Original Article

The Relationship among Mask-Wearing, Fatalism, and Religiosity in a Muslim Population: Implications for Health Education

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Abstract

Background: Understanding the relationship between religiosity and health behaviors helps us tailor messages based on cultural beliefs. We conducted an online survey to find any relationship between fatalistic beliefs, religiosity, and mask-wearing as a health behavior in an Islamic context.

Methods: An online questionnaire-based cross-sectional study was conducted via convenience sampling. The participants consisted of 503 subjects from the adult population of Kerman province, located in southeast Iran. The measurement tool consisted of four sections: (A) demographic characteristics, (B) three items related to mask-wearing, (C) The God Locus of Health Control (GLHC) scale, consisting of six items measuring fatalistic beliefs, and (D) The Duke University Religion Index (DUREL), consisting of five items measuring religiosity. "Mask adherence" applied to those who wore masks during all public activities (i.e., continually).

Results: The mean age of the participants was 36.5 ± 10.9 years, and females comprised 60% (n=302) of the sample. More than one-fifth (n=109) reported a history of COVID-19 infection. Approximately one-third of respondents (n=163) reported full mask adherence. The logistic regression model showed that there was no significant relationship between mask adherence and religiosity (odds ratio [OR]=1.03; 95% CI=0.99–1.08) or fatalistic beliefs (OR=1.01; 95% CI=0.98–1.04).

Conclusion: Fatalism and religiosity had no association with mask-wearing during the COVID-19 pandemic in the Iranian Muslim population. Therefore, religious beliefs may have no place in the cultural tailoring of health messages for promoting mask adherence.

Keywords: Mask-wearing, Fatalism, Religiosity

Introduction

The coronavirus disease 2019 (COVID-19) outbreak was first identified in Wuhan, China, in late 2019 (1). Due to the high transmission rate of COVID-19, the disease spread rapidly to other countries. The World Health Organization (WHO) declared the pandemic on 11 March 2020 (2). COVID-19 is associated with a broad spectrum of organ involvement, and it has taken the lives of many people worldwide (3).

Despite global efforts, there is no well-established drug treatment for COVID-19. Although vaccination is the mainstay of COVID-19 prevention, public health measures such as social distancing and mask-wearing still play a crucial role due to the lack of universal vaccine access (4). Current evidence suggests that SARS-CoV-2 (the virus responsible for COVID-19) is transmitted primarily through close contact from person to person via airborne route and respiratory droplets (5). Thus, wearing masks is still a meaningful way to prevent the spread of COVID-19 (6). Mask-wearing during the COVID-19 pandemic is considered a health behavior that "protects both the wearer and other people around them" from catching and spreading the virus (7). Face masks protect the wearer from coronavirus and reduce the spread of infectious respiratory droplets to others. Therefore, mask-wearing signifies social and personal responsibility

(8). While there is broad agreement that face masks are crucial in mitigating the risk of COVID-19 transmission in the general population, some people are reluctant to use them (9). We need more research to determine what factors are associated with this reluctance. There may be several reasons for mask-wearing non-compliance, such as personal freedom, beauty, conspiracy theories, fake news, inadequate media literacy (10), and low perceived risk of infection (11-13).

The two issues related to health behaviors and compliance with preventive measures are fatalistic beliefs and religiosity; however, research has provided mixed evidence on this topic. When applied to health, fatalism is defined as "the belief that the development and course of health problems are beyond an individual's control" (14). According to a recent meta-analytic review, fatalism may be related to health behaviors, but the association seems not causal (15). In the COVID-19 pandemic, some studies suggested that there may be a relation between fatalism and adherence to preventive measures. However, none of them explicitly addressed whether there is an association between fatalism and mask-wearing.

Furthermore, a positive association between religious beliefs and health-promoting behaviors could be found across different cultural settings (16). It has been established that health education "interventions will be more effective when they are culturally appropriate for the populations they serve" (17). Understanding the relationship between religiosity and health behaviors helps us to tailor messages based on religious beliefs (18). To the best of our knowledge, such a clear relationship between COVID-19-related preventive behaviors and religiosity has not been addressed. Consequently, no study has been devoted specifically to the relationship between either religiosity or fatalistic beliefs and mask adherence among the Muslim population.

This study examined the relationship between fatalistic beliefs, religiosity, and mask adherence in a Muslim population. The results of this research may have implications for the focus of health education practices.

Methods

This web-based cross-sectional study was carried out in early 2021. Considering the COVID-19 restrictions, we collected data online to follow the COVID-19 prevention guidelines. The sample size was calculated according to the rule of thumb, stating that a sample size of 500 is sufficient in observational studies utilizing logistic regression analysis (19). The study sample included 503 men and women residing in Kerman province in southeast Iran. The inclusion criteria were willingness to participate in the study, age above 18, and being literate. Participants were recruited through the two common platforms used by the Iranian population (i.e., Telegram and WhatsApp) using a convenience sampling approach (20). The access

link was shared in diverse public groups of social network users that the Public Relations Office had listed. The respondents were invited to participate by following the survey link. The questionnaire was designed and uploaded on the Kerman University of Medical Sciences website (http://hsmrc.kmu.ac.ir/fa/formadd/44564/). On the survey's cover page, all potential respondents were informed about the aim of the study, and they were assured that the questionnaires were anonymous and unlinked.

