A Comparative Study of Quality of Work Life and Related Factors of Nurses in COVID-19 and non-COVID-19 Wards of Hospitals of Tehran University of Medical Science in 2022.

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Abstract: The quality of work life is one of the things that has been affected by the spread of the Covid-19 disease. so that it can directly affect the quality of nursing care, so this study was conducted with the aim of comparing the quality of work life and related factors of nurses in COVID-19 and non-COVID-19 wards. The present study is a cross-sectional and descriptive analysis. The statistical population included all nurses in the Tehran University of Medical Sciences hospitals in 2022. Sampling in this study was done in stratified form with probability assigned to the size of each stratum. The statistical sample was 210 nurses working in the COVID and NON-COVID departments, collected using a 32-question questionnaire of Walton's quality of work life. The data was analyzed using SPSS version 25 software and descriptive and inferential statistical tests. The average quality of work life in nurses working in COVID-19 wards was 80.88 and nurses working in non-COVID-19 wards was 94.88 which was statistically significant (P<0.001). It was also shown there is a significant relationship between the quality of work-life variables and each of its components in participating nurses with marital status. According to the quality of work life of nurses working in COVID-19 wards was lower than in non-Covid-19 wards, health system managers can adopt appropriate strategies for the quality of work life during crises such as the COVID-19 pandemic to improve access to higher quality nursing cares.

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I. INTRODUCTION

The coronavirus is a type of severe acute respiratory syndrome and represents a natural and biological threat that has currently engulfed the entire globe [1]; [2]; [3]. The global spread of COVID-19 has significantly impacted vital aspects of economic, political, social, and even military dimensions of countries worldwide which render the effects of this disease crucial on individuals' health across various societal levels, particularly in the healthcare sector. [4]; [5]; [6]. Given that healthcare professionals, predominantly composed of nurses, constitute the primary human force in all nations [4]; [5]; [6] and stand at the forefront of battling diseases their close and intimate association with these patients makes them the first to be exposed to virus contamination, endangering their health [4]; [7]; [8]. Nurses frequently voice complaints about excessive workload, job-related stress, fatigue, lack of leisure time, poor working conditions, inadequate managerial support, unequal workload distribution, resource shortages, low wages, inflexible work schedules, and insufficient staffing. These challenges contribute to service abandonment, a tendency to relocate, physical, mental, and social health deterioration, and a decline in the quality of professional life among nurses [9]; [10]. The concept of quality of work life was first introduced in the late 1960s [11]. In the definition articulated by Armstrong, the quality of work life denotes an employee's satisfaction with the fulfillment of their needs through resources, activities, and outcomes derived from interaction and participation in the work environment [12]. The quality of work life for nurses is influenced by various social, executive, managerial, and specific cultural factors [13] and its advancement seemingly encompasses both managers and staff alike [14]. Enhancing the quality of nurses' work life is identified as a critical factor for ensuring the stability of the healthcare system. In any organization, a high quality of work life is fundamental for attracting and retaining essential staff; As a result, the quality of nurses' professional life is a crucial element that affects the entire organization, given their fundamental role in the continuity of care and health promotion [15]; [16]; [17]; [18]; [19].

On this basis, Hood and Smith contend that managerial attention to the variables of quality of work life can facilitate a more humane work environment, addressing not only the basic needs of personnel but also encompassing higher-level needs, continuous growth, and advanced performance [19]. Therefore, the negative impact of the coronavirus disease on the normal lives of nurses and the disruption of positive aspects of their lives including resilience, adaptability, physical, mental, and social

health has led to a reduction in the quality of nurses' work life. This affects the entire organization and can result in a decrease in the quality of nursing care and finally patient dissatisfaction [20]. The present study aimed to determine and compare the quality of work life and its associated factors among nurses working in COVID-19 and non-COVID-19 wards of Tehran University of Medical Sciences hospitals in 2022.

