

The correlation between self-care and quality of life of older people in Pol-e Dokhtar City during the COVID-19 pandemic

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A – Study Design, **B** – Data Collection, **C** – Statistical Analysis, **D** – Data Interpretation, **E** – Manuscript Preparation, **F** – Literature Search, **G** – Funds Collection

Summary Background. The outbreak of COVID-19 reduced social interactions and access to healthcare centers, affecting older people's self-care ability and quality of life. Low quality of life was associated with a higher mortality rate in older people with COVID-19; thus, large measures should be taken in this field.

Objectives. The present study aimed to determine the correlation between self-care at home and older people's quality of life in Pol-e Dokhtar City during the COVID-19 pandemic.

Material and methods. The present cross-sectional and descriptive study was conducted by random sampling on 300 older people in Pol-e Dokhtar City. Three questionnaires acquired the data: the demographic information questionnaire, the standard older people self-care questionnaire and the World Health Organization Quality of Life-BREF (WHOQoL-BREF) questionnaire, which were analyzed using SPSS 22 software.

Results. The total self-care score was low, and older age was associated with decreased self-care and quality of life. An increased education level enhanced the levels of self-care and quality of life. The psychological and social self-care scores were directly associated with the rise in the quality of life score. The use of insurance increased self-care and quality of life. Retired older people had higher self-care, but employed older people had a higher quality of life.

Conclusions. Variables such as psychological and social self-care could predict older people's quality of life during the COVID-19 pandemic. Therefore, educational interventions, social-cultural and recreational sports activities and spiritual, material and emotional support should be done to improve older people's self-care and quality of life.

Key words: COVID-19, aging, self-care, quality of life, aged.

Yoosefifard N, Tarrahi MJ, Rahimi M. The correlation between self-care and quality of life of older people in Pol-e Dokhtar City during the COVID-19 pandemic. *Fam Med Prim Care Rev* 2023; 25(4): 442–447, doi: <https://doi.org/10.5114/fmpcr.2023.132618>.

Background

COVID-19 has been a pandemic and a significant public health emergency since its outbreak in December 2019 [1]. Contact with tiny respiratory droplets caused by sneezing or coughing, contact with an infected person or the blood and secretions of a sick person, as well as touching surfaces infected with the virus, are among the essential ways of transmitting this disease [2]. According to studies, more than 80% of patients are asymptomatic or with mild symptoms and recover after a week without the need for special treatment, and only about 20% of the cases end in death. The mortality rate is higher in middle-aged patients and older people with chronic diseases [3]. According to studies, 80% of older people suffer from at least one disease, and 50% from two chronic illnesses [4]. Chronic diseases remain with people for a long time, affect different organs and systems and often require extended treatment periods. Such status can lead to the disability of older people and reduce their independence and quality of life [5].

Using a self-care strategy increased the level of knowledge and self-care of older people to fight COVID-19 [6]. Self-care is a self-development activity to promote and maintain physical and mental health [7]. Self-care ability decreases in older people [8]. As the fear of COVID-19 increases, the level of self-care

decreases [9]. Inadequate self-care leads to reduced health outcomes and frequent hospitalisations [10]. Furthermore, improving quality of life promotes self-care in older people [11].

Quality of life is a multi-dimensional concept and is a subjective evaluation of the life state [12]. The World Health Organization (WHO) defines the quality of life as people's perception of their position in life within the framework of the culture and value systems in which they live and concerning their goals, expectations, standards and concerns [13]. The quality of life in people with COVID-19 has decreased by 65.61% compared to before the pandemic [14].

Concerns about the risks and fear of exposure to COVID-19, restrictions imposed to control the disease and the psychological effects of this pandemic, such as fear of illness during the COVID-19 pandemic, cause poor access to healthcare and social services, especially in the older population [2]. The presence of chronic diseases, depression and cognitive disorders, as well as low quality of life, are significantly associated with higher mortality rates in older people with COVID-19 [15].

Objectives

Considering the spread of COVID-19 and the higher vulnerability of older people to complications caused by the disease



and their lower self-care ability due to their older age and fear of COVID-19, it is necessary to take basic measures to increase the self-care ability and quality of life of older people. Therefore, the present study aimed to determine the correlation between self-care at home and the quality of life of older people in Pol-e Dokhtar City during the COVID-19 era from 2020 to 2021.

