The relation of depression, anxiety and stress with personal characteristics of nurses in hospitals of Tabriz, Iran

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ABSTARCT

The current industrialized world and ever advancing technology has changed human life by a significant increase in the level of stress and anxiety. Nurses are among those professionals who experience an overwhelming level of stress, anxiety and depression due to work overload and subsequent burnout. The nature of nursing profession for a vulnerable human character increases the possibility of emotional setbacks. Hence, this study was designed to explore and identify the prevalence of anxiety, stress and depression among the Iranian nurses and investigate how these variables relate to personal characteristics and influence the quality of patient care. Using a correlational descriptive design and random cluster method, 242 nurses who worked at different hospital wards in Tabriz, Iran were assessed for anxiety, stress and depression, while their personal characteristics were identified. Data were collected by using a standard questionnaire for stress, anxiety and depression (DASS-21) and later analyzed by SPSS (ver.17).Results showed that Iranian nurses suffered from a moderate level of anxiety, stress and depression and gender influenced these variable rates (p<0.05). Hospital ward type had a relation with stress level (p<0.05), being interested in nursing had an inverse relation to anxiety, stress and depression (p<0.05), while the education level positively related to depression rate among nurses (p<0.05). Type of work at different shifts influenced stress (p<0.05) and marital status reduced depression among nurses (p<0.05). Prevalence of stress and anxiety among the Iranian nurses were at a significant level with susceptibility to experience psychological disorders and provide lower quality of patient care. Findings of this study can alarm the Iranian authorities in healthcare systems to adopt a new policy and improve the current state of health for nurses and patients.

Keywords: stress; anxiety; depression; nursing.

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INTRODUCTION

The human life in modern days has been plagued with pressure and increasing stressors of anxiety, stress and depression, which disrupt various aspects of life. Most people encounter stress on daily basis, but an excessive and persistent exposure to stress could be a threat to mental and physical health [1]. The nature of a job could be one of the main reasons for stress and often jobs are constituent elements of an individual social identity, the source of livelihood, and a main part of social relationships in addition to being a major source of stress. In a work environment, where human communication and contacts are required, the degree of stress rises [2] and nursing profession is mostly based on human relation and communication. Psychological stress may relate to job and various types of demands, which results in conflicts and lead to physical, mental and behavioral problems in association with poor job performance[3].

Compared to other professions, nurses experience the greatest degree of job stress[4]. Several studies have indicated

different levels of job burnout among nurses and experts find the prevalence of burnout being associated to daily stress due to organizational mismanagements, role ambiguity, role conflict and lack of positive reinforcement at workplace[5]. Stress and anxiety are closely related, and anxiety alone is a vague discomfort defined as a sense of skepticism towards the unknown factors. This uncomfortable sense maybe associated with physiological, emotional and psychological symptoms and exhibited as a sense of intense emotion[6].

Depression is a disorder that causes loss of interest in life, sadness, low energy, impaired concentration, sleep disturbance, decreased or increased appetite, ambiguous physical pains such as headaches, back pain and digestive disorders, in addition to impaired personal and social relationships [7]. Anxiety and depression are provoked by life stresses as an ubiquitous part of daily activities related to past, present or future concerns[8]. Persistent stress is harmful to physical and mental health and can result in apathy, sleep disturbance, frequent absence from work, drug abuse, feelings of inadequacy, physical and nutritional problems, increased health care cost and loss of job satisfaction[9].

Mental health is considered as one of the most important indicators of health in a community and poor mental health can lead to many other problems for an individual[10]. Today, mental illness, anxiety, stress and depression are very common and widespread for vulnerable individuals facing everyday problems[11]. Mental health influences many aspects of life, including one's work and family life. Disruption in professional and business aspects of life regardless of the funding source and have a fundamental effect on the sense of self-worth and negatively impact an individuals' health[12].

According to an international report by labor organizations, one third of the surveyed individuals identified their work and family conflicts as the greatest source of stress in life[13], also, stress, anxiety and depression were reported as an important part of unpleasant work environment[14], similar to another study of nurses reporting high level of stress at work [15].

The prevalence of mental health among nurses is registered at 48.8% with minor psychiatric disorder[16]. In addition, nurses are exposed to various degrees of environmental, social, economical, cultural and family stressors during work hours [17] and in contrast to a positive level of stress, which serves as a motivating factor for learning and maintaining physical and mental health; excessive stress has a negative influence across the life span. In fact, frequent and prolonged exposure to high level stress depending on the individual's adaptation ability can cause significant maladjustment with anxiety and depression being the general indicators to measure the status of mental health. Stress can cause several physical and emotional problems including dissatisfaction with self, a sense of failure, severe anxiety, tension, frustration and depression[18].

