



# Determinants of Health-Related Quality of Life in Rural Elderly People of the West of Iran: A Population-Based, Cross-Sectional Study

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## Abstract

**Background and aims:** World's older population is growing, and attention is being directed to the improvement of their health-related quality of life (HRQoL). This article was conducted to investigate the HRQoL and associated factors in rural elderly residents in west of Iran.

**Methods:** By using the multistage sampling method, 346 elders from rural areas of Shahindezh were enrolled in this population-based, cross-sectional study conducted in 2014. To assess the HRQoL of the elderly people, the Leiden-Padua (LEIPAD) questionnaire was used. The economic status was classified into 3 categories (good, moderate, and low) using the principal component analysis. Descriptive statistics, independent *t* test, ANOVA, and Spearman correlation coefficient were used to analyze data. Multivariate linear regression was performed to determine predictive factors.

**Results:** The mean values and confidence intervals of total core scale and total moderator scale were 38.6 (36.7-40.6) and 31.2 (29.6-32.6), respectively. Univariate analysis showed age, marital status, economic status, occupation, income source, and ethnicity were associated with HRQoL ( $P < 0.05$ ). Multivariate analysis showed the married, the illiterate, widows/widowers and the divorced, people with low economic status, and the self-employed had low HRQoL with respect to total scale and total core scale models ( $P < 0.05$ ).

**Conclusion:** HRQoL varies according to socioeconomic factors. Its determinants should be addressed in social and health policies designed to improve the health of older people, especially the most vulnerable groups.

**Keywords:** Socioeconomic status, Quality of Life, Elderly

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## Introduction

One of the biggest challenges of countries worldwide is population aging.<sup>1</sup> According to the United Nations report, the proportion of the older population will increase globally from 10.5% in 2007 to 21.8% in 2050.<sup>2</sup> Similarly, due to the demographic transition, there is an increase in the population aged 60 years and over in Eastern Mediterranean Region.<sup>3</sup> According to the 2011 National Population and Housing Census in Iran, the proportion of people aged 60 years and over to the total population grew from 7.27% in 2006 to 8.20% in 2011. The older population is projected to reach 10.5% in 2025 and 21.7% in 2050.<sup>4,5</sup>

Aging is considered an unfavorable experience that is associated with a reduction in physical activities and predisposition to injuries.<sup>6</sup> The elderly, especially in rural areas, are more likely to rely on domestic sources

of economic support than the social security system.<sup>7</sup> In the rural areas of west Iran, certain factors like poverty, unemployment, unsuitable mountainous roads, and cold climate lead to migration of the young work force to urban areas because of better employment opportunities.<sup>8</sup> This makes older people live on their own with less physical and emotional support from family members.<sup>9</sup>

With rapid growth of older population in Asian countries, there is a rising concern regarding the elderly's health and healthcare facilities in these communities.<sup>3,10</sup> By promoting the health and socioeconomic status (SES) of people, the health needs of the rural population have also changed from common infectious diseases to non-communicable diseases. Ageing in Iran will intensify the need for sanatoriums, healthcare workers, hospital beds, and geriatricians.<sup>11</sup> Although the government has made efforts to improve access to healthcare services,

inefficient referral system from *behvarz* (rural healthcare worker) to family physicians and from family physicians to specialists has hindered access to healthcare services in rural residents.<sup>12</sup> Secondary and specialist cares in urban areas and hospitals are covered by social security and health insurance that do not cover such cares for rural residents without regular referral system.<sup>13</sup>

Quality of life (QoL) is a subjective and multidimensional concept which has been defined as *an individual's perception of life in the context of culture and value system in which he/she lives and in relation to his or her goals, expectations, standards, and concerns*.<sup>14</sup> This concept comprises a wide range of aspects of human life, including social and cultural status, race, ethnicity, and religion.<sup>15</sup> HRQoL is an index of healthy life among the elderly and can be used to identify vulnerable and high-risk individuals with poor health status.<sup>16</sup> It is also being increasingly used in healthcare research, particularly for informing patient management, policy decision making, and resource allocation.<sup>17,18</sup>

It is essential to identify the determinants for developing the most appropriate interventions to improve or preserve HRQoL. However, the evidence regarding different subscales of QoL and its determinants in elderly people living in rural areas of Iran according to the Leiden-Padua questionnaire is scarce.<sup>19</sup> Thus, the aim of this study was to determine the HRQoL and the associated sociodemographic characteristics among elderly people in rural areas of west Iran.