Material and methods

The present study was cross-sectional and descriptive-analytical and examined 300 older people in Pol-e Dokhtar City. Pol-e Dokhtar has 2,127 older people and three health centers. The sampling method was stratified and based on the population covered by comprehensive urban health centers. The number of samples allocated to each center was different based on the population of each center. The older people were selected randomly from each center and were included in the study according to the number of samples assigned to each center.

First, the managers' consent was obtained in comprehensive health service centers in Pol-e Dokhtar by explaining the research goals and methodology, and the necessary arrangements were then made with the healthcare workers to get the phone numbers of the older people. After obtaining the phone numbers of randomly selected older people, phone calls were made to them to complete questionnaires after explaining the research method and after obtaining their consent to participate in the study. The research population was assured about the confidentiality of the information and the right to withdraw from cooperation at each stage of the study.

The inclusion criteria for the study were as follows: older people living in Pol-e Dokhtar City, being 60 years of age or over, aware of the place, time and individuals, satisfied with participation in the study, absence of cognitive and hearing problems. Older people with these criteria were identified using the health record in the Integrated Health Record System (SIB) at the time of the interview.

The exclusion criteria were as follows: lack of access to the older people and their families through phone calls (three times over three consecutive days) during the research and their lack of consent to continue participating in the study.

The study data collection tool included three questionnaires:

1. The demographic information questionnaire, including questions about age, gender, education level, employment status, marital status, chronic disease status and whether the person lives alone.
2. Aging's Self-Care Scale: This questionnaire had 29 questions and 4 components, namely spiritual self-care, social self-care, physical self-care and self-care during diseases. The scoring of the self-care questionnaire was based on the five-point Likert scale (strongly agree, agree, abstained, disagree and strongly disagree). The scores of all questionnaire items were added up to calculate the total score of the questionnaire. The range of the questionnaire scores was from 29 to 145, where a higher score indicates higher self-care. The validity and reliability of the self-care questionnaire of older people were determined in Iran [16].
3. The World Health Organization Quality of Life-BREF (WHOQoL-BREF) generally evaluated the health status in 4 domains: physical health, mental health, community relations and environmental health, with 24 relevant questions and 2 unrelated questions in any domain, resulting in a total of 26 queries. A score of 4 to 20 was obtained separately for each domain, with 4 representing the worst quality of life and 20 representing the best quality of life in the target domain [17]. In the present study, the Iranian version of the WHOQoL-BREF, which was validated by Nedjat et al. in 2008,

was used. The ICCs for the 4 domains were within acceptable ranges (physical health = 0.77; psychological health = 0.77; social relationships = 0.75; environmental health = 0.84). The ICC for the overall QoL and the general health items was 0.69 [18].

Appropriate research tests were different depending on the type of data collected and the type of variables included in the questionnaire. The data was analyzed using SPSS 25 software and descriptive statistical tests (mean, frequency), inferential statistical tests, including chi-square test, independent *t*-Test, paired *t*-Test, analysis of variance, Pearson or Spearman correlation coefficient, and linear regression with adjustment of confounders tests.

Ethical consideration

The researcher completed the questionnaires after obtaining a letter of recommendation and an ethical code from the Research Deputy of Isfahan University of Medical Sciences (IR.MUI.MED.REC.1400.133) and after receiving permission to enter the comprehensive health centres of the Lorestan University of Medical Sciences (Pol-e Dokhtar City Health Network).

Results

Among 300 older participants, 145 (48.6%) were male, and 155 (51.7%) were female. The following results were obtained for the scores of different dimensions and the total scores of self-care and quality of life in older people (Table 1). Psychological self-care, with a score of 10, had the lowest score, and physical self-care, with a score of 45, had the highest score. Community relations, with a score of 4, had the lowest score in the field of quality of life. The maximum score in quality of life was 20 in all dimensions.