Stressors associated with nursing jobs involve emotional issues related to death of a patient, lack of institutional support, heavy workload, condition and type of work, and different shift rotations, especially night shift causing disrupted sleep patterns. Nurses respond to these stressful conditions by experiencing anxiety, depression and subsequent mental health disorders that influence the quality of patient care[19, 20]. Other studies have shown that long-term job stress leads to burnout[21] and nurses' work environment and the type of ward are the most important contributing factors to poor mental and general health[22]. In fact, nurses in intensive care units, report remarkable depression, anxiety, irritability and aggression, far more than nurses working in general units [23].

Nurses witness great human suffering, grief and distress among the hospital patients and every day deal with moaning, crying, and devastated family members for the loss of a loved one or a critically ill patient. Nurses experience insomnia, uncertainty and interpersonal relationship problems at various levels and anxiously work to meet the standard of care for their patients, while comforting family members [24]. Decreased quality of nursing care is the worst consequence of burnout when nurses are emotionally spent and patients sense apathy and lack of compassion, while their needs are ignored.

Inadequate nursing care is a violation of patients' human rights[25] and staff burnout often results in substandard patient care and economic loss, when nurses frequently call in sick[26]. Variety of stress negatively impacts personal and social coping mechanisms and causes a reduction in individual resistance to manage adversities. Stress affects physical and emotional health and leads impaired adaptation to life crises [27, 28].

Studies have shown that life changes along with stress result in more emotional and physical disorders. Pressure from internal and external factors demanding to perform in a certain way are divided in two types: 1] pressure to perform well at work, and 2] pressure to obey. In the first type, a person is expected to do the assignments thorough and accurate and the second type requires meeting expectations and comply or obey others[29].

Other studies have shown that stress can increase depression rate, reduce job satisfaction, impair personal relationships, and cause psychological distress leading to suicide attempts. Stress may harm professional competence through decreased attention and concentration, inability to use problem solving skills and poor communication with patients[30]. In a study by [31]researchers found that nurses largely suffered from anxiety, stress and depression, based on their personal characteristics and type of hospital work and Rahmani et al., [2010] reported that nurses mainly experienced anxiety due to job stress, which led to burnout[32].

Majority of reviewed studies have shown that nurses experience psychological setback when they work in a less than ideal condition and suffer from varying degrees of anxiety and stress, and sometimes depression, but the origin of their mental health condition have not been scientifically investigated in relation to personal characteristics versus other variables such as work environment. In fact, because the nature of nursing profession is based on human suffering and they work hard to promote healing and wellness, when they are treated unjustly by their employers, their stress and anxiety level rise and their behavior toward patients and family members change [31-33].

There are few studies exploring the importance of nurses' concerns in Iran and this brings greater significance to this research study. We aimed to assess the level of stress, anxiety and depression among hospital nurses in relation to their personal characteristics at different clinical settings. Our goal was to find a way to determine the source of nurses' stress, anxiety and depression to help find a solution and inform managers and administrators on the need for support of nurses by counseling, positive reinforcement, timely promotion, manageable work load, and appropriate shift schedules, and help protect and improve patient care quality.

MATERIALS AND METHODS

Study design
Using a descriptive and correlational design helped assess the level of stress, anxiety and depression in relation to personal characteristics of hospital nurses in Tabriz, Iran. In this design, only nurses' conditions were assessed and correlation rate and relationship between the variables were described.

Setting and samples
Sample size was determined based on a pilot study of 30 randomly selected participants from the study pool of hospital nurses. According to a confidence level of 95%, a power of 80%, and the utilization of G-Power software, a total of 265 nurses were required and recruited based on their eligibility, characteristics and inclusion criteria and enrolled by random cluster sampling method.

Ethical considerations
The ethics committee at Tabriz University of Medical Sciences approved an informed consent, stating no risk for voluntary participation in this study, being free to withdraw at any point, and being assured that all personal information will be anonymous, kept confident and secured in a password protected digital file.

Instruments
A two-part questionnaire that was revised by the researcher was used to first collect demographic information such as gender, age, marital status, work history, ward and shift type and second to measure anxiety, stress and depression levels (34). In a self-report questionnaire with 21-items, researchers assessed recent mood changes and three mental constructs that included anxiety, stress and depression through 7 statements. Responses were scored based on Likert scale grading from 0 (never) to 3 (very much). Higher scores indicated a higher level of anxiety, stress and depression. Also, a specific classification scoring was applied for anxiety, stress and depression level that measured responses by 0-4 (Normal), 5-11 (Mild) and 11-21 (Severe).

