ORIGINAL ARTICLE

Relationship Between Job Stress, Life Expectancy and caring Behaviors in nurses working in teaching hospitals of Zahedan University of Medical Sciences

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ABSTRACT

Background : Nursing is a stressful job and the resulting stress can affect nurses' life expectancy and caring behavior.
Aim: To determine the relationship between job stress, life expectancy and caring behaviors of nurses working in teaching hospitals of Zahedan University of Medical Sciences in 2020.
Methods: The present study is a descriptive-analytical study with a research population including all nurses working in teaching hospitals affiliated to Zahedan University of Medical Sciences. Using the conveniencestratified cluster sampling method, giventhe sample size, 178 nurses were included in the study. For data collection, a four-part questionnaire was used, that included demographic information, Nursing Stress Scale (NSS), Miller Hope Scale (MHS), and Caring BehaviorsInventory (CBI). Alpha Cronbach's coefficients of the questionnaires were calculated as follows: NSS questionnaire (a = 85%) - MHS questionnaire (a = 81%) - CBI questionnaire (a = 98%). Data were analyzed using multivariate linear regression statistical test by SPSS v16 software, and the significance level was considered 0.05.
Results: The findings showed that 59% of the samples had high job stress, 92.1% nurses had high life expectancy and 91.6% had good caring behavior. Findings also showed that job stress has a significant relationship with the type of hospital (P <0.023), the number of nurses' children (P <0.028), and their job satisfaction with their profession (P <0.016). There was a significant relationship between life expectancy and employment status (P <0.003) and work experience (P <0.001). Nurses'caring behavior had a significant relationship with nurses' workplace in the hospital (P <0.042). There was no statistically significant relationship between job stress and life expectancy (pvalue> 0.59) and caring behavior (pvalue> 0.14).
Conclusion: This study was designed to determine the relationship between job stress, life expectancy and caring behavior and demographic factors affecting each of these main variables. The results showed that most nurses have severe stress and several factors such as the type of hospital, the number of children and job satisfaction play an important role in stress. Life expectancy is desirable for most nurses and factors such as employment status and work history play an important role in its occurrence.
Keywords: Life expectancy, caring behavour, job stress

INTRODUCTION

Nursing is a profession that creates a lot of job stress due to the need for high skills and concentration in doing work, strong teamwork and providing round-the-clock care[1]. Any job may be associated with stress, but the nursing is known as a high-stress job due to its nature[2]. The US National Institute for Occupational Safety and Healthhas named nursing among the top 40 professions with a high prevalence of stress-related illnesses. In our country, nurses accounted for 80% of the health care system employees performing 80% of the system activities[3]. Nurses' job stress is a global issue, with 0.68 to 9.20% of the world's nurses suffering from it[4,5]. Job stress is a harmful physical and psychological reaction caused by the individual's interaction with the environment and mismatch between one's work needs and his/her abilities and desires[6]. In addition to unpleasant effects such as hypertension, depression, alcohol and drug use in employees[7,8], this stress also has organizational consequences such as repeated absences, delays, strikes, and the emergence of conflict between employees[9,10]. Different studies suggest that most nurses from different wards such as internal medicine, surgery, intensive care and emergency department experience job stress[11,12]. The effect of stress varies due to the fact that the nursing profession consists of different service sectors and each has its own characteristics, and the reason for this difference is in the working conditions and tasks assigned to nurses[11]. On the other hand, the results of studies on the level of stress in nurses in different wards are contradictory. The results of a study showed that nurses in the emergency department are more stressed[13] and in another study it was shown that nurses working in the intensive care unit are more stressed[14]. In the study of Ashtari Nejad et al., which aimed to investigate the effect of demographic,