II. METHODOLOGY

This descriptive correlational research was conducted on the entire statistical population including all nurses employed in Tehran University of Medical Sciences hospitals in the year 2022. The sample consisted of 210 nursing staff with bachelor's and master's degrees working in the internal and COVID-19 and non-COVID-19 ICUs. They were selected through convenient sampling within each department. The sample size was determined based on a previous study titled "Investigating the quality of work life and its associated factors in special care nurses" [21], with a Type I error probability (α) of 0.05 and a test power (1-β) of 0.80, resulting in a total of 210 participants in both sections. For sampling, the list of nurses from each hospital's staffing was obtained and nurses were randomly selected using random number tables. Inclusion criteria involved being a nurse at one of the covered hospitals (official or contractual) having a minimum of 12 months of work experience for nurses in both study sections [21], working in the COVID-19 section for at least three months [22], holding a university nursing degree at least at the bachelor's level during the research execution and being employed at the time of the study. Exit criteria included working in two or more hospitals as a clinical or non-clinical nurse, working in two different sections, rotation between two or more sections, and having disabling or chronic diseases.

The study utilized tools were personal and occupational questionnaires alongside the Walton quality of work-life questionnaire. The personal and occupational questionnaire included gender, age, income level, history of physical or mental illness, marital status, work experience, job position, educational level, employment status, and the service department. The Walton quality of work life questionnaire (Walton, 1973) [11] comprised 32 questions with each question representing a component of quality of work life. These components included Adequate and fair compensation (questions 1 to 5), Safe and healthy working conditions (questions 6 to 8), Opportunity for continued growth and security (questions 9 to 11), Constitutionalism (questions 12 to 17), Social relevance of work life (questions 18 to 20), Work and total life

space (questions 21 to 25), Social Integration (questions 26 to 29) and Immediate opportunity to use and develop human capacities (questions 30 to 32). Scores obtained from the average of the Walton questionnaire were calculated and a scoring spectrum based on a five-point Likert scale (from very low: 1 to very high: 5) was employed. Quality of work-life levels in this scale were categorized into three tiers: low (scores 32 to 64), medium (scores 65 to 96), and high (scores above 97). The validity of this scale was confirmed through face and content validity by obtaining feedback from nurses and academic staff. The reliability of the tool was reported as 0.91 using Cronbach's alpha. The researcher first obtained ethical code (IR.USWR.REC.1401.011) followed by a written introduction letter from the University of Social Welfare and Rehabilitation Sciences. The necessary permissions were then obtained from the research environment authorities (Baharloo, Shariati, Amir A'lam, Imam Khomeini, Ziaeian, and Sina hospitals) and justification regarding the research goals, adherence to confidentiality principles, and the voluntary participation freedom of the nurses were among the ethical principles that were observed. Data were finally analyzed using SPSS-25 employing descriptive statistics (mean, standard deviation, and frequency) and analytical methods (Chi-square, ANOVA, and t-test).

III. FINDINGS

A total of 230 questionnaires were distributed to nurses working in COVID-19 and non-COVID-19 sections and finally, 210 surveys were successfully filled out.

TABLE 1
DISTRIBUTION OF DEMOGRAPHIC CHARACTERISTICS OF NURSES EMPLOYED IN THE HOSPITALS OF TEHRAN UNIVERSITY OF MEDICAL SCIENCES

Demographic Variables		COVID-19 Wards		Non-COVID-19 Wards		Chi-Square	*p*-Value
		Percent	Number	Percent	Number		
Sex	Female	52.40%	55	63.80%	67		
	Male	47.60%	50	36.20%	38	2.81	0.09
Marital Status	Single	67.60%	71	47.60%	50		
	Married	32.40%	34	52.40%	55	8.6	0
Job Position	Nurse	96.20%	101	96.20%	101		
	Headnurse	3.80%	4	3.80%	4	0	1
Degree Status	Bachelor	85.70%	90	83.80%	88		
						0.14	0.7
	Master	14.30%	15	16.20%	17		
Employment Status	Contractual	61.90%	65	71.40%	75		
	Permanent	38.10%	40	28.60%	30	2.14	0.14

Data analysis showed that the two groups did not have a statistically significant difference in demographic variables except for marital status (Table 1).

