The Relationship between Work Environment and Nurses' Professional Quality of Life in Critical Care Settings

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Abstract: The critical care nurse's work environment conditions play a principal role in the caring process and thus impacting patient outcomes, patient and nurse satisfaction, and financial costs. Addressing the work environment must be a priority for healthcare organizations as a first step to establishing and sustaining a healthy work environment that promotes clinical and professional excellence. Although the concepts of a healthy work environment are well known in the healthcare setting, little is known about the association between the work environment conditions and the professional quality of care of nurses in the ICU. The information generated from this study will enable managers and administrators to have a better understanding of novel strategies to optimizing the work environment conditions of critical care nurses.

Aim: to evaluate the work environment of critical care nurses and to examine the relationship between work environment and critical care nurses' professional quality of life.

Method: Design: A descriptive, correlational design was used.

Setting: The study was conducted at a variety of ICU of open heart surgery, trauma unit, surgical ICU, Medical ICU and Neurosurgical ICU at Menoufia University Hospital, Shebin El-Kom city, Egypt.

Sample: A convenient sample of 160 critical care nurses were enrolled in the study.

Instrument: The demographic data form; Healthy Work Environment Assessment Scale; Professional Quality of Life scale.

Results: Findings indicate moderate levels of compassion fatigue, burnout, and secondary traumatic stress and that work environment need improvement. Also, there is no statistical significant relationship between the nurses' perception of their work environment and their professional quality of life (P > 0.05).

Recommendations: Designing and implementing programs to increase nurses' Compassion Satisfaction levels and reduce their Compassion Fatigue. Designing educational programs to be integrated in the nursing curriculum and making policies that can help improve nurses' clinical proficiency.

Keywords: Healthy working environment, Professional quality of life, Critical care unites, Critical care nurses.

1. INTRODUCTION

The Institute Of Medicine's [1] report revealed the multiple roles that nurses can assume with the increasing demand for safe, high-quality and effective care. The report reviews the added responsibilities and complexities of the working environment facing today's nurses. Critical Care Units present additional challenges to nursing because of the patients' life-threatening conditions, continuous monitoring, specialized skills, need for continuous training, and the required higher patient-to-nurse ratios.

Critical Care Units are specialized units that are characterized by a dynamic and stressful working environment. The critical care nurse's work environment conditions play a principal role in the caring process and thus impacting patient outcomes, patient and nurse satisfaction, and financial costs [2, 3, 4]. Currently, the work environment in the critical care setting is negatively affected by nursing shortages and the cost of healthcare [3 & 4].

The health of the environment is critical to nurses' job satisfaction and to patient outcomes in Critical Care Units. The impact of a healthy work environment on nurses' and patients' outcomes is a rising safety issue. It has been found that hospitals with poor work environments were associated with negative outcomes for nurses and patients [5]. Unhealthy work environments contribute to medical errors, ineffective delivery of care, and stress of healthcare employees [6]. Characteristics associated with unhealthy work environments include poor communication, abusive behavior, disrespect, resistance to change, lack of leadership, and misunderstanding of mission and vision [7].

The World Health Organization indicates that the work environment constitutes an important factor in the recruitment and retention of health professionals. The characteristics of the work environment affect the quality and safety of patient care both directly and indirectly. Addressing the work environment must be a priority for healthcare organizations as a first step to establishing and sustaining a healthy work environment that promotes clinical and professional excellence. The American Association of Critical Care Nurses (AACN) has defined a healthy work environment to be "safe, healing, humane and respectful of the rights, responsibilities, needs, and contributions of all people-including patients, their families and nurses." [6].

The professional practice environment has been shown to be one organizational characteristic that makes a difference not only in attracting and retaining nurses but in also affecting patient outcomes. Recently, the nurses' professional environment has become a focus of international interest. Nurses' perceptions of their professional environment influence their job satisfaction. Thus, improving working conditions in hospitals is essential to maintain adequate staffing, high-quality care and nurses' job satisfaction.

Recently, the quality of work life concept has been the focus of attention [8]. Quality of work life is related to job performance, professional quality of life (ProQOL) and is increasingly viewed as important. The term "professional quality of life" refers to the positive and negative emotions that an individual feels about his or her job as a helper. Elements of professional quality of life that can be experienced by workers in service industries that help persons with hardship include Compassion Satisfaction (CS), Burnout (BO), and Compassion Fatigue (CF) (also known as Secondary Traumatic Stress (STS) [9 & 10]. Compassion Satisfaction is the gratification derived from being able to do one's work well [10]. Compassion Fatigue has two aspects: Burnout and Secondary Traumatic Stress (STS). Burnout is defined as having feelings of hopelessness and having difficulties dealing with work or working effectively. Secondary Traumatic Stress addresses exposure to individuals in the workplace who have had stressful traumatic events.

