Original Article

Factors Affecting the Level of Nurses' Quality of Life in Khorramabad (IRAN) Teaching Hospital during the COVID-19 Epidemic, in 2020

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Article Info

Abstract

Background: Nursing is a profession through which a set of sometimes difficult tasks is assigned to nurses who face several physical and mental stressors in the workplace. Therefore, this study investigates the nurses' quality of life level in Khorramabad (Iran) during the first 3 months of the COVID-19 epidemic.

Materials and Methods: This descriptive study was carried out on 361 nurses of Khorramabad teaching hospitals in the first 3 months of the COVID-19 epidemic in 2020. Participants were selected by stratified random sampling of the nursing population. Data were collected using the World Health Organization Quality of Life (WHOQOL-BREF) questionnaire. The independent t-test and ANOVA were used to analyze the data. SPSS version 22 was used for data analysis, and P-value ≤ 0.05 was considered statistically significant.

Results: There was a significant association between marital status, having children, spouse employment status, hospital ward, and quality of life of nurses over the time of the COVID-19 outbreak (P <0.05). No significant association was observed between age, gender, education level, work experience, having a second job, and level of quality of life in nurses over the COVID-19 outbreak.

Conclusions: Most nurses had a good quality of life; however, the quality of life varied depending on marital status, number of children, spouse employment status, and place of employment in nurses.

Keywords: Quality of Life, Nurses, COVID-19 Virus

Introduction

The last quarter of 2019 and the New Year festivities coincided with the emergence of a new disease. The World Health Organization (WHO) received a report on a new pneumonia-like epidemic in Wuhan, China, on December 30, 2019, designated COVID-19 by Chinese authorities [1]. The coronavirus, scientifically called the COVID-19 disease, is caused by a coronavirus, leading to a range of respiratory infections never before observed in humans [2]. The head of the World Health Organization officially announced the emergence of this new disease on January 30, 2020 [3]. The first COVID-19 case in Iran was reported in Qom on February 19, 2020 [4,5]. Based on daily reports published by the Health Ministry of Iran on behdasht.gov.ir, more than 9000 individuals had been infected with the COVID-19 disease, and 354 individuals had

deceased by the time the WHO made its announcement.

On the other hand, the highly contagious nature of the disease [6], in addition to challenging governmental management systems, facilities, and personnel, overshadowed the peace of mind and the quality of life of various social groups, including the nursing staff, as the health system front line vanguard. The World Health Organization defines the quality of life as the staff's perception of life in terms of their culture and value system, goals, expectations, standards, and priorities [7]. The quality of life is a valuable index that encompasses all aspects of human life, including health [8].

Also, the decline in quality of life leads to musculoskeletal disorders as the most common health problem, leading to high direct costs in diagnosis and treatment and high indirect costs due to absenteeism and expertise loss in the workplace [9]. Recently, researchers have been interested in the quality of life of nurses as one aspect of staff groups in the health services teams. Nurses account for the largest proportion of people in such teams; thus, improving their quality of life is emphasized. Mahmoudi et al. (2013), in a study in Kurdistan University of Medical Sciences, have pointed out that nurses' work shifts cause many mental and physical complications, leading to a decline in their quality of life [10]. Several others have studied the effects of shift work on personal and family life and showed that it causes disarrangement in work and social relationships and reduces the number of hours people spend in the family center and communication with other family members [11,12]. A study addressing the employment status of the spouse and the number of children and their impact on the quality of life in nurses has emphasized that in families with both couples employed, interference in work and family roles is increased, reducing the quality of life in the family. Findings reveal that both variables negatively affect the index [13]. Other studies point to an obvious correlation between gender and physical and psychological dimensions and also a significant association between age and social and psychological dimensions. With the increasing age of nurses, due to more responsibilities in the community and family environment, their quality of life is more affected.

Further, in terms of gender, female nurses, in addition to social and occupational activities, have other roles such as child care. Together, these factors decrease their energy and affect their quality of life, reducing the quality of care and support for patients [10,14]. The results of a study conducted by Aghajani (2013) showed that several roles in the lives of nurses (spouse, infinity, mother, or father) and job pressures affected the physical dimension of subjects [15]. Numerous studies have shown that a second job among nurses, resulting in stress and conditions, causes them to be dissatisfied with the number of hours spent with the family, thus reducing their quality of life [16,17]. Nasiri Zarrin et al. (2015) conducted a study to investigate the association between stressful job conditions and the quality of life in nurses working in hospitals in Sari. According to the findings, increased work stress of nurses negatively affected some dimensions of their life [18].