The results of the correlation between the total scores of qualities of life and self-care of older people in terms of age are summarised in Table 1. In all age groups, there was a positive relationship between different dimensions of quality of life and self-care, except in the age groups of 60 to 64 and 70 to 74 years, where self-care during the disease had a negative and significant relationship with physical health ($p < 0.05$) (Table 1).

The following results were obtained regarding the correlation between the total quality of life score and self-care in terms of education level (Table 2). This table shows a positive relationship between the dimensions of quality of life and self-care in the studied elderly. The relationship between the total quality of life score and self-care became more robust with increasing education levels.

Table 3 shows the results of the correlation between the total quality of life score and self-care according to employment status. In retired older people, an inverse relationship was observed between mental self-care and physical health, self-care during illness with physical health and the environment, physical self-care with mental health and the environment with the total quality of life score. The correlation between the dimensions of self-care and the dimensions of quality of life also did not have a significant relationship, and no correlation was seen between any of the variables (Table 3).

Regarding the insurance status, Table 4 shows the results obtained for the correlation between the total quality of life score and self-care. In the older people who participated in the study, whether they had insurance or not, all dimensions of quality of life and self-care had a positive relationship, except that self-care during the disease had a negative and significant relationship with physical health (Table 4).

The following results were obtained to explain the quality-of-life score by self-care dimensions and demographic variables (Table 5). Apart from gender, which could not predict the quality of life score, other variables could predict the quality of life score, and their relationships were statistically significant ($p < 0.05$).

Age	Dimensions of self-care	Physical health	Mental health	Environmental health	Community relations	Total quality of life score
64–60	Psychological self-care	0.387**	0.345*	0.403*	0.45*	0.466*
	Social self-care	0.405*	0.455*	0.438*	0.436*	0.504*
	Self-care during illness	-0.180***				
	Self-care total score	0.253***	0.328**	0.403**	0.419*	0.388*
65–69	Psychological self-care	0.309***	0.346**	0.458*	0.390**	0.428**
	Social self-care	0.584*	0.458*	0.636*	0.639*	0.622*
	Self-care total score	0.273**	0.316***	0.469*	0.348**	0.402**
70–74	Psychological self-care	0.229***		0.213***		
	Social self-care	0.517*	0.481*	0.425*	0.401*	0.522*
	Self-care during illness	-0.246***				
79–75	Psychological self-care	0.277***	0.333***	0.287***		0.391*
	Social self-care	0.304***	0.290***	0.31***	0.355**	0.411**
	Self-care total score			0.443**		0.338***
80+	Psychological self-care			0.464***		
	Social self-care	0.467***		0.459***	0.522***	0.519***
	Self-care total score		0.565***	0.510***	0.456***	0.523***

*Correlation is significant at a 0.001 level (2-tailed); **Correlation is significant at a 0.01 level (2-tailed); ***Correlation is significant at a 0.05 level (2-tailed).

Level of education	Dimensions of self-care	Physical health	Mental health	Environmental health	Community relations	Total quality of life score
Illiterate	Psychological self-care	0.244***	0.367*	0.407*	0.361*	0.408*
	Social self-care	0.421*	0.373*	0.442*	0.528*	0.525*
	Self-care total score	0.107*	0.306**	0.367**	0.319**	0.334**
Elementary	Psychological self-care	0.229***	0.234***	0.221**	0.282**	0.292**
	Social self-care	0.429*	0.251**	0.338**	0.367*	0.416*
Diploma	Psychological self-care	0.418**	0.310***	0.393**		0.390**
	Social self-care	0.492*	0.441*	0.464*	0.329**	0.528*
	Self-care total score	0.380**	0.285***	0.411**	0.246**	0.408**
Bachelor's degree and higher	Psychological self-care	0.365***	0.446**	0.598*	0.490*	0.537***
	Social self-care	0.554**	0.628*	0.720*	0.662*	0.727*
	Self-care total score	0.396***	0.546**	0.601**	0.615**	0.611**

*Correlation is significant at a 0.001 level (2-tailed); **Correlation is significant at a 0.01 level (2-tailed); ***Correlation is significant at a 0.05 level (2-tailed).