Currently, the critical care work environment conditions are being negatively affected by the nursing shortage and the cost of healthcare [3 & 4]. Therefore, critical care nurses are at risk to experience compassion fatigue, which can negatively affect their mental and physical health as well as job performance. In addition, Compassion Fatigue can cause nurses to lose their objectivity and sympathy for patients. Accordingly, compassion fatigue can ultimately lower the quality of nurses' clinical performance and competence [11&12]. It has been identified that both burnout and compassion fatigue are correlated to staff satisfaction and turnover as well as patient outcome variables [13].

A less stressed nurse can provide better patient care and increased compassion in the nurse - patient interaction, while suffering less fatigue and burnout [14]. Although the concepts of a healthy work environment are well known in the

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healthcare setting, little is known about the association between the work environment conditions and the professional quality of care of nurses in the Critical Care Units.

The information generated from this study will enable managers and administrators to have a better understanding of novel strategies to optimizing the work environment conditions of nurses in the Critical Care Units.

Aim of the Study

The aim of the study has two folds; first, to evaluate the work environment of critical care nurses and second, to examine the relationship between work environment and nurses' professional quality of life in Critical Care Units.

Research Question

Is there a relationship between work environment and critical care Nurses' professional quality of life?

2. METHODS

Design: A descriptive, correlational design was used for this research study.

Setting: The study was conducted at a variety of Intensive Care Units (ICU) of open heart surgery, trauma unit, surgical ICU, Medical ICU and Neurosurgical ICU at Menoufia University Hospital, Shebin El-Kom city, Egypt.

Sample: A convenient sample of 160 critical care nurses who met the study inclusion criteria were enrolled in the study. The inclusion criteria were nurses at least 21 years old who provide direct care at the designated critical care units.

Sample Size Calculation: A power analysis was conducted using G power software to estimate sample size to ensure adequate statistical power for data analysis. With a power of 0.80, an alpha of 0.05, and an effect size of 0.30, 160 critical care nurses were needed for the sample.

Instruments

The Demographic Data Form, developed by the investigator to measure both work history and individual variables of the participants. The data included; age, gender, education, length of employment in nursing, at the hospital and unit level, and the work status.

Healthy Work Environment Assessment Scale (HWE). The HWE assessment scale was developed by the American Association of Critical Care Nurses (AACN) and consists of 18 questions surrounding the six standards of a healthy work environment. Each standard is assessed by three questions.). It is designed to create an environment favorable to an engaged workforce that practices nursing excellence and aims for optimal patient outcomes [6]. A Likert response format is used ranging from 1 (strongly disagree) to 5 (Strongly agree). A total mean score was calculated summing all the items in the scale and dividing by the total number of items. Mean subscale scores were calculated for each subscale (skilled communication, true collaboration, effective decision making, appropriate staffing, meaningful recognition, and authentic leadership) by summing the items in the subscale and dividing by the number of items. The following scale was used to interpret the scores for a healthy work environment: 1.00 to 2.99- needs improvement; 3.00 to 3.99- good; and 4.00 to 5.00- excellent. Internal consistency reliability has been established in two groups of 250 subjects with Cronbach's alpha coefficients ranging from 0.80 and higher [15]. The instrument has been reviewed for face validity.

Professional Quality of Life (ProQOL) is a 30-item self-report scale developed by Stamm [9&10]. The ProQOL measures the impact of working with individuals who have experienced extremely stressful events. Respondents' rate items using a 5 point likert-type scale, where 1 indicates never and 5 indicates always. The ProQOL contains three subscales: Compassion Fatigue, Compassion Satisfaction, Burnout, and Secondary Traumatic Stress. Within this model, Compassion Fatigue, defined as 'the natural, predictable, treatable, and preventable unwanted consequences of working with suffering people [16] is a construct comprised of Burnout and Secondary Traumatic Stress which are measured by their respective subscales. Compassion Satisfaction, the third subscale, is defined as the positive effects derived from helping work [17 & 18] and within the overall model of professional quality of life, serves to buffer the development of compassion fatigue. Higher scores on the Compassion Satisfaction subscale indicate more satisfaction with one's ability to provide care. Higher scores on the Compassion Fatigue subscale indicate the subject is at higher risk for Compassion Fatigue. Higher

scores on the Burn Out subscale indicate the subject is experiencing symptoms of Burnout. Internal consistencies of the ProQOL scales are found to be moderately high to high with compassion satisfaction = 0.88, burnout = 0 .75, and secondary traumatic stress = 0.80 [10]).