organizational and various dimensions of job stress on burnout among nurses, the Demographic Information Questionnaire, Nursing Stress Scale (NSS) and Maslach Burnout Inventory (MBI) were used for data collection. This study showed that conflict with physicians, lack of adequate preparedness, lack of support, high mortality, as well as work shifts, cause job stress and consequently reduce burnout in this group of the society[8]. In a study conducted by Ghadirzadeh et al. (2015) on 260 nurses working in Beheshti Hospital in Kashan with the aim of assessing stress and job satisfaction and related factors, the results showed that nurses had moderate stress and job satisfaction ($p < 0.02$ and $p < 0.01$)[15]. Since occupational stressors can reduce physical and mental health, it is necessary to examine the psychological attributes related to nurses' health. One of the important psychological attributes is life expectancy. Life expectancy is one of the basic concepts of positive psychology and a factor for the richness of people's lives[16]. Life expectancy as a healing, multidimensional, dynamic and powerful factor is effective in coping with problems and even in incurable diseases[17]. Hope is an emotional force that drives the imagination to positive things. This factor, like a catalyst, equips people for work and activity. It also leads to flexibility, vitality and increased life satisfaction[18]. Dasht Bozorgi et al. (2017) showed that happiness, adherence to religious beliefs and mental toughness are the most effective variables in predicting the life expectancy of nurses[19]. Care is one of the most important and fundamental components for achieving human development and self-fulfillment[20]. Since optimal professional care improves the comfort level of patients and promotes the health status of human beings[21], therefore, caring behaviors are an ethical guidance in the field of nursing that leads to the support, promotion, and preservation of human values[22,23]. The constituents of caring behaviors are very broad and a single definition of it cannot be provided. Nevertheless, any definition that seeks to describe caring behaviors must contain at least two key components, including; Physical-technical and psychological-emotional dimensions of care[24-26]. Physical components consist of daily activities, physical operations, diagnostic interventions, treatments, procedures, training and problem solving in order to achieve patients' physical recovery. Psychosocial care behaviors are defined as meting the patient's psychological and emotional needs, which is associated with building trust in patients, accepting emotions, and having faith and honesty in behavior[27]. Evidence shows that nursing care aspects are different based on culture and climate[21]. Corbin also believes that the process of providing nursing care is influenced by the conditions of the nurses' work environment and the culture of the community[28]. Despite the importance of care and caring behaviors, there are many differences in the prioritization of caring behaviors that can affect care[20]. As Bast[22], Wilkin et al[29] showed in their studies showed that nurses paid more attention to the psychosocial dimension of care. While in their research, Powell et al. reported a clear contradiction that nurses considered the physical-technical dimension of care more important[30]. In the study of Hosseinzadeh et al. conducted in Ardabil with the aim of recognizing nurses' perceptions of caring behavior and the factors affecting it, 436 nurses were selected by stratified random sampling and assessed by CBI and DNCB questionnaires. This study showed that nurses' caring behavior with an average of 5.27±0.64 was in optimal level, and they were most focused on physical care dimension[31]. However, there are also studies showing that nurses pay equal attention to both dimensions of care[32,33]. According to patients, a good nurse is someone who, in addition to providing optimal physical care, can also provide appropriate emotional and psychological support[34]. In a study conducted by Bardehan et al. (2019) in the United States with the aim of examining job stress and its relationship with demographic variables and working conditions, the results showed that nurses experience high job stress that is associated with demographic variables such as age, BMI, number of hours worked per week and job commitment[35]. A study on 241 nurses in Russia by Kristaps Circenis et al. (2012) found that nurses had high occupational stress and that the main causes of stress in this study were the risk of infection and insufficient rewards for work, and psychological stress due to working with patients[36]. Finally, today, given the breadth of occupations in the nursing profession that have led to their employment in all wards of the hospital, as well as the increasing prevalence of job stress for staff, the possibility of its negative impact on their hopes and that all these factors can affect working quality of nurses and their main role in the hospital (effective and principled care of patients), the aim of this study was to determine the relationship between job stress, life expectancy and caring behaviors in nurses working in Zahedan teaching hospitals in 2020. This study provides useful information for managers and heads to improve and change programs to improve employee performance and increase the quality of service.

METHODOLOGY

In the present descriptive-analytical study, the research population included all nurses working in the departments of internal medicine, surgery, gynecology, pediatrics, psychiatry, intensive care (CCU, ICU, hemodialysis) and supervisory office in five teaching hospitals affiliated to Zahedan University of Medical Sciences including Ali Ibn Abi Talib, Khatam Al-Anbia, Bu Ali, Al-Zahra, Baharan hospitals. Using the results of Bitali et al.,samples were selected by probable cluster stratified sample method, by the following values ($t = 1.653$, $\delta = 3.3034$, $\delta = 0.05$). Finally, sample size was specified as 178, which were as clusters, hospitals, classes and departments[37]. Inclusion criteria are: informed and free consent to participate in the study, having at least a bachelor's degree in nursing, having employment status (internship, conventional, contractual, regular), having at least 6 months of work experience, not having a second job, lack of experience of severe stress in the last 6 months, such as severe accident, death of a beloved one, separation from a spouse, no history of receiving psychiatric drugs for at least the last 6 months, and exclusion criteria include withdrawal from the study during the study for any reason.

