Iranians' beliefs about COVID-19: a cross-sectional study

Yousef Hamidzadeh

Ardabil University of Medical Sciences, Ardabil

Mehdi Vosoughi Niri

Ardabil University of Medical Sciences

Hamed Zandian

Ardabil University of Medical Sciences

Abdollah Dargahi

Ardabil University of Medical Sciences

khadijeh Nasiri

Khalkhal University of Medical Sciences

Elahe Mohammadi

Khalkhal University of Medical Sciences

Cain C. T. Clark

Coventry University

Vahideh Aghamohammadi (✉ v_agamohammadi@yahoo.com)

Khalkhal University of Medical Sciences

Research

Keywords: COVID-19, belief, Iranian population

Posted Date: July 15th, 2021

DOI: <https://doi.org/10.21203/rs.3.rs-706942/v1>

License: This work is licensed under a Creative Commons Attribution 4.0 International License.

[Read Full License](#)

Abstract

Background

We sought to investigate people's beliefs, decision dynamics, and future consequences of the current COVID-19 pandemic.

Methods

The present cross-sectional study was conducted from January 10th to April 30th, 2020. The data collection tool was a researcher-made electronic questionnaire that was designed in Porsline.com. The test-retest reliability of the questionnaire was good, and consisted of three sections: introduction, demographic characteristics, and belief questions about COVID-19.

Results

In 17 of the 43 beliefs, more than two-thirds of the subjects chose the "correct belief", and less than one-third chose the "I have no idea" or "I disagree" options. There was a significant correlation between age, gender, education, residential area, occupational status and correct belief about COVID-19.

Conclusions

Accurate knowledge of policymakers, managers, health care workers, and the public, beliefs about COVID-19 is important in promoting community health and disease prevention.

Introduction

The 2019 novel coronavirus (COVID-19) has deleteriously affected the health and quality of life of people, globally [1, 2]. According to behavioural scientists, the key to success in the prevention of COVID-19 is dependent on the provision of appropriate and scientific information to the public about transmission, prevention, and treatment of the disease; however, multiple sources of information have hindered from the transmission of uniform and correct information, leading to doubt and incorrect beliefs about COVID-19 [3, 4]. Understanding individuals awareness of COVID-19 and observing health principles are important factors that can slow down, or even stop, the widespread transmission of COVID-19 [5]. Correct awareness is contingent on the provision of accurate and reliable information through reliable information channels [6] [7]. Belief is a stable organization of relative perception and cognition about a particular aspect of a person's world [8]. Beliefs can be divided into, positive and promising, and negative or limiting/ frustrating categories, which can impact lifestyle in positive or negative ways

During the COVID-19 pandemic, the potential effect of conspiracy theories on individual beliefs and behaviours has been investigated [9]. Further, the review of Persian and Latin news sources shows scattered true and false beliefs about COVID-19, with some, more colloquial, sources citing postal packages as a vector for disease transmission, among numerous other unfounded claims[10]. Further examples, for instance through the Iranian Students News Agency (ISNA) and MEHR News Agency, include inappropriate and harmful “home remedies” for the treatment of COVID-19, such as pesticides and bleach, in addition to positing the malicious release of the disease, or the covert tracking intentions behind vaccinations [11] [12]. Empirical data also highlights the widespread conspiracy beliefs around COVID-19 [13], and despite numerous information programs by governments and other firms and institutions, factually incorrect beliefs regarding the transmission, prevention, and treatment of COVID-19 remain [9]. In a cross-sectional web-based study by Czeisler et al., a 17-item questionnaire was prepared, and its validity was confirmed and used for social and media apps. The results showed that participants were well aware of various aspects of COVID-19, but a significant number of participants had factually incorrect beliefs about transmission, prevention, and treatment. Accordingly, Czeisler et al concluded that, despite relatively good knowledge about coronavirus, there is still a need for training to avoid factually incorrect beliefs, especially among the elderly and less-educated individuals [14]. In short, as the COVID-19 pandemic progresses, coping strategies that include recognizing attitudes, behaviours, and beliefs of society will become increasingly necessary [15]. Thus, we sought to investigate individuals beliefs about this disease, decision dynamics, and potential future consequences of the current COVID-19 pandemic.