## Methods

### Study Design and Population

This population-based, cross-sectional study was conducted in older people aged 65 years and over who were living in rural areas of Shahindezh county, west Iran, from September 2014 to April 2015. According to a health center survey in 2014, the population of elders over 65 years living in a rural area was 3,470 individuals.<sup>4</sup> The sample size was calculated at 346 using the Cochran formula,<sup>20</sup> with a maximum acceptable error ( $d$ ) of 0.05 and confidence level ( $z$ ) of 1.96, with  $P$  and  $q=0.5$ .

The multistage sampling method was used to identify aspects of QoL in rural areas, within 3 districts of Shahindezh county including central, Mahmoudabad, and Keshavarz. From each district, one health center was selected and from each health center, 6 affiliated health houses were selected randomly. The names of residents aged 65 years and over were drawn from the health records filed in health houses. Study samples were then selected based on this list by using a simple random sampling technique. The questionnaires were administered by well-trained interviewers using a door-to-door approach, and face-to-face interview. Completion of each questionnaire took approximately 20 minutes where the interviewers explained the study objectives to

the participants and obtained their consent to participate in the study. Inclusion criteria were being older than 65 years, living in rural areas, and not having any exclusion criteria. Exclusion criteria were mood swings, diagnosis of cognitive disorders, mental and physical disability. However, having chronic diseases such as hypertension, diabetes, and also being affected by an acute disease or a recent mental or physical injury in the last month are not considered regarding this. All of these disorders were diagnosed by health centers physicians and registered at their health profile.

### Data Collection Instrument

The questionnaire used in this study included closed-ended questions divided in 3 parts:

First part: Demographic characteristics, expressed in terms of age, sex, marital status, education, children number, residence place, occupation, income source, and ethnicity.

Second part: Economic status, measured by the principal component analysis (PCA) model. This involves assessment of economic status based on the values of home appliances including television, personal computer, washing machine, laptop, refrigerator, oven, private car, house size, and number of rooms in the house as well as owning or renting a property. Based on this assessment, participants were classified into 3 groups of low, middle, and high economic status.

Third part: The Leiden-Padua (LEIPAD) questionnaire, developed to assess the QoL in the older population (21). This questionnaire has already been used in earlier studies in Iran.<sup>21,22</sup> Because this questionnaire has not been used in rural areas of Iran, to investigate the reliability of the instrument, it was first administered to 30 individuals and then was re-administered to the same individuals 2 weeks later. The results were compared and the reliability was confirmed with Cronbach alpha of 0.89 and correlation coefficient of 0.91.

The LEIPAD questionnaire consists of 49 items including the core and moderator parts. Thirty-one items addressed 7 scales comprising the instrument core including physical function (PF-5 items), self-care (SC-6 items), depression and anxiety (DA-4 items), cognitive functioning (CF-5 items), social functioning (SF-3 items), sexual functioning (SX-2 items), and life satisfaction (LS-6 items). All items are rated on a 4-point Likert scale from 0 (best conditions) to 3 (worst conditions). Eighteen items comprised the moderate scale, including self-perceived personality disorders, anger, resentment and irritability, social desirability, faith in God, and self-esteem. Total scores of core and moderator scales (TCS and TMS) are calculated by summing the scores of all items regarding the scale of interest, and as stated earlier, lower scores represent better conditions. Due to cultural considerations, two items on sexual behaviors were not

approved by the Ethics Committee of Tehran University of Medical Sciences, and therefore the domains of core scales were reduced from seven to six items.

### Data Analysis

Data analyses were performed using Stata software 13.0. Kolmogorov-Smirnov test was used to investigate the normal distribution of data. The results of this test revealed that the data were normally distributed. In all analyses,  $P < 0.05$  was considered the significance level. Statistical analysis was undertaken using independent  $t$  test and ANOVA to test the differences between the mean scores of QoL in different groups of the SES and demographic variables. The relationship between age and domains of QoL was tested using Pearson's correlation coefficient. Multivariate linear regression was performed to analyze the effect of SES and demographic characteristics on QoL.