Employment status	Dimensions of self-care	Physical health	Mental health	Environmental health	Community relations	Total quality of life score
Unemployed	Psychological self-care	0.265*	0.320*	0.318*	0.327*	0.365*
	Social self-care	0.473*	0.430*	0.478*	0.486*	0.553*
	Self-care total score	0.192/0***	0.322*	0.385*	0.322*	0.368/0
Employee	Psychological self-care	0.614*	0.575*	0.660*	0.541**	0.709*
	Social self-care	0.663*	0.424***	0.458**	0.419***	0.574*
	Self-care total score	0.528**	0.448**	0.442**	0.513**	0.577*
Free	Psychological self-care	0.262***	0.286***	0.379**	0.174*	0.323***
	Social self-care	0.618**	0.277***	0.389**	0.392**	0.423**
	Self-care total score			0.352**		0.282***
Retired	Psychological self-care	-0.034				
	Physical self-care		-0.259	-0.068		-0.004
	Self-care during illness	-0.006		-0.143		

*Correlation is significant at a 0.001 level (2-tailed); **Correlation is significant at a 0.01 level (2-tailed); ***Correlation is significant at a 0.05 level (2-tailed).

Table 4. Correlation between the total scores of quality of life and self-care with insurance status

Insurance status	Dimensions of self-care	Physical health	Mental health	Environmental health	Community relations	Total quality of life score
With insurance	Psychological self-care	0.262*	0.338*	0.391*	0.362*	0.403*
	Social self-care	0.456*	0.437*	0.467*	0.467*	0.540*
	Self-care during illness	-0.190*				
	Self-care total score	0.190**	0.289*	0.335*	0.342*	0.348*
Without insurance	Psychological self-care	0.305**		0.287***		0.284***
	Social self-care	0.530*	0.274**	0.495*	0.458*	0.419*
	Self-care total score	0.269***		0.403*		0.315**

*Correlation is significant at a 0.001 level (2-tailed); **Correlation is significant at a 0.01 level (2-tailed); ***Correlation is significant at a 0.05 level (2-tailed).

Table 5. Level of explanation of the quality of life score by self-care dimensions

Parameter Estimates					
Parameter	B	Std. Error	95% Wald Confidence Interval		Hypothesis Test
			Lower	Upper	Sig.
(Intercept)	19.752	3.730	12.413	27.037	< 0.001
[Gender = female]	1.69	1.175	-0.605	4.003	0.148
[Marital status = not married]	-6.757	1.290	-9.286	-4.227	< 0.001
Psychological self-care	0.370	0.129	0.115	0.624	0.004
Social self-care	1.028	0.151	0.731	1.324	< 0.001
[Chronic disease = has]	-2.435	1.085	-4.562	-0.308	0.025
[Employment status = employee]	5.317	1.202	2.961	7.673	< 0.001

Set to zero as this parameter is redundant; maximum likelihood estimate.

Being unmarried played a negative predictive role in the quality-of-life score of older people. In other words, being unmarried could reduce the participants' quality of life by 6.757. Furthermore, having a chronic disease decreased older people's quality of life by 2.435. Psychological and social self-care scores were directly related to rising quality of life scores, as a one-unit increase in psychological self-care and social self-care scores increased the quality of life by 0.37 and 1.028, respectively. Being employed could also increase older people's quality of life by 5.317 (Table 5).

Discussion

The present study was conducted to investigate the relationship between self-care dimensions and the quality of life of the elderly population in Pol-e Dokhtar, Iran, during the COVID-19 pandemic. The first finding of the present study indicated the low total self-care score and the appropriate level of the total quality of life score in older people during the COVID-19 pandemic. This finding was consistent with a study by Avazeh et al., which examined self-care ability and its relevant factors in older people with chronic diseases. They reported that 0.86 of older people had low self-care ability, and only 0.14 had desirable self-care ability [19]. Furthermore, the mean quality of life score was also 21.71 in retired older people in Urmia [20], which was consistent with our study's results. Keyvanara et al. detected self-care barriers to prevent the spread of COVID-19 from the perspective of health professionals and the public. They obtained a total self-care score of 8.5 out of 10 [21], which was inconsistent with our results. The different results were probably due to the different health statuses of the research societies during the data collection period.

