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Self-care behaviors related to COVID-19 among Iranian elderly with and without a history of infection

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ABSTRACT

Background & Aim: Adopting self-care behaviors is considered an important factor in the prevention of COVID-19. Therefore, this study was conducted to investigate Self-Care Behaviors Related to COVID-19 among Iranian elderly with and without a history of infection**.**
Methods & Materials: This descriptive-correlational study was conducted on 324 elderlies in Iran in 2021. Eligible seniors were selected by convenience sampling and placed into two groups: the elderly with a history of COVID-19 and the elderly without it. The data collection tools included the demographic form and the questionnaire on self-care behaviors during the COVID-19 pandemic. Data analysis was done with SPSS software version 25 using descriptive (frequency and percentage) and inferential statistics (Mann-Whitney u-test and independent t-test).
Results: 165 men (50.90%) and 159 women (49.10%) participated in this study. The mean age of the participants was 70.60 ± 8.73. The results showed that there was a statistically significant difference between the self-care behaviors of the elderly with a history of COVID-19 and those without it; the elderly with a history of COVID-19 had more favorable self-care behaviors ($p<0.001$).
Conclusion: A history of COVID-19 results in better self-care behaviors. It can be justified by constructs of the health beliefs model, including perceived susceptibility, severity, and treatment. Therefore, it is necessary to improve self-care behaviors by using the experiences of infected elders in health education to influence the above mention constructs.

Introduction

Since December 2019, the world has been dealing with the COVID-19 pandemic, which involved different age groups. One of the age groups involved was the elderly; in a study conducted in March 2021, the infection rate of the elderly was estimated to be 16.3% (1). Since the elderly often have many underlying diseases in their history, and as the immune system of the elderly is weaker compared to other age groups, this age group has a higher susceptibility to infection and hospitalization (2-4).

One of the methods of improving health and preventing many illnesses is adopting self-care behaviors. Self-care behaviors are defined as a set of activities that people uniquely recognize and then perform to maintain their life, health, and a permanent sense of well-being (5). With the spread of COVID-19 worldwide, the World Health Organization and the Centers for Disease

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Control and Prevention have recommended specific behaviors aimed at preventing and reducing the risk of disease transmission, as well as promoting well-being and enhancing adaptive behaviors in the community, which align with self-care behaviors. These behaviors have been considered among the self-care behaviors in COVID-19. Accordingly, self-care during the COVID-19 pandemic has five main components, including personal protection measures, social distancing, environmental disinfection, psychosocial well-being, and preventive behaviors (6). Self-care can be a proper way to control this illness in the world. As Cheng et al. show, as behavior in line with self-care personal protection standards, wearing masks can be very effective in preventing and controlling the spread of COVID-19 (7). In addition, other evidence showed that social distancing during the COVID-19 pandemic can be very effective in controlling and preventing COVID-19 (8, 9).

It should also be noted that the importance of self-care behaviors in the elderly seems to be heightened. This is because the elderly experience more physical disabilities and mental-social problems due to a lack of awareness of disease and treatment, which will likely ultimately lead to a reduction in self-care behaviors (10).

Given the study results, adopting self-care behaviors can be a cost-effective solution against COVID-19, but this pattern may not apply to the elderly population due to their different circumstances compared to other age groups. In addition, the experience of contracting COVID-19 as a novel disease has complicated and made ambiguous the self-care status of the elderly. Therefore, this study was conducted to investigate Self-Care Behaviors Related to COVID-19 among the Iranian Elderly with and without a History of Infection to shed light on this issue.

Methods

The present study was a descriptive-correlational study that was conducted in Iran in the period from July to October 2021 during the COVID-19 pandemic. The research population included the elderly with a history of COVID-19, discharged from the central hospital of COVID-19 patients in Gonabad (one of the northeastern cities of Iran), and the elderly without a history of COVID-19 but with a history of hospitalization in the same hospital due to other medical problems. The inclusion criteria consisted of being over 60, absence of infection or hospitalization due to COVID-19 in patients without a history of infection, speaking and understanding Farsi, having no cognitive problems (self-reported), having a history of infection and hospitalization due to COVID-19, and the willingness to participate in the research. Also, according to a reputable study, the duration of illness was 23.5 ± 9.9 days, and in this study, elderly patients who had passed four weeks since their hospital discharge were eligible to enter the study (11). The history of infection or non-infection of each patient was examined and recorded based on medical record documentation.