The data collection tool in this study was a four-part questionnaire.

Part 1: Demographic information questionnaire (age, sex, marital status, level of education, ethnicity, work

experience, place of graduation, employment status, organizational position, type of department, shift work, job interest, number of children), **Part 2:** Nursing Stress Scale (NSS). This scale is a 34-item questionnaire designed in 1981 by Gray-Taft and Anderson[38] and is the first tool designed to measure nursing stress instead of general job stress. In this questionnaire, the Likert scale is used as the measurement scale. The lowest score obtained from this questionnaire is 34 and the highest score is 136, with scores less than or equal to 68 as low stress, 69-103 as medium stress, and more or equal to 104 scores as high stress. The validity and reliability of this scale was measured in the study of Rezaei et al. (2006) and its reliability was obtained as r = 0.7[39]. Besides, Ghasemi et al. (2011) determined the reliability of this scale by internal consistency method, as Cronbach's alpha value for the whole instrument (a = 0.854)[40]. The reliability of the job stress scale was obtained with Cronbach's alpha as a = 94.4%.

Part 3: The Miller Hope Scale (1988) was developed by Miller and Powers[41]. The initial scale had 40 items, which increased to 48 items in later versions. Its purpose is to measure people's level of hope. The scale is scored in the Likert scale from very disagree (score 1) to very agree (score 5) and the interpretation of the scores is as follows; score between 48 to 96: low, 96 to 144: average and score above 144: Ziad In the research of Jafari et al (2004), its reliability was obtained with Cronbach's alpha 81%[42] and the reliability of the life expectancy questionnaire with Cronbach's alpha (a=9.96%) was obtained.

Part 4: the caring behavior inventory was first developed by Wolf et al. (1998) with 75 items (39). Finally, after the final revision, it was reduced to 42 items. Each item is based on the six-point Likert scale (1 = never; 2 = almost never; 3 = occasionally; 4 = usually; 5 = almost always; 6 = always). The minimum score obtained from this tool is 42 and the maximum is 252, and the higher the score, the more desirable and better the caring behavior. The validity and reliability of this tool were determined by Salimi et al. (2007). Cronbach's alpha coefficient of this instrument was obtained as 98% in the study of Rafiei et al[43]. The reliability of the caring behavior inventory was obtained with Cronbach's alpha (a = 94.5%).

After receiving a letter of introduction from the Vice Chancellor for Research and Technology of the University, the mentioned hospitals referred. Ethical considerations observed in the research are: explaining the objectives of the research to nurses, assuring nurses about their information confidentiality, obtaining their consent, being free to participate in the research, leaving the research whenever they want, and that there is no punishment or incentive for not participation or participation in research. The questionnaire was given to the nurses by the researchers at the beginning of each work shift and was collected at the end of the shift. The completed questionnaires were coded and analyzed using SPSS statistical software version 16 and linear regression statistical formula. A significance level of .05 was considered.

RESULTS

In terms of gender, 83.1% were female and 16.9% were males, 24.2% were single and 75.8% were married. Also, the educational level of 90.4% was bachelor's degree and 9.6% had master's degree. 83.1% were at nursing position in hospital, 4.5% were staff, 6.2% were head nurses, and 6.2% were the supervisors in the relevant hospitals. Employment status of 10.1% was contractual 27.5% had internship employment status, 14.6% were conventional and 47.8% were regular employees. 6.2% worked in the supervisor's office, 12.9% in the internal medicine ward, 14% in the surgery ward, 5.1% in the gynecology ward, 3.4% in the pediatric ward, 7.3% in the CCU, 16.3% in the ICU, 10.7% in the dialysis ward, 18.5% in the emergency ward, and 5.6% in the psychiatric ward. 41% had no children, 16.9% had one child, 28.7% had two children, 10.7% had three children, 2.8% had four children. In addition, 16.3% were satisfied with their job and 83.7% were not satisfied with their job (Table 1).