The questionnaire consisted of four parts. The first part included demographic characteristics (i.e., age, sex, and education). In the second part, we asked the participants about mask-wearing when going out (including the workplace, events and gatherings, transportation, and the market). We used a Likert scale to show varying degrees of adherence (never = 0, seldom = 1, sometimes = 2, always = 3). If someone wore a mask during all public activities (i.e., continually), we considered it "mask adherence." Also, they were asked about the history of COVID-19 infection.

The God Locus of Health Control (GLHC) scale formed the third part of the questionnaire. It is an instrument for assessing the individual's belief that God's will is responsible for health or disease. It has six items measuring fatalistic beliefs by a 6-point Likert scale ranging from 1 (completely disagree) to 5 (completely agree), with a total summed score range from 6 to 30. Higher scores suggest firmer fatalistic beliefs, and no cutoff was considered to interpret the scale (21). Examples of items are "Whatever happens to my health is God's will" and "Whether or not my disease improves is up to God" (21). The psychometric properties of the Persian version of the GLHC scale have been confirmed (22). Principal axis factoring showed a one-factor solution for the GLHC scale, and the factor loadings for all six tool items were in an acceptable range (22).

As the fourth part of the questionnaire, we used a five-item measure of religious involvement, The Duke University Religion Index (DUREL). This scale is a widely used measure of religiosity, with higher scores indicating higher religious involvement (23). The overall range of scores is from 5 to 27. It contains three dimensions: organizational religious activity, non-organizational religious activity, and subjective religiosity. The analysis used the Persian version of the unidimensional scale (24). No cutoff was considered following the original version of the DUREL (23). Sample items include "My religious beliefs lie behind my whole approach to life" and "How often do you attend church or other religious meetings?" The validity and reliability of the Persian version of the scale have been well established (24). The confirmatory factor analysis showed that the one-factor model of the DUREL yielded acceptable fit indices and had an optimal convergent validity relevant to religious measures (24). To eliminate item non-response, the online questionnaire

was designed so that respondents had to answer a question to move to the next question (25).

To compare the scores between subgroups, we used a t-test. The normality of distribution was confirmed using the Kolmogorov-Smirnov normality test. Multivariate binary logistic regression was used to examine associations of religious and fatalistic beliefs with mask adherence. The outcome variable (i.e., mask adherence) was a binary variable measured by "Yes" or "No" responses. The baseline predictor variables (i.e., age, education, sex, and history of COVID-19) were dichotomized to simplify the interpretation of the findings. Religiosity and fatalistic beliefs, as the two main explanatory variables, were treated as continuous variables. Variables with P values less than 0.25 in the bivariate analysis were included in the final model using the "enter" method (26). The Hosmer-Lemeshow test was used to test the model's goodness of fit, which showed a good fit of the model ($P > 0.05$). A P value less than 0.05 was considered significant. We used SPSS version 20 (IBM Corp., Armonk, NY, USA) for statistical analysis.

Results

Overall, 503 subjects completed the questionnaire. The mean age was 36.5 ± 10.9 years, and 60% (n = 302) of the participants were female. Most subjects had a university education (77.3%, n = 389). According to physician diagnosis, 21.7% (n = 109) had a history of COVID-19 infection. Approximately one-third of respondents (n = 163) said they wore a mask outside the home.

Females and those who were less educated had higher scores in both fatalistic beliefs ($P < 0.05$) and religiosity ($P < 0.05$) compared to others (Table 1).

Logistic regression analysis showed that there was association between neither religiosity (odds ratio [OR] = 1.03; 95% confidence interval [CI] = 0.99–1.08) nor fatalistic beliefs (OR: 1.01; 95% CI: 0.98–1.04) and mask-wearing (Table 2), i.e., with every one-unit increase in the score of religiosity and fatalistic beliefs, we expect a 3% and 1% increase in the odds of mask-wearing, respectively, which is not statistically significant.

Discussion

Studying mask usage and its determinants remains a significant issue during the COVID-19 pandemic and the emergence of later mutations and variants. Our study showed that one-third of respondents were adherent to mask-wearing. This figure is far from the "sufficient" mask adherence level suggested by authorities (i.e., 80%) (27).