Since no similar study was found at the time of the research, the sample size was determined using Cohen's table. With a confidence level of 99% and based on the mean effect size, the required number of participants in each of the two independent groups was estimated to be 148. considering 10% non-response cases, finally, 162 participants were placed in each group, making a total of 324 subjects.

The research samples were selected using convenience sampling, according to the determined sample size. After obtaining the necessary permits from the ethics committee, 324 individuals were selected from the list of contact numbers of the elderly patients obtained from the hospital discharge center. After contacting the selected elderly by phone,

if they wished to participate in the research, the objectives of the research were explained to them, informed consent was obtained, and sampling was done. Some of the older adults did not have a mobile phone, so the research questionnaires were read orally by the researcher, and they answered the questions. And for the older adults who had a mobile phone, the questionnaires were sent electronically, and they completed the questionnaires.

The data collection tools in this research included the demographic form and the questionnaire on self-care behaviors during the COVID-19 pandemic (the SCOVID scale). The demographic form included age, gender, educational level, infection status (being infected or not being infected with COVID-19), marital status, underlying diseases, smoking, alcohol consumption, drug abuse, and taking medicine. In order to measure self-care behaviors in the elderly, Self-Care in COVID-19 Scale (the SCOVID scale) was used, which was developed and compiled by Maddalena De Maria et al. in 2020. This scale consists of 20 items rated on a five-point Likert scale and evaluates behaviors related to COVID-19 prevention and well-being maintenance. The Cronbach's alpha coefficient of the study has been reported as 0.94, and the score range of this questionnaire will be between 20 and 100. The higher the score obtained from this questionnaire, the higher the level of self-care and vice versa (6). In the present study, after obtaining permission from the original developer of the scale, it was translated into Farsi. Its face validity and content validity were examined, and its content validity index was reported as 0.98. Internal consistency was used to check the reliability of the tool, and its Cronbach's alpha coefficient was 0.84.

In order to do this research, the file information of the patients eligible to enter the study was obtained from the information office and hospital file archive. After the researcher called the participants, if they were willing, the demographic information form and Self-Care in COVID-19 Scale were read by the researcher over the phone and were completed by the researcher at the same time. The other part of the questionnaires was completed electronically for other participants through an internet link on the "Porsline.ir" website sent by SMS by the elderly and their health care workers. The chosen method depended on the access of the elderly to the phone. Elderly people who wanted to send links were sent to them. The validation of the entered information was done by the researcher through a phone call one week after completing the form. Finally, the collected data were analyzed, and the self-care behaviors of the elderly were determined.

In this study, self-care behaviors were considered as independent variable. Descriptive (frequency and frequency percentage) and inferential statistics (Mann-Whitney-u test and independent t-test) were used to analyze the data to reach the research objectives. The value of $p<0.05$ was considered as the significance level of the results. SPSS version 25 was used to analyze the data. All study variables, except self-care behaviors, had a normal distribution. For this reason, the median and interquartile range were used for the statistical analysis of self-care behavior variables.

This research was approved in the session of the ethics committee of Tehran University of Medical Sciences on 30 June 2021 with the ethics code IR.TUMS.FNM.REC.1400.059. The study was conducted in accordance with the ethical principles provided by the Declaration of Helsinki and the guidelines of the Iranian Ministry of Health and Medical Education. In the selection process, the purpose and method of research were explained to the patients, then they were invited to participate in the study, and the written informed consent form was completed by them. The informed consent form for the older adults was completed by the

samples who participated in the research electronically.

Results

In the current study, 324 elderly participated, and the response rate was 100%. 165 men (50.90%) and 159 women (49.10%) took part in this study. The mean age of the subjects under study was 70.80 ± 60.73 years. The full details of the demographic characteristics are shown in Table 1.

Table 1. Demographic characteristics of the elderly participating in the study (n=324)

Variable		History of Covid-19 infection + N (%)	History of Covid-19 infection - N (%)	χ^2
Gender	Male	77 (46.7)	88 (53.3)	0.222
	Female	85 (53.5)	74 (46.5)	
Marital status	Single	36 (46.8)	41 (53.2)	0.514
	Married	126 (51)	121 (49)	
History of underlying diseases	Yes	125 (53.4)	109 (46.6)	0.047
	No	37 (41.1)	53 (58.9)	
History of taking medicine	Yes	125 (53.6)	108 (46.4)	0.036
	No	37 (40.7)	54 (59.3)	
History of smoking, drug abuse, and alcohol consumption	Yes	29 (43.3)	38 (56.7)	0.217
	No	133 (51.8)	124 (48.2)	
Education level	Lower diploma & diploma	140 (51.1)	134 (48.9)	0.356
	Higher diploma	22 (44)	28 (56)	
		Mean±SD	**Mean±SD**	**Independent t-test**
Age		70.22±8.33	70.99±9.13	0.426
Body mass index		25.85±5.45	25.57±4.78	0.632
Number of children		4.86±1.87	5.12±2.07	0.231