### Results

The mean ( $\pm$ standard deviation) total scores of QoL, TCS, and TMS were 38.6 ( $\pm$ 18.21), 31.2( $\pm$ 15.18), and 7.5( $\pm$ 4.33), respectively (Table 1).

The mean ( $\pm$ standard deviation) age of the participants was 73.45 $\pm$ 6.4 (range: 65-92) years, with male/female ratio of 0.99. Interestingly, 89.9% of participants were illiterate, 51.2% had low economic status, 78.8% were stockbreeders or farmers, and 76.3% were self-employed (Table 2).

The results clearly showed that with increasing age, QoL decreased, suggesting that older age has a negative impact on QoL scores, with the highest correlation being with self-care (SC) ( $r = 0.4$ ,  $P < 0.0001$ ). Mean QoL score was higher in men than in women ( $P < 0.05$ ), but the

difference was not statistically significant. Individuals with higher SES had significantly better QoL in all domains, except for SF. Participants with high income attained significantly higher mean scores on PF ( $P = 0.021$ ), DA ( $P = 0.033$ ), and CF ( $P = 0.02$ ). Pensioners had better QoL in all domains, with statistically significant differences in LX ( $P = 0.009$ ), SF ( $P \leq 0.0001$ ), and CF ( $P = 0.03$ ) domains. Kurdish ethnic participants attained better scores in all domains, with statistically significant differences in all domains except for FP and LX (Table 2).

The multivariate linear regression model was used to determine the main factors affecting QoL domains after controlling for the confounding effect of other variables. In this model, the independent variables were age, marital status, literacy status, number of children, economic status, income amount, occupation, income source, and ethnicity, and the dependent variables were TCS, TMS, and TS. Results from this model revealed a significant association of age, marital status, income source, economic status, and occupation with QoL scores in TSC and TS domains. Regarding TCS, 23% of variance in QoL was predicted in R<sup>2</sup> by independent variables. There was an increase of 0.268 units with a 1-year increase in age. There was a direct correlation between age and TSC as shown by the beta value of 0.286 units. In addition, the beta coefficients of marital status and income source were -0.16 and -0.15, respectively. For TS, the R<sup>2</sup> value was obtained 21%, with beta coefficient and beta value of 0.225 and 0.714, respectively (Table 3).

### Discussion

Results revealed that 90% of our participants were illiterate, and literate participants had better HRQoL in all domains. Over half of the participants had low economic status and low-income, and those with good economic status and high income had significantly better QoL in all domains. Married participants had better HRQoL than single, widowed, and divorced ones. Comparison of HRQoL among different ethnicities of Shahindezh showed Kurdish participants had better HRQoL than Turkish ones. The multivariate analysis revealed that marital status, income source, economic status, and occupation significantly predicted HRQoL.

We observed that HRQoL of older people was significantly reduced with increasing age. A study conducted in Australia has shown that elders aged below 70 years have better health status and QoL in comparison to those aged 70 and over.<sup>23</sup> QoL is directly associated with some factors such as physical and mental diseases, economic status, and familial and social security, and therefore despite aging, QoL can be desirable if these factors are controlled for.<sup>24</sup> Health status is the most important determinant of QoL.<sup>25</sup> Aging is associated with functional disorders and diseases, especially chronic, thereby increasing dependency and ultimately reducing

**Table 1.** Scores of Scales of a Sample of Elderly People Living in Rural Areas of Shahindezh, Iran in 2015 (n=346)

Quality of Life Domains (Minimum-Maximum)		Mean $\pm$ (SD)
Core Scale	Physical functioning (0-15)	6.25(3.18)
	Self-care (0-18)	4.12(4.32)
	Depression and anxiety (0-12)	3.82(2.70)
	Cognitive functioning (0-15)	5.99(3.13)
	Social functioning scale (0-9)	3.49(1.43)
	Life satisfaction scale (0-18)	7.48(3.42)
<b>Total Core Scale (0-87)</b>		<b>31.16(15.18)</b>
Moderator Scale	Perceived personality disorder (0-6)	2.60(2.41)
	Anger (0- 4)	1.11(1.41)
	Social desirability (0-3)	1.60(0.62)
	Self-esteem (0-3)	1.89(1.06)
	Trust in God (0-3)	1.56(0.51)
<b>Total of moderator scale (0- 19)</b>		<b>7.46(4.33)</b>
<b>Total (0- 106)</b>		<b>38.61(18.21)</b>

SD: Standard Deviation.