2.8% had low job stress, 38.2% had moderate job stress, and 59% had high job stress.In terms of life expectancy, it was shown that 7.9% had moderate life expectancy and 92.1% had high life expectancy. In terms of caring behaviors, 8.4% had moderate caring behavior and 91.6% had optimal caring behavior. In terms of the relationship between contextual variables and the independent variable, it was found that between the type of hospital with job stress of nurses (p <0.001), between the number of children with job stress of nurses (p <0.028), between job satisfaction with job stress (p <.0.016), between employment status and life expectancy (p <0.001), and between work experience and life expectancy (p <0.001), between the workplace and the caring behavior of nurses at the patient's bedside (p <.042), there is a statistically significant relationship.

Table 1: Demographic information

Variable	Number (%)	Variable	Number (%)
Age	23-30 77 (43.2) 31-40 56 (31.5) 41-50 37 (20.8) 51-60 8 (4.5)	Position	Nurse 148 (83.1) Staff 8 (4.5) Head nurse 11 (6.2) Supervisor 11 (6.2)
Gender	Female 148 (83.1) Male 30 (16.9)	Employment status	Contractual 11 (10.1) Company 0 internship 49 (27.5) regular 85 (47.8) conventional 26 (14.6)
Hospital	Ali Ibn Abi Talib 65 (36.5) Khatam Al-Anbia 66 (37.1) Bu Ali 30 (16.9) Al-Zahra 10 (5.6) Baharan 7 (3.9)	Ward	Supervisor office 11 (6.2) internal medicine 23 (12.9) surgery 25 (14) gynecology 9 (5.1) pediatrics 6 (3.4) CCU 13 (7.3)

			ICU 29 (16.3) Hemodialysis 19 (10.7) Emergency 33 (18.5) Psychiatry 10 (5.6)
Marital status	Single 43 (24.2) Married 135 (75.8) Widow 0 Divorced 0	Number of children	No child 73 (41) 30 (16.9) 51 (28) 19 (10.7) 5 (2.8)
Education	BA 161 (90.4) MA 17 (9.6) PhD 0	Occupational history	5≥ 66 (37.1) 5-15 58 (32.6) 15≤ 54 (30.3)
Ethnicity	Zabol 125 (70.2) Baluch 24 (13.5) Birjand 14 (7.9) Other 15 (8.4)	Work shift	Morning 28 (15.7) Evening 9 (5.1) Night 5 (2.8) Rotating shift 136 (76.4)
University	Public 89 (50) Private 89 (50)	Job satisfaction	Yes 29 (16.3) No 149 (83.7)

DISCUSSION

The aim of this study was to determine the relationship between job stress, life expectancy and caring behaviors in nurses working in Zahedan hospitals in 2020. The results showed that 2.8% of the subjects had low job stress, 38.2% had moderate job stress, and 59% had high job stress. In terms of life expectancy, 7.9% had average life expectancy and 92.1% had high life expectancy. In terms of caring behavior, 8.4% had moderate caring behavior and 91.6% had optimal caring behavior (Table 2).

Table 2: Score and standard deviation of job stress, life expectancy, caring behavior

variableNo. %Min.Max.SDmean
Job stress low 52/8 Average6838/2 High10559 Total1781005113617/27105
Life expectancy low0 Average 147/9 High 16492/1 Total178 100110 23324/56179
Caring behavior poor0 Average 158/4 Optimal 16491/6 Total17810015525224/84223

The results of data analysis with regression statistical formula by backward method showed that there is a significant relationship between the type of hospital and the job stress score of nurses working in that hospital (p <.001). In this way, the nurses working in Khatam Al-Anbia Hospital, which is the hospitalization center for trauma and burn patients, had more job stress than the nurses working in Baharan Hospital, which is the hospitalization and care center for the mentally ill patients. In a study by Chung-Kuang Chen et al. (2009) in China to assess job stress and job satisfaction of nurses in mid-level hospitals, the results showed that the type of hospital is influential in job stress, so that nurses working in regional teaching hospitals had more job stress and less job satisfaction than nurses working in general and larger teaching hospitals (P=0.02)[44]. There is also a significant relationship between the number of nurses' children and their job stress (p <0.028). That is, nurses with two children had more job stress than nurses without children or one child. There is a significant relationship between job satisfaction and job dissatisfaction of individuals with job stress score (p <0.016). So that nurses who were satisfied with their jobs had less job stress than people who were dissatisfied with their jobs.

There was a significant relationship between employment status and life expectancy of nurses (P <0.001). That is, the individuals in the internship employment status had a higher life expectancy score than the nurses with contractual employment status. There is also a significant relationship between work experience and life expectancy of nurses (P <.0.001). That is, for each year of nurses' work history, their life expectancy score increases by 1.12.