Javadi et al. (2010) evaluated differences between the quality of life of nurses in emergency care units and internal-surgical wards. According to the results, economic/ social/ job satisfaction and ward type were related to the quality of life [19]. This study showed that nurses of hospitals were essential members of Hamadan University of Medical Sciences; it was also obviously shown that the mean score of physical dimension was higher in single people than in those married. However, the mean score of both social and psychological dimensions was higher in married people than in singles. The results also showed that the highest quality of life scores was obtained for physical, psychological, social, and environmental dimensions [20]. A study conducted in the hospitals of Kerman University of Medical Sciences showed a positive and significant association between work-life fitness and productivity in nurses. In other words, the promotion of the work-life quality of nurses would improve their productivity [21].

A study conducted on nurses' job satisfaction and demographic and occupational factors in the teaching infirmary of Hormozgan University of Medical Sciences showed their job satisfaction to be moderate [22]. A study in Japan revealed that poor quality of life, especially in nurses, caused musculoskeletal disorders, leading to stupendous direct costs in diagnosis and treatment and indirect costs due to absenteeism and skilled labor loss [23]. Despite all the work stresses in nurses' lives reported in the above studies, the outbreak of COVID-19 in late 2019, especially at the beginning of 2020, has increased the work stresses in nurses, profoundly affecting the quality of work and life among nurses. Therefore, this study aims to examine the factors affecting the quality of life of nurses in teaching hospitals in Khorramabad during the first three months of the COVID-19 epidemic.

Materials and Methods

The present work was a descriptive study. The study population was all nurses working in teaching hospitals in Khorramabad during the first three months of the 2020 COVID-19 outbreak. The ethical code of this research was IR.LUMS.REC.1399.082. The sampling method was stratified random sampling. Thus, the teaching hospitals of Khorramabad were considered a stratum and proportional to the population of nurses in each hospital. The sample size was calculated at 361 nurses according to the standard deviation of life score of other studies (σ=9.2, a significance level of 95% (α=0.05), accuracy of d=0.9, and sample size formula based on standard deviation ($n = \sigma^2 Z^2_{1-\alpha.2} . d^2$).

Inclusion criteria were over six months of work experience, employment as a nurse in the selected teaching hospital, and exclusion criteria were a history of divorce, first-degree family death and loved ones, and similar tragic and stressful events affecting the quality of life. Data were obtained by performing the World Health Organization Quality of Life (WHOQOL-BREF) questionnaire. In the researcher's presence in the studied hospitals, while explaining the purpose of the study to the nurses, they were asked to complete the questionnaire promptly. The next day, questionnaires were collected. Individuals were encouraged to participate in the research without compulsion, and if they needed more time to complete the questionnaire, they were given more than one day. The questionnaire consists of 26 questions that examine the quality of life of individuals in four dimensions related to health, namely physical health, mental health, social relationship, and living environment (collectively 24 items). (Each of the dimensions has 7, 6, 3, and 8 questions, respectively). The other 2 items are not related to any of the dimensions normally examine the health status and quality of life of people. The

validity and reliability of this scale have been calculated by Nejat et al., and the values of intra-class correlation and Cronbach's alpha in all dimensions have been obtained above 0.7, being reported as desirable and satisfactory for Iranian samples [24].

Each item has 5 choices scored using a Likert scale from Absolutely *dissatisfied* to *Absolutely satisfied*. Each person can attain an average of 1 to 5 in each item. Demographic information is also available at the beginning of items related to the quality of life, such as age, gender, work experience, marital status, spouse's employment status, number of children, a second job, and employment in the shift work system. In this study, after collecting the required information, descriptive statistics were used to describe the data, central indices and scatter were calculated for quantitative variables, and frequency and percentage were obtained for qualitative variables. To investigate the association between the variables and the quality of life of nurses, first, the normality of the data was investigated using the Kolmogorov-Smirnov test. Since data distribution was normal, an independent t-test and ANOVA were used. All statistical tests were carried out using SPSS version 25, and $P<0.05$ was considered a significance level.

Results

This research was performed on 361 nurses in teaching infirmaries in Khorramabad. According to the results, the mean age of nurses was 28.66±4.07 (range: 22-42) years. Their average job experience was 6.48±3.98 (1-20) years. The demographic characteristics of nurses are presented in Table 1. In this study, out of 361 samples, 139 (38.5%) were male, 222 (61.5%) were female, 203(56.2%) were married, and others were single or divorced.