Methods

The present cross-sectional study was conducted from January 10th to April 30th, 2020. In this study, convenience sampling was performed. We targeted members of the Ardabil province using anonymous online questionnaires. Each participant was permitted to fill the questionnaire only once. Informed written consent was gained from all the subjects included, prior to participation. According to power calculations, 384 samples would be sufficient for representation of a population of one hundred thousand people. However, despite concerted efforts, overall, 293 individuals observed the questionnaire and only 130 participants (less than 45% of the observers) fully completed it. The average response time to the questionnaire was 9.48 minutes. Inclusion criteria were the willingness to contribute to the study, and knowing the Persian language. The data collection tool was a researcher-made electronic questionnaire that was designed in Porsline.com and linked to community groups and channels.

Regarding questionnaire validation, the prepared questionnaire was provided to six faculty members related to the subject of study, then their suggestions were implemented. Test-retest-reliability was applied, twice, over two weeks using 15 subjects (correlation coefficient = 0.61, p-value < 0.05). The calculation of Cronbach's coefficient test showed the average scores of the questionnaire to be 0.73 (Cronbach's α = 0.73). The questionnaire consisted of three sections: introduction, demographic characteristics, and belief questions about COVID-19.

Data of the completed questionnaires were entered into Excel and then analysed using IBM SPSS Statistics software (Version 24) (IBM SPSS Statistics, Armonk, USA).

Results

The participants’ demographic characteristics are shown in Table 1.

Table 1
Demographic characteristics of participants

Variables	
Education (N)(%)	
Less than a high school diploma	26(20)
High school diploma	14(10.77)
College graduated	90(69.23)
Age	39.42(11.47)
Gender(N)(%)	
Male	86(66.15)
Female	44(33.85)
Marital (N) (%)	
Single	36(27.7)
Married	94(72.3)
Number of children	1.57
Residential area(N)(%)	
Urban	118(90.77)
Rural	12(9.23)
Occupational Status(N)(%)	
Unemployed	8(6.15)
Student(school or college)	24(18.45)
Government employee	62(47.7)
Non-governmental employee	12(9.2)
Retired	24(18.45)
History of diagnosis of COVID-19 First and second-degree relatives(N)(%)	
Yes	30(23.1)
No	24(18.45)
Uncertain	76(58.45)
Smoking status(N)(%)	
The results are described as mean $\pm$ SD for quantitative data and number (%) for qualitative data.	

Variables	
Yes	24(18.45)
no	106(81.55)
Sources of health information(N)(%)	
Social networks	84(64.62)
Website	66(50.77)
Broadcasting	50(40.32)
Family and friends	46(35.4)
Doctors	36(27.7)
Health stuff	34(26.2)
Newspapers	30(23.07)
Schools and universities	24(18.45)
The results are described as mean $\pm$ SD for quantitative data and number (%) for qualitative data.	

Three questions were asked regarding the nature of COVID – 19, the extent of getting COVID-19, and the need for training; the results of which are as follows:

- Do you think Covid 19 is a contagious infectious disease? yes:104 (80%), no: 8(6.15%), I am not sure:18(13.85%)

These results showed that 20% of subjects still do not know that COVID-19 is a contagious infectious disease.

- How at risk do you feel for getting COVID-19? low: 10(7.7%), high:74(56.9%), to some extent: 42(32.3%), I am not exposed to COVID-19: 4(3.1%).
- How much do you feel you need to be trained about COVID-19? low: 14(10.8%), high:54(41.5%), to some extent:52(40%), I don't need to learn about COVID-19:10(7.7%).

The results of participants' answers to the questionnaire of beliefs about the COVID-19 are shown in Table 2. In 17 of the 43 beliefs, including questions of 1,2,3,5,8,9,29,30,31,36, 37, 38, and 42, in Table 2, more than two-thirds of the subjects chose the "factually correct belief", and less than one-third chose the "I have no idea" or "I disagree" options. Regarding the correlation between variables, there was a significant correlation between age and correct belief about COVID-19/coronavirus ($\chi^2 = -0.38$, $P = 0.03$). Females had more factually incorrect beliefs, and this correlation was significant ($\chi^2 = -0.42$, $P = 0.02$). Education status was positively associated with correct belief about COVID-19/coronavirus ($\chi^2 = 0.58$, $p > 0.001$). Those in urban areas had significantly more correct beliefs about COVID-19/coronavirus than

those in rural areas ($\chi^2 = 0.28$, $P = 0.041$). Moreover, government employees had significantly more correct beliefs about COVID-19/coronavirus than other occupations ($\chi^2 = 0.33$, $P = 0.043$). There was no significant correlation between marital status and correct beliefs ($p < 0.05$).