**Table 2.** The Distribution of Socioeconomic Characteristics of Participants, Comparisons of the Leiden-Padua Questionnaire Scores According to Participant Characteristics

		No. (%)	PF Mean± (SD)	SC Mean± (SD)	DA Mean± (SD)	CF Mean± (SD)	SF Mean± (SD)	LX Mean± (SD)
Age*	Spearman correlation	346	0.33	0.4	0.2	0.28	0.12	0.17
	P value		<0.0001	<0.0001	<0.0001	<0.0001	0.024	0.001
Sex	Male	172(49.7)	6.12 (3.21)	3.78 (4.14)	3.63 (2.83)	5.82 (3.11)	3.52 (1.51)	7.28 (3.12)
	Female	174(50.3)	6.41 (3.12)	4.54 (4.37)	4.02 (2.53)	6.18 (3.1)	3.54 (1.43)	7.57 (3.71)
	P value		0.248	0.144	0.129	0.324	0.713	0.383
Marital status	Married	234(66.8)	5.68 (3.14)	3.33 (3.73)	3.42 (2.69)	5.62 (3.14)	3.33 (1.47)	7.01 (3.34)
	Widow/widower/Divorced	114(32.9)	7.42 (3.23)	5.67 (4.86)	4.48 (2.58)	6.68 (3.22)	3.72 (1.36)	8.29 (3.52)
	P value		<0.0001	<0.0001	0.001	0.004	0.047	0.001
Education	Illiterate	311(89.9)	6.32 (3.23)	4.03 (4.07)	3.84 (2.72)	5.87 (3.08)	3.39 (1.42)	7.41 (3.38)
	Literate	31(9.1)	6.38 (3.62)	5.21 (6.46)	4.16 (2.89)	6.39 (3.18)	4.11 (1.53)	8.01 (3.93)
	P value		0.832	0.173	0.561	0.428	0.225	0.417
Children number	Childless	7(2.1)	6.12 (3.42)	3.41 (3.31)	4.78 (2.31)	7.71 (4.68)	3.87 (1.89)	10.81 (4.71)
	1-2	61(18.2)	6.43 (2.98)	4.48 (4.22)	4.22 (2.59)	6.16 (2.61)	3.68 (1.57)	8.29 (3.37)
	3-5	109(32.5)	6.37 (2.68)	4.17 (4.12)	3.89 (2.31)	6.03 (2.73)	3.58 (1.46)	8.03 (3.14)
	Over 5	158(47.2)	5.09 (3.33)	4.11 (4.29)	3.52 (2.88)	5.81 (3.42)	3.30 (1.32)	6.61 (3.23)
	P value		0.804	0.672	0.246	0.298	0.071	<0.0001
Insurance support	Covered by insurance	305(88.2)	6.31 (3.31)	4.18 (4.41)	3.79 (2.68)	6.00 (3.23)	3.47 (1.54)	7.53 (3.36)
	No insurance coverage	41(11.8)	5.79 (2.58)	3.53 (3.48)	3.70 (2.32)	5.61 (2.67)	3.42 (1.27)	6.86 (3.43)
	P value		0.239	0.353	0.861	0.473	0.706	0.249
Socioeconomic status	Low	176(51.2)	5.71 (3.13)	3.52 (3.86)	3.42 (2.57)	5.4 (3.13)	3.41 (1.53)	7.02 (3.45)
	Moderate	129(37.5)	6.86 (3.01)	4.46 (4.14)	3.87 (2.62)	6.3 (2.87)	3.61 (1.25)	7.57 (3.16)
	Good	39(11.3)	7.53 (3.36)	5.51 (5.59)	4.82 (3.19)	7.6 (3.56)	3.67 (1.52)	9.21 (3.87)
	P value		<0.0001	0.017	0.01	<0.0001	NS	0.002
Amount of income	< 1 000 000	215(62.1)	6.46 (2.86)	4.17 (3.86)	4.12 (2.72)	6.17 (3.03)	3.53 (1.41)	7.53 (3.18)
	1 000 000-1 800 000	98(28.3)	6.07 (3.23)	3.83 (4.62)	3.37 (2.58)	5.86 (2.96)	3.47 (1.27)	7.42 (3.27)
	>1 800 000	33(9.5)	4.87 (4.22)	4.26 (5.43)	3.22 (2.79)	4.58 (3.78)	3.76 (2.04)	6.87 (4.63)
	P value		0.021	0.753	0.033	0.02	0.985	0.063
Occupation	Farmers and stockbreeders	260(78.8)	7.33 (2.63)	5.62 (4.02)	5.01 (2.14)	6.74 (2.64)	4.19 (1.07)	8.91 (3.03)
	Self-employed	24(7.3)	6.67 (3.36)	6.02 (5.53)	4.53 (2.76)	6.65 (3.17)	4.27 (1.43)	8.38 (3.26)
	Civil servant, pensioner	46(13.9)	6.12 (3.16)	3.66 (4.23)	3.58 (2.65)	5.76 (3.17)	3.32 (1.36)	7.23 (3.42)
	P value		0.051	0.003	0.002	0.80	<0.0001	0.003
Residence	Personal	329 (95.4)	6.29 (3.19)	4.17 (4.32)	3.81 (2.71)	6.02 (3.01)	3.51 (1.41)	7.45 (3.37)
	Rental	10 (2.9)	5.12 (2.03)	3.28 (3.17)	5.12 (2.11)	5.59 (2.48)	3.43 (0.57)	7.13 (2.76)
	Unstable	6 (1.7)	7.69 (2.70)	7.17 (2.27)	5.11 (1.47)	8.02 (1.68)	4.16 (1.03)	9.32 (3.31)
	P value		0.287	0.187	0.117	0.268	0.506	0.391
Source of Income	Self-employed	261(76.3)	6.37 (3.02)	4.32 (4.37)	4.03 (2.63)	6.23 (3.01)	3.56 (1.28)	7.68 (3.2)
	Pensioner	81(23.7)	5.71 (3.69)	3.72 (4.31)	3.39 (2.86)	5.16 (3.29)	3.02 (1.71)	6.89 (3.97)
	P value		0.071	0.327	0.134	0.009	<0.0001	0.03
Ethnicity	Turkish	163(41.7)	6.39 (3.21)	4.76 (4.77)	4.32 (3.01)	6.38 (3.27)	3.84 (1.31)	7.54 (3.41)
	Kurdish	182(52.3)	6.21 (3.23)	3.82 (3.92)	3.51 (2.38)	5.73 (3.11)	3.16 (1.46)	7.43 (3.37)
	P value		0.519	0.022	0.013	0.039	<0.0001	0.478