Table 1. Demographic characteristics of nurses in teaching hospitals in Khorramabad

Variable type		Frequency(Number)	Relative frequency (Percentage)
Gender	Female	222	61.5
	Man	129	38.5
Age	More than 30	272	75.3
	Less than 30	89	24.7
Hospital	Ashayer	129	38.5
	Rahimi	118	32.7
	Shahid Madani	52	14.4
	Asali	15	4.2
	Mehr	37	10.2
Marital status	Married	203	56.2
	Single	154	42.7
	Divorced	2	0.6
	Widow	2	0.6

Education	Bachelor	353	97.8
	Master	8	2.2
Second job	Yes	66	18.3
	No	294	81.7
Husband second job	Yes	179	75
	No	25	25
Personal, proactive equipment	Masks and gloves	163	45.2
	Masks, gloves, shields	12	3.3
	Masks, guns, eye shields with glasses	60	16.6
	All	126	34.9
Shift work	Irregular rotation	361	100
Number of children	With child	237	65.7
	Without child	124	34.3

Table 2 provides the total quality of life score and its various dimensions. The highest quality of life score was obtained for physical health, followed by environmental health.

Table 2. The total score of quality of life and its index

Quality of life index	No.	Mean ± SD	Minimum	Maximum
Total quality of life	361	84.86 ± 11.91	47	112
Physical health	361	25.60 ± 3.17	15	32
Mental health	361	16.96 ± 3.2	6	25
Social relationships	361	9.02 ± 2.24	3	14
Environmental health	361	28.83 ± 3.43	13	34
Quality of life and general health	361	6.42 ± 1.47	2	10

Table 3 presents a comparison of quality of life by hospital ward. The highest mean quality of life was obtained for NICU ward nurses (mean: 93.84±7.27), and the lowest mean quality of life was for nurses in the infectious diseases ward (mean: 71.36±12.16). Using ANOVA, a noticeable difference was observed between the ward in the mean of the quality of life of nurses over the COVID-19 outbreak ($P < 0.001$).

Table 3. Association between the ward and the quality of life of the nurses in teaching hospitals in Khorramabad

Variable		n	Mean(SD)	P-value
Ward	Emergency	52	86.19± 10.68	<0.001
	Infectious diseases	19	71.36± 12.16	
	Men's surgical	11	85.81± 12.58	
	Women's surgical	30	88.00± 12.91	
	Neurology	7	92.85± 8.09	
	Urology	17	78.17± 7.79	
	Brain and nerves	13	88.69± 11.47	
	CCU	9	85.00± 9.56	
	ICU	33	86.09± 10.71	
	Orthopedics	22	79.95± 13.93	
	Women's internal	33	87.09± 10.75	
	Men's internal	45	86.77± 10.49	
	NICU	26	93.48± 7.27	
	Pediatrics	21	80.47± 8.74	
	Burn	10	72.10± 12.29	
	Angiography	7	84.71± 11.48	
	Oncology	6	75.66± 4.96	

As seen in Table 4, a statistically absolute difference was observed between marital status, having children, and spouse's employment status regarding the quality of life of nurses during the COVID-19 outbreak (P<0.05). However, there was no significant difference between gender, age, education level, work experience, and a second job in terms of quality of life.

Table 4. Association between demographic characteristics and level of life quality

Quality of life		No.	Mean ± SD	P-value
Age (yr)	**30≥**	272	85.50 ± 12.29	0.076
	30<	89	82.92 ± 10.50	
Gender	**Male**	139	84.92 ± 11.34	0.939
	Female	222	84.82 ± 12.04	
Marital status	**Married**	203	83.34 ± 11.38	**0.006**
	Single	158	86.82 ± 12.31	
Education level	**Bachelor's degree**	353	84.95 ± 11.92	0.370
	Master's degree	8	81.12 ± 11.38	
Number of children	**No**	237	86.32 ± 12.14	**0.001**
	Yes	124	82.07 ± 10.96	
Work experience	**6 ≥**	199	85.78 ± 12.03	0.105
	6 <	162	83.74 ± 11.69	
A second job	**Yes**	66	86.89 ± 12.71	0.133
	No	294	84.45 ± 11.69	
Spouse's employment status	**Yes**	178	83.89 ± 11.63	**0.002**
	No	25	76.28 ± 9.65	

Discussion

Nursing is a profession through which a set of sometimes difficult tasks is assigned to nurses who face several physical and mental stressors, including long work shifts, difficulty, and the high workload, as well as requested and unrequested extra work. In addition to the harmful factors mentioned, in recent years, with the outbreak of COVID-19, the professional and social life of nurses has received more attention from researchers. In a study that examined the association between work and coronavirus, the working life of medical staff, including nurses, was shown to be more at risk [25].