TABLE 2
DISTRIBUTION OF DEMOGRAPHIC CHARACTERISTICS SUCH AS AGE, WORK EXPERIENCE, AND RECEIVED SALARY AMONG NURSES EMPLOYED IN THE HOSPITALS OF TEHRAN UNIVERSITY OF MEDICAL SCIENCES

Demographic Variables	COVID-19 Wards		Non-COVID-19 Wards		*t*-Statistic	*p*-Value
	Standard deviation	Mean	Standard deviation	Mean		
Age	4.47	31.99	3.93	33.03	1.8	0.07
Work Experience (Year)	4.73	9.52	4.36	9.98	0.72	0.46
Salary (Toman)	3098038.4	10024761	2976702.5	9795142	0.55	0.59

According to Table 2, data analysis showed that the two groups did not have a statistically significant difference in demographic variables such as age, work experience, and received salary per month.

TABLE 3
MEAN AND STANDARD DEVIATION OF THE QUALITY OF WORK LIFE CATEGORIES OF NURSES EMPLOYED IN THE HOSPITALS OF TEHRAN UNIVERSITY OF MEDICAL SCIENCES

Categories of Quality of Work Life Questionnaire	Non-COVID-19 Wards	COVID-19 Wards	t-Statistic	p-Value
	Mean and Standard deviation	Mean and Standard deviation		
Adequate and fair compensation	14.86±2.08	10.02±2.25	16.17	P < 0.001
Safe and healthy working conditions	8.75±1.33	6.00±1.36	14.69	P < 0.001
Opportunity for continued growth and security	9.23±1.62	7.65±1.88	6.51	P < 0.001
Constitutionalism	18.14±2.23	15.18±4.22	6.34	P < 0.001
Social relevance of work life	8.92±1.69	7.90±1.94	4.04	P < 0.001
Work and total life space	14.86±1.35	16.63±2.34	6.69	P < 0.001
Social Integration	12.27±1.86	10.29±2.25	6.94	P < 0.001
Immediate opportunity to use and develop human capacities	7.81±1.36	7.17±1.45	3.32	0
Total Score	94.88±6.04	80.88±11.80	10.81	P < 0.001

The study results showed that 108 nurses working in the ICU and 102 nurses employed in internal wards underwent scrutiny. The t-test revealed a statistically significant difference between the average quality of work life of nurses in COVID-19 and non-COVID-19 wards at a confidence level of at least 99% (P<0.001). Intriguingly, although the overall quality of work life for both groups was assessed as moderate, the mean quality of work life for nurses in COVID-19 wards was 80.88 while for their counterparts in non-COVID-19 wards, it soared to 94.88. Table 3 provides scores for individual indices of quality of work life. This indicates that human capability development scored the lowest for nurses in non-COVID-19 wards whereas the safety and hygiene index garnered the least points for those in COVID-19 wards. In addition, organizational rule adherence obtained the maximum score in non-COVID-19 sections and the overall life space index attained the highest score in COVID-19 sections among the various indicators of quality of work life.

The study findings in association with the relationship between personal, social, and occupational characteristics of nurses and their occupational quality of life indicated that there was no statistically significant association between gender and quality of work life (P: 0.09). In addition, despite the higher average quality of work life in the COVID-19 department compared to the non-COVID-19 department based on the questionnaire scores related to monthly income, no statistically significant relationship with a confidence level of at least 95% was observed (P: 0.58). According to the results, a statistically positive and meaningful correlation was observed between marital status and the quality of work life with the average quality of work life higher for married individuals compared to singles (P: 0.00). Statistically, no significant positive relationship was found between educational status and quality of work life (P: 0.70) and between job position and quality of work life (P: 1.00). Moreover, the study results indicated that there was no statistically significant positive correlation between age, employment status, work experience and the quality of work life (P > 0.05).