PF: Physical Function; SC: Self-care; DA; Depression and anxiety; CF: Cognitive functioning; SF: Social functioning; SX: Sexual functioning; LS: Life satisfaction. NS: not significant; \*for age, correlation coefficients are presented.

For Socioeconomic characteristics, mean (SD) values are presented. Significance level (P) is considered to be <0.05.

QoL.<sup>26,27</sup> The adverse effects of aging on PE, self-care, cognitive functioning, social communication, and life satisfaction confirm the significant decreasing effect on HRQoL.

The current study demonstrated higher HRQoL among men than in women in all domains. This result, supported by a previous study, may be due to the difference

in economic status and social position between men and women.<sup>28</sup> In some studies, depression was reported to be significantly associated with HRQoL only in women.<sup>29</sup> Some factors could possibly explain the low QoL in older women compared to older men, such as long lifetime, lower education level, low income, poverty, lower ability to defend one's social and economic rights, and living

**Table 3.** Predictor Variables of Quality of Life Among Elderly Using Multivariate Linear Regression Analysis

Scope	Remaining Variables in the Final Regression Model	B	Beta	P	F	df	Adjusted R <sup>2</sup>
TCS	Age	0.668	0.286	<0.0001	13.2	6	0.23
	Marital status	-5.008	-0.155	0.004			
	Income source	-5.357	-0.151	0.004			
	Economic status	-2.873	-0.133	0.012			
	Occupation	2.615	0.122	0.023			
TMS	Marital status	-2.128	-0.23	<0.0001	11.8	2	0.1
	Child number	-0.763	-0.146	0.009			
TS	Age	0.714	0.255	<0.0001	12.8	6	0.21
	Marital status	-7.094	-0.183	0.001			
	Income source	-5.794	-0.136	0.009			
	Economic status	3.441	0.132	0.013			
	Occupation	2.981	0.117	0.032			

Reference groups were age of 65 years, widows/widowers and the divorced, self-employment and low economic status, self-employment; TCS: Total Core Scale; TMS: total moderator scale; TS: total scale.

alone for a long time after the death of husband.<sup>14</sup> In addition, menopause symptoms such as sleep disorders, night sweats, and increased stress and anxiety may lead to a reduction in the HRQoL.<sup>30,31</sup> Thus, elderly women are more vulnerable than men, and therefore improving women's HRQoL needs a multi-dimensional, multi-disciplinary, and culturally based approach to providing better living conditions for them.