In addition, the median of self-care behaviors is 81 in the individuals with a history of COVID-19 infection and 76 in those without it. The interquartile range is 16 in individuals with a history of infection and 11.25 in those without it. The total score of self-care behaviors of the elderly in the two groups had a statistically significant difference; the self-care behaviors of the individuals with a history of COVID-19 were higher in comparison with the ones without it (p=0.001) (Table 2). however, items "Disinfect surfaces and objects shared with other people," "Try to maintain your usual hobbies or cultivate new ones," "Wear disposable gloves in public places when there is a risk of contagion, "Maintain a healthy lifestyle," "Limit to leave home" and "Maintain a regular sleep-wake rhythm" had no statistically significant difference in the elderly with and without a history of COVID-19 infection (p>0.05). The findings of the study showed that in the elderly with a history of COVID-19, self-care behaviors were higher in women, in individuals with no history of smoking, drug abuse, and alcohol consumption, and in those with a diploma or higher educational levels (p<0.05). More details are given in Table 3.

Table 2. Comparison of the median, interquartile range of each item of the SCOVID scale questionnaire

Item	With a history of COVID-19		Without a history of COVID-19		P-value*
	Median	Interquartile range	Median	Interquartile range	
1. Wash your hands with water and soap or disinfectant solution after carrying out activities at risk of contagion (e.g., using public transport, grocery shopping in supermarkets)	5	1	5	1	0.029
2. Ensure home hygiene using chlorine- or alcohol-based products	4	2	3	1	0.013
3. Avoid handshakes and/or hugs with people other than members of your household	5	1	5	1	0.028
4. Do something to relieve stress (e.g., take medication, do yoga, listen to music)	3	2	3	2	0.033
5. Don't touch (your own) eyes, nose, or mouth with your hands when outside the home, even when wearing gloves	5	1	4	2	0.000

6. Avoid places where a distance of at least one meter between people is not respected	5	1	4	1	0.000
7. Disinfect surfaces and objects shared with other people (e.g., handles, switches, desks, keyboards, remote controls, telephones)	4	3	3	1	0.445
8. Maintain regular physical activity (e.g., walking, running, exercise bike, online guided exercises)	3	2	3	2	0.013
9. Try to maintain your usual hobbies or cultivate new ones (e.g., reading, painting, gardening, cooking)	4	2	3	0.75	0.134
10. Maintain a healthy and balanced diet appropriate to activities during the day	5	1	4	2	0.000
11. Try to maintain a well-groomed appearance despite not being able to go to the hairdresser or beautician	4	1	4	2	0.003
12. Maintain a distance of at least one meter from other people outside the home	5	1	4	1.25	0.000
13. Wear disposable gloves in public places when there is a risk of contagion (e.g., on public transport, in the supermarket)	2	3	2	3	0.163
14. Maintain a healthy lifestyle (e.g., avoiding or limiting smoking, not abusing alcohol or other drugs)	5	1	5	1	0.473
15. Try to keep in touch with other people, other than members of your own household (e.g., friends, relatives, colleagues) by means of phone calls, video calls, e-mails, etc.	5	1	4	2	0.002
16. Cover your nose and mouth (e.g., by using a face mask) when there is a risk of contagion	5	0	5	1	0.078
17. Limit to leave home	4	2	4	2	0.256
18. Maintain a regular sleep-wake rhythm (e.g., going to bed at the same time and waking up at the same time every day)	4	2	4	2	0.862
19. Try to maintain a daily routine	5	1	4	1	0.006
20. Ensure air changes in rooms shared with other people (e.g., workplace, home)	3	3	4	2	0.044
Total SCOVID scale score	81	16	76	11.25	0.000

*Mann-Whitney U test

Table 3. Comparison of median and interquartile range of demographic variables in participants with and without a history of COVID-19