The study of Yazdi et al. (2009) on the quality and type of life of nurses working in clinics showed that the score of quality of life of nurses in the psychological index was approximately lower than that of the physical, and the majority had a moderate quality of life [26].

According to study findings, the highest quality of life scores was obtained for physical health, followed by environmental health, mental hygiene, social relationships, and public health. This finding can be justified by the social health status of Iranian nurses, including low monthly salaries, welfare facilities, cash or non-cash rewards, lack of transparency in job prospects, and lack of professional position in nursing in society. According to Malekpour et al., the overall quality of life score for employees working in industries was 99.55±23.92, relatively higher than this research's

[27].In this work, the overall mean score of quality of life in nurses was 86.84±11.91, indicating a moderate quality of life. The results of this study are in line with some previous studies, e.g., Nayeri [28] and Boonrod [29].

In this study, the lowest mean quality of life of nurses was obtained for the infectious diseases ward, and the highest mean was for the NICU ward. The reason can be the amount of activity, oxidative stress, and workload in the wards. These findings indicate employment's effectiveness on nurses' quality of life.

Other studies have suggested the possibility of contamination of the surfaces and air of different parts of the hospital with the virus and the resulting work stress [30-32].In general, it should be argued that the stress and difficulty of working in a particular ward vary in different cities and are affected by many factors such as the variety of hospitalized cases, lack of workforce, forced overtime hours, and ward management. It does not seem appropriate to comment on the association between the type of ward and the quality of life without considering other factors. Parker, Jiang, and Zack studied the association between gender and quality of life and concluded that women's quality of life was lower than men's [33-35]. Other studies also confirmed women's challenges during the corona [36].

Moreover, in another study, women were more aware of the prevention of COVID-19 than men [37].In the present research, the quality of life was

significantly different between men and women in terms of quality of life and general health so that the average score of quality of life was higher in men than women, possibly because women have more duties and responsibilities in the home environment in addition to the workplace. In addition to social and occupational activities, women also perform other duties such as child care, declining their energy and affecting their quality of life, thus reducing the quality of care and support they deliver to patients.

A study conducted in Hong Kong on the working life of nurses showed that married nurses had a better mental health status [38]. Moreover, Javadi et al. and Rezakhani Moghadam et al. did not show a significant association between marital status and quality of life [39-40]. Fallahi et al. showed that the quality of life of married nurses was higher than that of single nurses; also, in physical and social dimensions, the quality of life of single nurses was higher [41].In the present study, marital status was significantly associated with physical, social, and environmental health, with the average score in all three dimensions being higher in singles than in married. A possible reason for the difference is the influence of marital status on variables such as race, culture, and, consequently, various social feedbacks. Further, there was a significant association between work experience and the physical health of the nurses. Thus, it can be said that increasing the history and duration of work in stressful environments is effective in reducing the mental and physical capacity and quality of life [42-43].

A study showed a statistically significant association between age and the quality of life [13], inconsistent with the present. This finding was also in line with Yazdi Moghadam et al., showing that age had no association with quality of life [26]. This inconsistency can be related to factors such as environmental differences. In the present study, a clear association was determined between having or not having children and the quality of life of nurses during the COVID-19 outbreak so that nurses without children had a higher quality of life. Moreover, an absolute association was observed between the spouse's employment status and the quality of life of nurses so that those whose spouse was employed had a higher quality of life. The employment of the spouse and the number of children are also known as key factors for life quality. As the number of children increases, the relationship between husband and wife decreases, and mothers spend more time caring for their children, reducing marital satisfaction and, consequently, quality of life [13].

Finally, due to nurses' high workload and duties to reflect news and information about their situation and workplace conditions, especially during the COVID-19 prevalence, nurses faced problems working with the research team to fill out the questionnaire. Therefore, the researchers stated that the information obtained from the participants would be kept completely confidential, and individuals could participate in the research if they volunteered. The questionnaires were completed by volunteer nurses.

Conclusion

The highest life quality score was determined for physical health, followed by environmental, mental, and social dimensions. Further, most nurses had a good quality of life; however, it varied depending on marital status, number of infinity, spouse's employment status, and place of employment.

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