Table 2
Participants' answers to the questionnaire of beliefs about the COVID-19 and coronavirus

questions	I agree	I disagree	I have no idea
1. The coronavirus is more dangerous than the influenza viruses. (yes)*	100(77)	18(13.8)	12(9.2)
2. For coronavirus infection, contact with an infected person for at least 30 to 20 minutes is sufficient. (yes)	80(61.5)	20(15.4)	30(23.1)
3. Coronavirus enters the body only through the Respiratory tract. (no)	30(23.1)	80(61.5)	20(15.4)
4. Pets can easily transmit the coronavirus. (no)	44(33.8)	38(29.2)	48(37)
5. Kissing and hugging cannot transmit the Coronavirus. (no)	10(7.7)	120(92.3)	0(0)
6. Touching raw meat increases risk for getting COVID-19. (no)	56(43.08)	28(21.54)	46(35.38)
7. The coronavirus can survive in infected people for several months. (no)	70(53.84)	20(15.4)	40(30.76)
8. The coronavirus can be transmitted through mosquito bites. (no)	10(7.7)	112(86.15)	8(6.15)
9. Those admitted to the ICU because of COVID-19 do not survive.	8(6.15)	110(84.62)	12(9.23)
10-Using antiseptic solutions is enough to kill the coronavirus. (no)	42(32.3)	72(55.4)	16(12.3)
11. consumption of red seaweed treats the COVID-19. (no)	4(3.1)	36(27.7)	90(69.2)
12. Stay at home cannot protect the person from coronavirus. (no)	40(30.78)	70(53.84)	20(15.38)
13. Consumption of alcoholic beverages can protect against coronavirus. (no)	10(7.7)	96(73.84)	24(18.46)
14. There are Several drugs exist for the prevention of COVID-19. (no)	20(15.53)	80(61.5)	30(23.07)
15. Antibiotics are effective in the treatment of COVID-19. (no)	24(18.5)	62(47.7)	44(33.8)
16. Using a hair dryer can kill the coronavirus. (no)	14(10.78)	70(53.84)	46(35.38)
17. Using ultraviolet disinfection lamps can kill coronavirus. (no)	18(13.8)	42(32.4)	70(53.8)

Results are presented as frequency (percent).

* The correctness or incorrectness of each item is indicated at the end of the phrase in parentheses as yes or no, respectively.

questions	I agree	I disagree	I have no idea
18. Coronavirus is the same as the mutated SARS-CoV and MERS-CoV. (no)	36(27.7)	46(35.4)	48(36.9)
19. Rubbing or spraying alcohol on the surface of the body kills the coronavirus. (yes)	54(41.5)	36(27.7)	50(36.9)
20. Using a mask to cover the mouth and nose is the only way to prevent coronavirus infection. (no)	44(33.8)	74(57)	12(9.2)
21. Children and adolescents don't affect by the coronavirus. (no)	4(3.1)	116(89.2)	10(7.7)
22. Frequent throat gargling with salt water prevents coronavirus. (no)	24(18.5)	76(58.5)	30(24)
23. Not referring to the health center is the main way to protect against coronavirus. (no)	22(16.9)	94(72.3)	14(10.8)
24. Rubbing sesame oil on the body or it's taking orally protects against coronavirus. (no)	8(6.2)	80(61.5)	42(32.3)
25. Daily intake of garlic can protect against coronavirus. (no)	20(15.4)	58(44.6)	52(40)
26. Drinking ginger or cinnamon tea can prevent coronavirus infection. (no)	20(15.4)	60(46.2)	50(38.4)
27. Influenza vaccine can prevent coronavirus infection. (no)	4(3.1)	90(69.2)	36(27.7)
28. It is a false claim that social distance prevents a person from getting the coronavirus. (no)	26(20)	84(64.6)	20(15.4)
29. Covering the mouth and nose when sneezing and coughing during COVID-19 does not affect other people getting the coronavirus. (no)	8(6.2)	114(87.6)	8(6.2)
30. Rainwater kills the coronavirus and prevents a person from being exposed to COVID- 19. (no)	6(4.6)	106(81.6)	18(13.8)
31. If someone has symptoms of Covid 19 disease, he or she should not report it. (no)	6(4.6)	106(81.6)	18(13.8)
32. The only way to protect from the coronavirus is getting the correct information about the coronavirus. (no)	72(55.4)	40(30.8)	18(13.8)
33. Drinking warm water and chewing gum don't prevent the coronavirus infection. (yes)	72(55.4)	34(26.15)	24(18.45)
34. Statistics released by the Ministry of Health on coronavirus deaths are false. (no)	80(61.5)	20(15.4)	30(23.1)
Results are presented as frequency (percent).			
* The correctness or incorrectness of each item is indicated at the end of the phrase in parentheses as yes or no, respectively.			