Variable		Self-care behaviors of the elderly with a history of COVID-19			Self-care behaviors of the elderly without a history of COVID-19		
		Median	**Interquartile range**	**P-value***	**Median**	**Interquartile range**	**P-value***
Gender	Male	78	13	0.021	76	12	0.711
	Female	83	12		75	11	
Marital status	Single	82	16.50	0.987	73	14	0.011
	Married	81	16		78	12	
History of underlying diseases	Yes	81	17	0.671	86	11	0.613
	No	80	14.50		76	4	
History of taking medicine	Yes	81	16	0.766	76	11	0.957
	No	81	15		76.50	12.25	
History of smoking, drug abuse, and alcohol consumption	Yes	78	13	0.039	76.50	12.25	0.983
	No	82	15		76	11.75	
Education level	High school	79	13	0.000	75	11.50	0.035
	Diploma or higher educational levels	84	12		78	16.75	

* Mann-Whitney U test

Discussion

The present study was conducted to investigate Self-Care Behaviors Related to COVID-19 among Iranian Elderly with and without a History of Infection. The two groups were homogeneous in terms of demographic characteristics, and there was no statistically significant difference between them. The self-care score related to COVID-19 was significantly higher in individuals with a history of COVID-19 compared to those without a history of infection. According to the participants with a history of this disease who were present in this research, getting infected with COVID-19 was a bitter season for them. This bitter experience made them take care of themselves more so as not to get sick. This

care mostly included the use of masks, the use of sanitary items, and observing social distancing, an issue that is considered under the title of self-care. Of course, practices such as using disposable gloves in shopping or public places, disinfecting all equipment and surfaces, or restricting going out of the house did not seem practical to a large extent. In contrast, there were participants without a history of being infected with COVID-19. They did not have experience with this disease, and it seems that this difference could change the results. In most of the participants who had a history of this disease, there were common points that needed to be considered. Most of the elderly who had recently recovered from the disease were terrified and described the days and nights of fighting COVID-19 with the fear and stress of reinfection. Moreover, generally, the extent of emotional reactions, such as anger, anxiety, stress, etc., in response to the presence and infection of COVID-19 is increasing all over the world (12, 13). Naturally, such an unfortunate experience can make people determined to follow the rules they have not previously observed. And in general, the fear of the possibility of reinfection with COVID-19 increases self-care behaviors in the elderly with a history of previous infection with this illness, the result which was approved in this research. Bermejo-Martins reported a high level of self-care in his study, too, and concluded that COVID-19 can increase the level of self-care (14). In addition, Eisazadeh conducted a study on discharged COVID-19 patients and reported that self-care in these people was higher than before they were infected and concluded that being infected by COVID-19 is directly correlated to performing self-care behaviors (15). Therefore, COVID-19 infection can stimulate self-care behaviors in individuals more than before. The same finding was obtained in the present study.

In the group of individuals with a history of COVID-19, women obtained significantly higher scores in self-care related to COVID-19 compared to men, while this variable did not show a significant difference in the group of individuals without a history of infection. This case absolutely applies to self-care behaviors too, and it can be concluded that women's greater sensitivity to illness and the possibility of infection increases self-care behaviors. All in all, this sensitivity of women, along with the fear of reinfection with this disease, can increase self-care behaviors even more. A finding, which was also achieved by Bermejo-Martins et al., was that there is a statistically significant relationship between gender and self-care behaviors; overall, women exhibited higher self-care behaviors (14).

In both studied groups, individuals with a high school diploma or higher had better self-care status. Results suggest that higher education can increase an individual's scientific information, awareness, and knowledge regarding the illness and, in general, make a person execute more self-care behaviors. The results of two separate studies are in line with this study (16, 17).

Limitations

The present research has some limitations, such as the samples' not responding over the phone and their low willingness to participate in completing the questionnaires by phone. The emotional states of the elderly while completing the questionnaires were also out of the researcher's control.

Conclusion

A history of COVID-19 results in better self-care behaviors. It can be justified by constructs of the health beliefs model, including perceived susceptibility, severity, and treatment. Therefore, it is necessary to improve self-care behaviors by using the

experiences of infected elders in health education to influence the above mention constructs. These findings can be a guide for nursing consideration in educational, clinical, managerial, and research fields in dealing with older adults with and without a history of COVID-19. Also, the research team recommends educational, clinical, social, and other effective interventions for self-care in order to improve this variable in the elderly.

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Conflict of interest

The authors declare no conflict of interest.

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