Ethical Considerations

An official permission for conducting the study was obtained from the Research Ethics Committee at the Faculty of Nursing and the University hospital director for seeking permission to carry out the study after explaining the nature and the purpose of the study. The researcher explained to the nurses that participation in the study is voluntary and they can withdraw from the study at any time without penalty. Confidentiality and anonymity of nurses'information were assured through coding all data and put all collecting data sheets in a secured cabinet. An oral consent was obtained from nurses to participate in the study. Because questionnaires about work environment conditions and professional quality of life collect sensitive information, it was important to preserve confidentiality. Therefore, each questionnaire was assigned a pre-coded number not related with identification characteristics or information of the nurses. Participants were instructed not to writ their names on the instruments and the demographic data form. The nurses' names list was kept in a separate file.

Pilot Study

A pilot study was conducted to test the feasibility and practicability of the questionnaires and to detect the problems that may be encountered during data collection. It also helped to estimate the time needed to complete the study questionnaires. The pilot study was conducted on 16 critical care nurses (10 %) whom were excluded from the final analysis of the results.

Data Collection Procedure

Potential participants were approached by the researcher and asked them if they are willing to participate in the study. If they volunteered to participate, they were handled the study questionnaires. The researcher visited the designated units during the different work shifts. Visits were scheduled for three consecutive weeks throughout the different shifts. Participated nurses completed the study questionnaires at their convenience during the shift.

3. DATA ANALYSIS

Data was coded and transformed into specially designed form to be suitable for computer entry process. Data was statistically analyzed using Statistical Package for Social Science (SPSS) Version 16 for windows. Descriptive statistics (frequencies, percentages, means, and standard deviations) were performed to describe the sample characteristics and critical care nurses' professional quality of life and healthy work environment. Correlational analyses were conducted to examine the relationships between critical care nurses' professional quality of life and healthy work environment. An alpha value of ≤ 0.05 was considered statistically significant.

4. RESULTS

Characteristics of the Sample

A total of 160 questionnaires were distributed to 160 nurses; all participants returned completed questionnaires. Completing the questionnaires took each participant an average of 20 –30 minutes. Ages ranged from 20 to 40 years old. The sample is predominantly composed of nurses within the ages of 20 to 24 years (51%) and 25 to 30 years (41%) and only 7.5 % were more than 30 years. The mean age of the participating nurses was 24.41 ± 4.59 years. The participating nurses were mainly female (65%) and 34% were male. Concerning the educational level, only 25% held a Bachelor of Science in Nursing (BSN) degree and the majority (75%) held a Diploma in Nursing. Regarding work experience, 45% of nurses had less than one year of experience; 25% had 6 to 10 years of experience; 21% had 1 to 5 years of experience and only 8% had more than 10 years of experience. 50% of the nurses are working in the Trauma ICU; 35% working in the Medical-Surgical ICU and 13% working in the coronary Care Units. See Table (1).

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Demographic Characteristics	NO =160	
	No.	**%**
Age (Years) Mean ± SD Range	24.41 ± 4.59 20.0 – 40.0	
Age categories 20-24 25-30 More than 30	82 66 12	51.25 41.25 7.5
Gender Male Female	55 105	34.4 65.6
Qualification Diploma Bachelor	120 40	75 25
Years of Experiences Less than one years 1-5 years 6-10 years More than 10 years	72 34 41 13	45 21.25 25.6 8.1
Place of Work Trauma ICU Medical ICU Surgical ICU Coronary Care Unit	80 33 25 22	50 20.6 15.6 13.8

The Nurses Perception of the Health of their Work Environment

The total mean score for the Healthy Work Environment Assessment scale was 2.27 ($SD = .53$). The mean score for the six subscales were: skilled communication ($M = 2.39$, $SD = .55$); true collaboration ($M = 2.24$, $SD = .56$); effective decision making ($M = 2.29$, $SD = .51$); appropriate staffing ($M = 2.29$, $SD = .46$); meaningful recognition ($M = 2.39$, $SD = .49$); and authentic leadership ($M = 2.01$, $SD = .60$). See table (2)

Table (2) The Participant's Score Range, Mean and Standard Deviation of the Total Healthy Working Environment and Subscales

	N	Participant's Score Range	Mean	Standard Deviation
Total HWE	158		2.27	0.53
Skilled communication	158	1.00 – 4.00	2.39	0.55
True collaboration	160	1.00- 3.67	2.24	0.56
Effective Decision Making	160	1.00- 3.33	2.29	0.51
Appropriate Staffing	160	1.00– 4.00	2.29	0.46
Meaningful Recognition	160	1.00- 4.00	2.39	0.49
Authentic Leadership	160	1.00- 4.67	2.01	0.60
Valid N (listwise)	158			

Table (2) showed that the total mean score of the health work environment is

2.27 $\pm$ 0.53, which mean that the work environment needs improvement. Also, all the subscales range from 2.01 to 2.39 which indicate that the work environment needs improvement in all the scale dimensions.