questions	I agree	I disagree	I have no idea
35. There are many viruses in the world, but coronavirus is the most dangerous virus. (no)	52(40)	48(36.9)	30(23.1)
36. Coronavirus infection provides lasting immunity. (no)	12(9.23)	100(76.92)	18(13.85)
37. Pregnant and lactating women and their babies are safe against coronavirus infection. (no)	8(6.2)	110(84.6)	12(9.2)
38. Coronavirus is not a contagious virus that cannot spread rapidly. (no)	14(10.8)	100(76.92)	16(12.3)
39. Coronavirus has adapted to the conditions of our country and will disappear as soon as. (no)	6(4.6)	90(69.2)	34(36.2)
40. Hot water bath does not prevent coronavirus infection. (yes)	72(55.4)	24(18.4)	34(26.2)
41. People with strong bodies or high immune systems have a lower chance of getting the Coronavirus infection. (no)	20(15.4)	84(64.6)	26(20)
42. Coronavirus cannot spread inside the buses, subway, and trains. (no)	8(6.2)	114(87.6)	8(6.2)
43. Goods and packages shipped from China carry the Coronavirus. (no)	36(27.7)	26(20)	68(52.3)
Results are presented as frequency (percent).			
* The correctness or incorrectness of each item is indicated at the end of the phrase in parentheses as yes or no, respectively.			

Discussion

The present study sought to investigate people's beliefs about the nature of COVID-19 in Iran, an indicated that factually incorrect beliefs about the transmission, protection from, and development of COVID-19 are widespread. Indeed, factors such as lack of basic scientific and academic literacy about the concept of viruses and viral diseases, the provision of contradictory information through unreliable channels, less contact with physicians and health care personnel, lack of in-person training, economic and cultural poverty, and geographical factors such as living in remote and rural areas, can play a role in forming these beliefs. In addition, one of the most likely reasons for people not observing health protocols is inappropriate and negative beliefs about this disease. The first step for correcting beliefs is the provision of accurate, evidence-based, and non-contradictory information about the nature of the disease through all information channels of society [16]. In interpreting these results, it appears that one of the reasons for the formation of irrational beliefs about coronavirus and non-observance of protocols is that the source of information for a large part of the people is not the official channels of the country, and reliance on inaccurate information from unofficial and unreliable channels and groups on social apps is more commonplace. Indeed, people are typically looking for new information in an expedient

manner, and although reliable sources are available, the increased engagement with social media apps yields contradictory and fallacious information.

With poor awareness and attitude towards COVID-19, safety protocol guidelines may be increasingly ignored, with nationwide discussions regarding home quarantine, observing protocols, the nature of the disease, and the manner in which information are provided, resulting in many believing factually incorrect and irrational information [17].

Indeed, the present study elucidates the current state of affairs regarding national beliefs, and by discerning such information, public health messaging and intervention may be better utilised to address such discrepant beliefs [18]. Due to lack of access to similar studies, it was not possible to directly compare the results with other studies, however, the results of the present study are consistent with global anecdotal reports. Moreover, Zoghi et al. found that as the level of understanding of coronavirus disease increases, improved general health and reductions obsessive beliefs can be seen [19]. Therefore, it is advisable that concerted efforts be made to reduce the spread of factually incorrect and contradictory information regarding COVID-19, and that reliable, fact-driven, information be routinely provided and promoted.

Limitations

The principal limitations of the present study are that participation of illiterate or low literacy individuals was low, there was a lack of coverage of those who were not members of community groups, and a lack of participation of villagers. Given that this was a cross-sectional study, no causal inference could be drawn from it. Further, there may be information bias due to the socio-cultural profile of the participants. Next, since this questionnaire was self-administered and dependent on self-report data, some element of inaccuracy is inevitable. Finally, because this was an Internet-based online survey, it is unlikely to attract responses from those areas with limited access to social media. This may introduce demographic, sampling, and coverage choice bias, especially since the responses came from a relatively young, educated, professional, and Internet-active community. Therefore, the study results cannot be generalized to the entire population of the country.

Conclusion

The present study highlights the current beliefs about coronavirus in Iranian individuals. Indeed, accurate knowledge of policymakers, managers, health care workers, and the public beliefs about COVID-19 is important in promoting effective community health, disease prevention, and communication.