There was a statistically significant relationship between the workplace and the caring behavior of nurses in the patient's bedside (P <0.042), so that individuals working in the nursing office had a higher quality care compared to other nurses working in other wards of the hospital. In terms of the relationship between job stress, life expectancy, and caring behavior, it was found that there is no significant relationship between job stress and life expectancy (p value> 0.59) and caring behavior (p value > 0.14) in nurses working in hospitals. The results of the correlation study of Pavlos sarafis et al. (2016) aimed to investigate the effect of job stress on caring behaviors and health-quality of life in nurses in Egypt showed that job stress has a negative effect on health-related characteristics affecting the quality of life of nurses, which in turn can be considered as a negative outcome for the patient (45). There was a statistically significant relationship between life expectancy and caring behavior of nurses (p value <0.001). Thus, the higher the life expectancy of nurses, the more desirable the caring behavior will be. With these results, it is possible to provide factors that improve the life expectancy of nurses in order to develop more favorable caring behavior. Also, due to the fact that nurses experience a lot of work stress, it is recommended that the authorities identify the factors related to it and attempt to adjust them, in order to increase the quality of caring behaviors provided to patients.

Table 3: Demographic factors affecting the main variables

Variable	Parameter score SDt p-value
Job stress	intercept67.8729.6657.022<0.001 Baharan 0[a] Imam Ali21.9896.5243.3710.001 Khatam24.0176.5153.686<0.001 Bu Al15.6026.7922.2970.023 Al-Zahra22.1778.1952.7060.008 Child No4 0[a] Child No016.8097.6052.2100.028 Child No1 17.6237.9362.2210.028 Child No222.4117.6642.9240.004 Child No3 19.2288.2142.3410.020 Job satisfaction0[a] No job satisfactio-8.2623.404-2.4270.016
Life expectancy	intercept156.4986.45624.242<0.001 Regular0[a]. Contractual8.6316.7691.2750.204 Internship 24.8526.6863.717<0.001 Conventiona19.1546.2643.0580.003 work history1.125.3393.3130.001
Caring behavior	intercept216.6007.42229.182<0.001 Psychiatry0[a]. Supervisor office20.03610.2551.9540.042 Internal medicine5.1838.891.5830.561 Surgery 14.1608.7821.6120.109 gynecology -12.26710.784-1.1370.257 pediatrics 2.23312.121.1840.854 CCU14.6319.8731.4820.140 ICU11.40 8.6071.3240.187 hemodialysis15. 9.1701.6390.103 emergency-7.578.473-.8930.373

CONCLUSION

The nursing profession is one of the most stressful jobs and the work environment is one of the factors influencing the occurrence of this stress, so that nurses working in acute hospital centers have higher stress due to urgency in performance to save the patient's life. Also, most of the people working in this profession are women and it is likely that the emergence of different roles such as the role of nurse, mother and spouse can cause role conflict and subsequent job stress in this group of people. Numerous factors influence the job satisfaction and dissatisfaction, including consecutive work shifts, lack of sleep, and low rewards and salaries, and it is likely that the presence of these factors can affect people's satisfaction with their profession. Life expectancy is one of the influential factors in the nursing profession and based on the above study, it was shown that employment status affects nurses' life expectancy. So that, nurses with internship employment do not have any responsibility in the ward that can eventually lower the expectations of hospital officials. Thus, life expectancy in them is higher than nurses with regular employment status and others. Their life expectancy increases for each year of work experience, which can be due to the increase in experience and skills. Caring behavior is nursing work abstract for patients and various factors can affect its incidence and quality. One of these important factors is the nurses' workplace in the hospital. According to the results of this study, people working in the hospital nursing office have better caring behaviors than those working in other departments, which can be due to leisure and having more free time than others.

Table 4: Relationship between job stress, life expectancy, and caring behavior

		Stress	Life expectancy	Caring behavior
Stress	Pearson Correlation	1	-.040	.111
	Sig. (2-tailed)		.595	.140
	N	178	178	178
Life expectancy	Pearson Correlation	-.040	1	.268**
	Sig. (2-tailed)	.595		.000
	N	178	178	178
Caring behavior	Pearson Correlation	.111	.268**	1
	Sig. (2-tailed)	.140	.000	
	N	178	178	178

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