IV. DISCUSSION

The average quality of work life among nurses working in COVID-19 wards was significantly lower than those in non-COVID-19 hospital departments, indicating statistically significant; although, the quality of work life for both groups was at a moderate level. In addition, the quality of work life of nurses in COVID-19 ICU and internal departments was lower than those in non-COVID-19 ICU and internal medicine departments, showing statisti-

cally significant with a confidence level exceeding 99%. It is worth noting that at the time of writing this paper, there was no existing study investigating the correlation between the quality of work life of nurses in COVID-19 and non-COVID-19 departments. Therefore, similar studies were referenced for discussion such as the research works by Dehghan Nayeri (2008) examining the relationship between the quality of work life and productivity of clinical nurses, Salamzadeh (2007) investigating the relationship between quality of work life and human resource productivity in healthcare institutions, Habibzadeh (2011) exploring the connection between quality of work life and clinical competence of nurses and Khaghanizadeh et al. (2007) studying the relationship between occupational stress and quality of work life in military hospital nurses, which all aligns with the results of this study [23]; [24]; [25]. However, the investigation conducted by Fallahi et al. (2003) which aimed to evaluate the quality of life and its correlated factors within the psychiatric departments of Tehran University of Medical Sciences reported a high quality of work life among nurses, showing dissimilarity with the findings of the present study [17]. Moreover, Daraghi et al. (2007) in their study reported that 74.5% of nurses were dissatisfied with their quality of work life with only 0.85% expressing satisfaction [26]. A study conducted by Broks et al. (2004) titled "Job life of acute care nurses in Chicago" involving 1500 participants, showed that the quality of work life of nurses in acute care settings is generally low, so that, as workload increases the quality of their work life decreases, leading to an imbalance in their personal lives [27]. Similarly, a study focusing on the quality of work life of nurses in general wards of Tehran University of Medical Sciences hospitals indicated that the majority of nurses experienced low quality of work life. In this study, 74% of nurses described their quality of work life as unfavorable [26]. In another study by Hesam et al. (2011) titled "Investigating the relationship between the quality of work life of nurses and the intention to leave the nursing profession" conducted on 167 participants in Gorgan city, it was reported that only 42.5% of nurses had a desirable quality of work life [28]. Naseh et al. (2021), through a study conducted in Tehran to investigate the job satisfaction of nurses during the COVID-19 pandemic, concluded that the job satisfaction of nurses during the pandemic was at a moderate level and it was associated with three categories of individual, social and organizational factors, which aligns with the findings of the current study [29]. Fallahi et al. (2021) also conducted a qualitative study in Tehran with the aim of examining the experiences of nurses in providing care to COVID-19 patients. They concluded that

nurses' experiences in caring for COVID-19 patients fall into four categories: a lack of knowledge and expertise in COVID-19-19, changes in daily life, challenges in caring for COVID-19 patients, and occupational fatigue. The results particularly occupational burnout closely resemble the findings of the current study [30].

In a study exploring depression, anxiety and stress among Iranian nurses working in COVID-19 departments in Tehran conducted Sharifi et al. (2021) revealed that the majority of nurses employed in COVID-19 units experience a spectrum of depression, anxiety, and stress. Hence, depression, anxiety, and stress can indeed act as influential factors contributing to a reduction in the quality of work life [31]. Rafii Vardenjani et al. (2021) carried out a comprehensive review study in Tehran to identify the challenges of work-family conflict and propose effective solutions for management among nurses. Their results showed that the challenges of work and family conflict among nurses during the COVID-19 era fall into three categories: organization-based challenges, individual-based challenges, and family-based challenges. These outcomes align with influential factors affecting the indicators of quality of work life [32].

According to some studies, there is no significant correlation between the variables of job satisfaction and each of its components in participating nurses concerning gender, age, monthly income, educational qualifications, job position, work experience, and employment status. However, a statistically significant association exists with marital status. The findings further indicate a positive and significant relationship between the job satisfaction of nurses and marital status, so that, the quality of job life is higher for married individuals, while no significant relationship is found with gender. Contrary to the report by Dehghan Nayeri et al. (2008) who suggested that job satisfaction has no significant correlation with gender and marital status [25], studies by Farsi (2011) and Yazdi Moghadam (2011) on 322 and 200 nurses, respectively, revealed a significant association between job satisfaction and gender. The average scores of men were higher than women in their studies, whereas, in the present investigation, the average quality of job life is higher for women. However, in the study by Khaghanizadeh et al. (2007) men had lower job satisfaction compared to women [23]; [33]; [34], consistent with the results of this study. A study conducted by Farsi et al. (2011), parallel to the present research, showed that married individuals tend to have a higher quality of job life compared to their unmarried counterparts. This is possibly linked to economic conditions and the higher financial needs of married individuals which leads to a potentially more skilled work-