Other results included a score of 10 in psychological self-care and 45 in physical self-care, which were the minimum and maximum scores among the self-care dimensions, respectively. The result was consistent with the results of research by Sharifi et al. In this study, the minimum score in the field of self-care

belonged to psychological care [9], probably due to limitations and lower family relationships during the COVID-19 pandemic.

Another result was an inverse relationship between age and the levels of self-care and quality of life of older people, in that older age was associated with a decrease in the level and quality of self-care. Tel Aydin et al. found that self-care decreased with age [22]. The findings of Erci et al. are consistent with our results and reported that older people need others to meet their daily needs and to help them care for themselves [23]. With age, a person's dependence on others in daily tasks increases due to disorders of the body, especially movement limitations, which can significantly affect people's sense of well-being and quality of life [24]. Therefore, self-care training, especially in the field of proper exercise, healthy nutrition and control of important body indices, such as blood pressure, can increase the hope and happiness of older people and, subsequently, improve their quality of life by reducing their mobility disabilities.

Based on the results, increasing the level of education of older people improved their self-care and quality of life [25], and Sharifi et al. [9] also report similar study results. The linear regression analysis in Ong-artborirak's study indicated that self-care behaviors had a positive and significant relationship with ethnic groups' quality of life ($p < 0.001$). Furthermore, variables such as education level, age, ethnic group, common diseases and smoking were related to the quality of life of older people [25]. Karakoç et al. also reported that low education level, chronic diseases, urinary incontinence and drug use were significantly related to the occurrence of genitourinary syndrome of menopause and negatively affected quality of life and self-care power in women [26]. According to the results of research by Keyvanara et al., the mean score of self-care in older people was significant in terms of education level, and thus the mean score of older people with under diploma level was minimum, whilst those with bachelor degree and Ph.D. education levels had the maximum mean scores [21]. It seems that a high level of education was related to having higher economic and social status bases in all periods of life, and the period of old age is not an exception to this rule.

The present study indicated that older people with insurance had a higher quality of life and self-care than older people without insurance. The results of an investigation by Yu Hee Lee et al. about the effects of the National Health Insurance Coverage Denture Project for older people on improving their Oral Health-related Quality of Life (QoL) indicated that despite the short period of two years, the National Health Insurance Coverage Denture Project could significantly improve QoL [27]. Their result was consistent with the research by Samavati [28], Imai et al. [29] et al. and Christine Lin et al. [30].

Furthermore, retired older people had higher self-care scores, and employed older people had a higher level of quality of life. Minimum scores of self-care and quality of life were seen in self-employed and unemployed older people, respectively. The results of a study by Daryasari et al. on the self-care ability of heart failure patients indicated that employed and retired patients had higher self-care abilities than the research participants [31]. This result was consistent with the results of a study by Oksel et al. [32]. According to the results of a study by Sheikh Sharafi et al., there were direct and positive relationships between age, education level and employment with self-care [33].

Limitations of study

The prevalence of COVID-19 and social distancing was the major limitation. Explaining the studied concepts, such as quality of

life and self-care, was another important challenge in conducting this research.

Conclusions

The results of the present study showed a low level of self-care score and a favorable level of total quality of life score in the elderly population of Pol-e Dokhter City during the COVID-19 pandemic. The scores of self-care and quality of life in married people were higher than those of unmarried elderly people. The researchers also showed that with an increase in the education level of the studied elderly population, the amount of self-care and quality of life also increased. Increasing age caused a decrease in the ability of people to combat against diseases and, as a result, an increase in the vulnerability of the elderly, which can affect the quality of life of this group of people. Variables such as psychological and social self-care could also predict older people's quality of life during the COVID-19 pandemic.

According to the results, it is suggested that healthcare providers to older people pay attention to different dimensions of self-care and its relationship with the quality of life of the elderly. Education to healthcare workers for older people is required by the health policymakers.

Acknowledgments. We appreciate all the older people for their help.

Source of funding: This study was supported by the Isfahan University of Medical Sciences.

Conflicts of interest: The authors declare no conflicts of interest.

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Received: 18.03.2023

Reviewed: 20.03.2023

Accepted: 14.04.2023

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