Table (3) The Mean and Standard Deviation of the Total Professional Quality of Life and Subscales

	N	Mean	Standard Deviation
Total ProQOL	160	2.84	0.34
Compassion	160	2.75	0.34
Burnout	160	2.95	0.42
Secondary Traumatic Stress	159	2.82	0.27
Valid N (list wise)	159		

Table (3) revealed that the total mean score of the professional quality of life is

2. 84 ± 0.34, which mean that the participating nurses are experiencing moderate professional quality of life. Also, the participating nurses responses in the subscales range from 2.75 to 2.95 which indicate that nurses experiencing moderate levels of compassion fatigue, burnout and secondary traumatic stress.

Table (4) The Relationships between Nurses' Perceptions of their Work Environment and the Professional Quality of Life

			Pro QOL	Health Work Environment
Spearman's rho	Pro QOL	Correlation Coefficient	1.000	.013
		Sig. (2-tailed)	.	.874
		N	159	157
	Health Work Env	Correlation Coefficient	.013	1.000
		Sig. (2-tailed)	.874	.
		N	157	158

Table 4 revealed that there is no statistical significant relationship between the nurses' perception of their work environment and their professional quality of life, Spearman's rho 0.013 (P > 0.05).

5. DISCUSSION

Improving work environment is necessary for promoting optimal patient outcomes and avoiding harmful practices. It was suggested that implementation of healthy work environment practices enable nurses to perform practices that can prevent medication errors. Also, a supportive environment contributes to nurses' satisfaction and retention [19].

The findings of the current study reveled that the total mean score for the Healthy Work Environment Assessment Tool indicate that work environment need improvement as outlined by AACN [6]. All of the subscale ranges were also in the need improvement range. The total mean score of the Healthy Work Environment tool in the current study was lower than the reported mean score of Willingham [20] who found good work environment. Authentic leadership, true collaboration and appropriate staffing were the lowest mean scores for the six subscales. These findings are not surprising because the fact that all the ICUs in this hospital suffer severe nurses shortage. However, the findings of the current study are different from what was reported by Willingham [20] who found that effective decision making have the highest mean score for the six subscales.

Workers who have a good professional quality of life provide better care and like to stay in their positions longer than those who have poor professional quality of life [21]. The findings of the current study showed that the mean score for the total scale and subscales of professional quality of life indicate moderate levels of compassion fatigue, burnout, and secondary traumatic stress. The study findings are similar to the findings reported by Hunsaker et al. [22] who found a low to average level of compassion fatigue and burnout among emergency department nurses. Also, the study findings are congruent with the lower professional quality of life of the Korean nurses [23]. However, the findings of the current study are not consistent with the finding of earlier study by Stamm [10] who reported high level of burnout and low level of compassion satisfaction. The differences between the current study findings and Stamm [10] findings may be explained by the cultural differences between the Egyptian nurses and the nurses in the western and other countries.

Professional quality of life and the principles of a healthy work environment are interrelated. The standards of a healthy work environment can influence the degree to which an employee experiences compassion satisfaction and compassion fatigue. Healthy working environment is the key to guarantee nurses' job satisfaction, reducing turnover and providing excellent quality of care. The findings of the current study revealed that there is no relationship between the work environment and the professional quality of life among the participating critical care nurses. The study findings are not consistent with Monroe, et al.,[24] findings who reported that true collaboration, effective decision-making, and authentic leadership were significant predictors of compassion satisfaction. Also, authentic leadership was a predictor of burnout. The differences between the findings can be explained by the fact that the variables of the current study were measured at a single point from a single institution. Also considering the nature of the variables measured whereas, nurses' perceptions of compassion fatigue and burnout are subjective phenomena.

Limitation of the Study

The current study used Cross-sectional design, therefore the data could be representative of a bad day or any other factors. Thus, a longitudinal design might be useful to determine a true reflection of professional quality of life within a profession that experiences many fluctuations in everyday events. In addition, the cross-sectional design of this study did not allow us to examine changes in professional quality of life over time. Therefore, a longitudinal approach would allow us to examine the progress of changes among critical care nurses over time.

The study was based on self-report measures; nurses' professional quality of life was likely underestimated or overestimated. Therefore, it is suggested that future studies measure professional quality of life more objectively.

The study was conducted in a single hospital, thus it may be not representative for other hospitals in different parts of the country.

Finally, only a convenience sample of critical care nurses was recruited and their answers may not be representative for other nursing staff outside of the critical care unit limiting the generalizability of the study findings.

6. RECOMMENDATIONS

Understanding the relationship between professional quality of life and the healthy work environment will help critical care nurses to be able to develop and test interventions to improve professional quality of life and promote healthy work environment in the critical care setting.

Designing and implementing programs to increase nurses' Compassion Satisfaction levels and reduce their Compassion Fatigue. Improving nurses' professional quality of life can help increase their clinical competency.

Designing educational programs to be integrated in the nursing curriculum and making policies that can help improve nurses' clinical proficiency.

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