force [23]; [25]; [33]. However, in the study by Mogharab et al. (2012), contrary to this study, no significant correlation was observed between the job satisfaction of nurses and marital status [35]. While the average quality of job life for permanent nurses was higher than for contract nurses, this association was not statistically significant. Estracota et al in a study conducted over 9 months on nurses who either voluntarily terminated their employment or changed their employment status, found that 52% of nurses with unit nursing management had issues [36]. Additionally, Groger et al reported that the support of supervisors, colleagues, and departmental work contributes significantly to improving the job satisfaction of employees [37]. Nursing managers, by enhancing the work environment, can improve the clinical and professional performance of nurses [38]. According to Taghavi et al, similar to this study, no significant correlation was found between the quality of job life and age [25]; [13]. However, Mogharab et al reported a positive relationship between age and job satisfaction which contradicts the findings of the present study [35]. Yazdi Moghadam et al concluded that job satisfaction decreases with increasing age [34]. Additionally, the research by Considine and Carlos showed a decline in job quality with age, further contrasting the findings of the current study [39]. Another dimension under investigation in job quality was the monthly income. According to the results, no significant correlation was observed between job quality and an increase in income. Smith considers salary increases as crucial components in enhancing the job quality of nurses [40]. Darghahi et al, in their study, reported a significant association between the job quality and monthly salaries of nurses which contradicts the results of this study [26]. Other studies have indicated that an increase in monthly income and benefits contributes to higher satisfaction among nurses regarding their job quality [37]; [41]; [42]; [43]; [44]. Brooks also states that the primary cause of nurse dissatisfaction is directly related to their received income [45]. In addition, considering the results of this study, no significant relationship was observed between educational status and job position with the job quality of nurses which aligns with the findings of Farsi et al [33]. Likewise, no notable and positive correlation emerged between work experience and the job quality of nurses. However, Darghahi et al showed that nurses with more than 10 years of work experience tended to be more satisfied with their job quality [26]. The study conducted by Emeni and Karampourian further indicated a significant and positive correlation between job quality and work experience [46], a result not entirely congruent with the present work. According to the findings, the statistical significance of the relationship between job quality and the job position of nurses was not established, a result contrasting with the study by Abadi et al.

V. CONCLUSION

The results show that although the quality of work life of nurses in COVID-19 units is not ideal falls even lower statistically compared to non-COVID-19 units. As a result, healthcare policymakers and administrators must focus more on the quality of work-life staff and strive to elevate its standards with heightened awareness during crises like the COVID-19 pandemic. This will create the way for more favorable and ideal conditions and enable employees to be more efficient and effective within the organization. In addition, the observations from this study contribute to better identification and understanding of factors influencing job quality which ultimately enhances the quality of nursing care. Based on the results and the crucial role of job quality, particularly during the COVID-19 era and its impact on nurses, initiatives such as improving management practices in the nursing system, establishing effective incentive programs, and adjusting nurses' working hours in healthcare units can be reconsidered by nursing managers. These measures might potentially show the influence of quality of work life on the quality of care provided and patient satisfaction to health system administrators. Conversely, meeting the needs of employees through improving job quality will lead to the enhancement of the long-term efficiency and performance of the organization. It is suggested to conduct quality of work life in a larger statistical population and exploring other hospital departments especially critical units like CCU, dialysis, burn units, pediatrics, and departments related to specific diseases such as chemotherapy, cancer, and palliative care.

VI. ACKNOWLEDGMENTS

VII. CONFLICT OF INTEREST

The authors of this paper report no conflicts of interest.

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