In this study, the HRQoL of married people was higher than that of the single ones. A study showed married people were less likely to develop cognitive dysfunction.<sup>32</sup> Because of greater economic sources, higher social security, and development of healthy behaviors, being married plays a positive role in HRQoL,<sup>33-35</sup> although it depends on cultural and social conditions in various communities.<sup>36,37</sup> Widows and divorced women need more support care, and rural health centers should provide mental health services for them.

The results of this study indicated that literacy had a positive effect on HRQoL; however, this is not significant in any of the scales. In confirmation of the result, previous studies showed higher literacy level has a positive and direct association with HRQoL,<sup>35,37,38</sup> not only through access to better information resources to learn and apply improving skills of HRQoL,<sup>38</sup> but also due to promoting social standards and improving economic stability and self-esteem. The majority of participants was illiterate and deprived of official education; therefore, health education interventions will improve health knowledge in rural areas.

Consistent with studies in other countries, our findings also demonstrated a significant relationship of high income and economic status with better HRQoL.<sup>24,39</sup> Depression, as one of the domains of QoL, was significantly associated with family income.<sup>29</sup> In addition, low economic status was associated with low level of the functional domain of QoL.<sup>40</sup> Further, elders with low

economic status receive lower social security, and may lose the source(s) of income and become dependent on others, influencing their HRQoL.<sup>22,41</sup> High income is an essential factor for better HRQoL, and not only to obtain the crucial necessities but also to participate in and enjoy various recreations. The costs of living increase with aging because of physical or mental disability and therefore the need for medical care and special facilities.

In our study, farmers and stockbreeders had significantly lower HRQoL than the employees and retired people in all scales except for PF and CF. A study demonstrated civil servants had more income, welfare, and access to health services, and therefore attained a higher total score on physical and mental domains.<sup>32</sup> Employment not only leads to income stability but also assists in better social communication that is positively correlated with HRQoL.<sup>39</sup> Our findings showed the retired and pensioners significantly had higher self-care, sexual functioning, life satisfaction, and lower depression and anxiety levels, compared with farmers, stockbreeders, and self-employees. Probably, loss of income and economic dependency in the elders will increase anxiety and reduce HRQoL.

In this study, HRQoL of the older people of Kurdish ethnicity was better than that of Turkish ethnicity. Factors like the difference in social security, economic status, and income must be taken into account in examining the effects of race and ethnicity.<sup>26</sup> In addition, the existing differences may be due to subjective perspectives about life and howness of playing useful roles.

## Conclusion

The results of this study indicate that marital status, the source of income, economic status, and occupation significantly predict HRQoL, and the illiterate people, widows and divorced individuals, people with low SES, and self-employed persons have significantly

lower HRQoL and therefore require further attention. Identifying effective factors on HRQoL is useful to provide better services in hospitals, nursing homes, and healthcare centers. The results of our study can help improve the planning process in the rural areas of west Iran.

Our study suffered from certain limitations; the cross-sectional design cannot explain causal relationships. The face-to-face interview for collecting data may be susceptible to information bias. However, the representative and generalizable sample size, lack of use of available samples, and administration of LEIPAD questionnaire, specially designed to assess the HRQoL of elders, were the strengths of the study.

Further longitudinal studies are required to identify the main cause of the differences in HRQoL levels especially in aging and to determine the accessibility of health services and health needs in rural elders.

### Ethical Approval

The protocol of this study was in accordance with the Ethics Committee of Tehran University of Medical Sciences and the relevant local authorities of Shahindezh county Health Network. The study objectives have been clearly explained, and verbal consent to participate in the study was obtained from all participants. All participants were informed that participation in the study would be voluntary and were assured that their information would be kept confidential.

### Conflict of Interest Disclosures

None.

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