Declarations

Ethics approval and consent to participate

This protocol, approved by Medical Ethics Committee of Ardabil of Medical Sciences, is in accordance with the Declaration of Helsinki (approval number: IR.ARUMS.REC.1399.224).

Competing interests: The authors declare that they have no competing interests.

Funding: This research is funding by Ardabil University of Medical Sciences.

Authors' Contributions: All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; agreed to submit to the current journal; gave final approval of the version to be published; and agree to be accountable for all aspects of the work.

Acknowledgments: The authors thank from the participants who have collaborate with us sincerely to the end of study.

References

1. Wang D, Hu B, Hu C, Zhu F, Liu X, Zhang J, Wang B, Xiang H, Cheng Z, Xiong Y. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus–infected pneumonia in Wuhan, China. *Jama*. 2020;323(11):1061–9.
2. Shoja E, Aghamohammadi V, Bazayr H, Moghaddam HR, Nasiri K, Dashti M, Choupani A, Garaee M, Aliasgharzadeh S, Asgari A. Covid-19 effects on the workload of Iranian healthcare workers. *BMC Public Health*. 2020;20(1):1–7.
3. Jose R, Narendran M, Bindu A, Beevi N, Manju L, Benny P. Public perception and preparedness for the pandemic COVID 19: a health belief model approach. *Clinical Epidemiology Global Health*. 2021;9:41–6.
4. Shahi GK, Dirkson A, Majchrzak TA. An exploratory study of covid-19 misinformation on twitter. *Online Social Networks Media*. 2021;22:100104.
5. Nguyen HC, Nguyen MH, Do BN, Tran CQ, Nguyen TT, Pham KM, Pham LV, Tran KV, Duong TT, Tran TV. People with suspected COVID-19 symptoms were more likely depressed and had lower health-related quality of life: the potential benefit of health literacy. *Journal of clinical medicine*. 2020;9(4):965.
6. Kahan DM: **Misconceptions, misinformation, and the logic of identity-protective cognition**. 2017.
7. Benjamin LT Jr. A brief history of modern psychology. John Wiley & Sons; 2018.
8. Fullerton S, Kerch KB, Dodge HR. Consumer ethics: An assessment of individual behavior in the market place. *Journal of business ethics*. 1996;15(7):805–14.
9. Freeman D, Waite F, Rosebrock L, Petit A, Causier C, East A, Jenner L, Teale A-L, Carr L, Mulhall S. **Coronavirus conspiracy beliefs, mistrust, and compliance with government guidelines in England**. *Psychological Medicine* 2020:1–13.
10. [<https://www.yjc.ir/fa/science>].

11. <https://www.isna.ir/>.
12. <https://www.mehrnews.com>.
13. Krishna PR, Undela K, Gupta BS, Palaksha S: **Knowledge and Beliefs of General Public of India on COVID-19: A Web-based Cross-sectional Survey**. *medRxiv* 2020.
14. Czeisler M, Tynan MA, Howard ME, Honeycutt S, Fulmer EB, Kidder DP, Robbins R, Barger LK, Facer-Childs ER, Baldwin G: **Public attitudes, behaviors, and beliefs related to COVID-19, stay-at-home orders, nonessential business closures, and public health guidance—United States, New York City, and Los Angeles, May 5–12, 2020**. *Morbidity and Mortality Weekly Report* 2020, **69**(24):751.
15. Chalton E. **How experts are fighting the Coronavirus' infodemic'**. In: *World Economic Forum online (05-3-2020)* URL: <https://www.weforum.org/agenda/2020/03/how-experts-arefighting-the-coronavirus-infodemic>: 2020; 2020.
16. Glanz K, Rimer BK, Viswanath K: **Health behavior and health education: theory, research, and practice**: John Wiley & Sons; 2008.
17. Wei L, Sha Z, Wang Y, Zhang G, Jia H, Zhou S, Li Y, Wang Y, Liu C, Jiao M. Willingness and beliefs associated with reporting travel history to high-risk coronavirus disease 2019 epidemic regions among the Chinese public: a cross-sectional study. *BMC Public Health*. 2020;20(1):1–9.
18. Leibovitz T, Shamblaw AL, Rumas R, Best MW. COVID-19 conspiracy beliefs: Relations with anxiety, quality of life, and schemas. *Personality Individ Differ*. 2021;175:110704.
19. Zoghi L, Ajilchi B, Yosefirad E, Dehghan Monazam AA. The Relationship between Illness Perception, Obsessive Beliefs and General Health in patients referring to Corona virus (COVID-19) Diagnosis. *Educational Psychology*. 2020;16(55):215–28.