the elderly may face many psychological problems[18].

We performed an important work to determine any health-related association with regards to the practice of religion. For this, we used structured detailed questionnaires. Moreover, our sample was from various population-based sources and no particular gender was overly-present in our sample (p=0.9).

Our work provides new knowledge and dissipate myths as well. For instance, hyper-religiosity is popularly perceived for Iran, Muslims, and the MENA region [16]. However, our religion score was fairly moderate, both for males and females, without any gender-based difference (p=0.9). Despite popular beliefs, this should not be unexpected because Islam is a dose-defined religion

(including the time, nature, and quantity of prayers one has to do), for both males and females, which is visibly not in other religions. For instance, in Christianity, The Bible says "to pray without ceasing" (Romans New Testament 12:12). Moreover, based on a United Nations survey, the most violent region in the world is Latin America, followed by Africa, and not the MENA region [17], as popular perceptions might indicate.

Conclusions

Based on a representative un-selected validated sample, and by using a systematic questionnaire, and after controlling for various possible confounders, and within current evaluation limits, we may conclude that religion may mitigate health-related lifestyle.

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