In bivariate analysis, only two variables showed significant differences regarding the fatalism and religiosity scores; females and less educated subjects were more fatalistic and religious. This finding is in line with the results of a study conducted in six large population-

Table 1. God Locus of Health Control (GHLC) and Duke Religion Index (DUREL) scores according to baseline characteristics

Variable	GHLC score		DUREL score	
	Mean (SD)	P value	Mean (SD)	P value
Age (y)				
<45	18.8 (7.2)	0.717	19.0 (5.2)	0.150
≥45	19.2 (8.0)	19.2 (8.0)	19.8 (5.0)	
Gender				
Male	17.7 (8.0)	0.003	18.2 (5.7)	0.002
Female	19.7 (6.8)	19.7 (6.8)	19.7 (4.7)	
Education level				
Lower than university	22.3 (7.6)	<0.001	20.2 (5.1)	0.010
University	17.9 (7.0)	17.9 (7.0)	18.8 (5.1)	
History of COVID-19				
No	19.1 (7.4)	0.355	19.2 (5.1)	0.691
Yes	18.3 (7.3)	18.3 (7.3)	18.9 (5.4)	
Mask wearing				
No	18.6 (7.0)	18.6 (7.0)	18.8 (5.3)	0.087
Yes	19.4 (4.8)	19.4 (4.8)	19.7 (4.8)	

Table 2. Association of fatalistic beliefs and religiosity with mask-wearing in the logistic regression model

Variable	Adjusted OR (95% CI)	P value
Age		
<45	1 [Reference]	0.696
≥45	0.90 (0.55–1.50)	
Gender		
Male	1 [Reference]	0.901
Female	0.98 (0.66–1.44)	
Education level		
Lower than university	1 [Reference]	0.611
University	1.13 (0.70–1.82)	
History of COVID-19		
No	1 [Reference]	0.369
Yes	0.81 (0.50–1.29)	
Fatalistic beliefs score	1.01 (0.98–1.04)	0.673
Religiosity score	1.03 (0.99–1.08)	0.126

based samples from Europe, Latin America, and Africa. As a surrogate marker of social class, educational level showed a negative relationship with fatalistic beliefs in most cultures (28). Our study revealed that fatalistic beliefs were not associated with mask-wearing. There may be some explanations for the lack of association; first, not all studies have found a clear relationship between fatalistic beliefs and health behavior. A meta-analytic review reported that 72% of studies found an association (though sometimes non-significant) between fatalistic beliefs and health behavior (28). Second, the causes of adherence to health behaviors such as mask-wearing and differences between countries seem to be

much more related to politics and cultural contexts than a genuine belief that one gets COVID-19 because of chance or fate (29).

On the other hand, we found no significant relationship between religiosity and mask adherence. Religion influences the daily lives of many people around the world. Nearly 98% of Iran's population is Muslim, and it is the second-largest country in the Middle East (30). We used a well-validated and widely used questionnaire (i.e., DUREL) to measure religiosity (23). Although religion has been introduced as a social determinant of health, the evidence is equivocal on the association between religiosity and health behaviors (16). There may be several reasons why we have not seen any relationship between religiosity and mask-wearing during the COVID-19 pandemic among the Muslim population in southeast Iran. The main argument is that according to a recent global comparative study, the association between religiosity and health is positive in "only a handful of countries" and "is non-significant in many instances" (29). The association between religiosity and health behavior is not a simple cause-and-effect relationship. Those with a common religion share beliefs related to their faith and rituals and are deeply rooted in socioeconomic, ethnic, and cultural backgrounds (16).

Secondly, Islamic beliefs may be related to health behaviors in two opposing ways (31); Islam encourages individuals to protect themselves from harm. On the other hand, according to Baker et al, "although not necessarily related to formal religion, conspiracy theories contain several quasi-religious elements" (32). Even some health officials in Western countries have identified Muslims as a vulnerable community to COVID-19 due to many cultural factors (33).

The two limitations of the study were that, as with other studies employing online surveys, there was the risk of non-response bias. As the second limitation, although online surveys are growing in popularity, the population from which the sample was drawn cannot be characterized meticulously (34). Therefore, generalizing the results to the entire population should be done with caution.

Conclusion

In total, one-third of respondents reported that they were adherent to mask-wearing. Females and less educated people were more fatalistic and religious than their counterparts. Our findings do not support the significant association of fatalistic beliefs and religious involvement with adherence to mask-wearing during the COVID-19 epidemic among Muslims. Thus, religious beliefs may have no place in the cultural tailoring of health messages for promoting mask adherence.

Authors' Contribution
Conceptualization: Nouzar Nakhaee, Zahra Khajeh.
Formal Analysis: Nouzar Nakhaee.
Investigation: Nouzar Nakhaee.
Methodology: Nouzar Nakhaee, Zahra Khajeh.
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Visualization: Nouzar Nakhaee, Vahid Yazdi-Feyzabadi.
Supervision: Nouzar Nakhaee.
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Writing–review & editing: Vahid Yazdi-Feyzabadi.

Competing Interests
The authors have declared that there is no potential conflict of interest.

Ethical Approval
This study obtained ethical approval from Kerman University of Medical Sciences. (IR.KMU.REC.1399.594).

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