The reliability of instruments used was confirmed by Sahebi et al., for the Iranian population and computed with internal consistency method and cronbach's alpha coefficient. The depression, anxiety and stress scale determined %77, %79 and %78 respectively(34). Validity of this instrument was assessed by Samani and colleagues in Iran. The cronbach's alpha coefficient for depression, anxiety and stress has been reported as %87, %67 and %78 respectively. The factor analysis methods by main components were used to determine validity of this instrument(35).

Inclusion criteria
Nurses with a Baccalaureate of Science in Nursing (BScN) degree in nursing, at least one year of hospital experience, no history of mental disorder and treatment were recruited and enrolled in the study.

Exclusion criteria
Nurses who refused to participate and had a history of mental health problems or chronic mood disorders were excluded from participation.

Data collection
Data were collected in coordination with the authorities at each hospital and a folder consisting of research objectives, informed consent and questionnaires were delivered to hospital nurses at wards. Health institution administrators were also informed of the study goals and ethical considerations. The 265 nurses were instructed to complete the questionnaires in four weeks and return to researcher in a designated secured box in the hospital mailroom. The return rate was % 91.3 and finally 242 questionnaires were returned. Completed questionnaires were reviewed and recorded for analysis according to the assigned codes for anonymity.

Data analysis
The collected data were analyzed by descriptive and inferential statistical tests, using SPSS software for Windows 17.0 (SPSS Inc., Chicago, IL, USA). The significance value was set at $(p<.05)$ and analyzed data included Mean Standard Deviation (SD) and frequency percentage for quantitative and qualitative variables respectively. In order to investigate the relationship between variables regarding participant's personal characteristics Pearson and Spearman correlation coefficient tests were applied.

RESULTTS

Participant characteristics
Demographic results showed nurses were %73.6 female and %65 married. The Mean age was 33.13±6.1 (year) and %70.7 worked in general wards and others in critical care units. Nurses by majority had a baccalaureate degree with a Mean work experience of 8.2±5.8 (year). They mostly reported interest in nursing and worked in rotating shifts with irregular patterns between morning, evening and nights as seen in table (1) and figure (1).
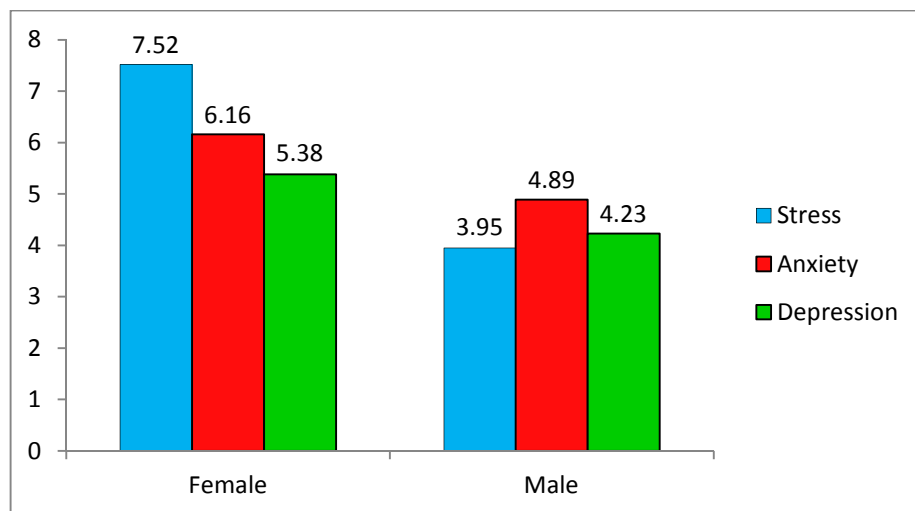

Figure 1: compare of stress, anxiety and depression between female and male in nurses

Table 1. Demographic characteristics of study participants

Socio- demographic Characteristics		Frequency n (%)
Gender	Female	185(**76.5**)
	Male	57(**23.5**)
Age	22-30	134(**55.4**)
	31-40	82(**33.9**)
	41-50	26(**10.7**)
Marital Status	Married	156(**64.4**)
	Single	86(**35.6**)
Academic level	Bachelor	224(**92.5**)
	Master	18(**7.5**)
Work history	1-10	158(**65.3**)
	11-20	64(**26.5**)
	21-30	20(**8.2**)
Hospital	Imam reza	65(**26.9**)
	Shohada	48(**19.8**)
	Sina	36(**14.9**)
	Madani	40(**16.5**)
	Taleghani	28 (**11.5**)
	Alzahra	25(**10.4**)
Type of ward	Internal	52(**25.0**)
	Surgical	68(**40.0**)
	Pediatric	18(**5.0**)
	Burn Ward	24(**10.9**)
	ICU	26(**10.7**)
	CCU	22(**0.9**)
	Emergency	26(**10.7**)
Type of shift	Morning	48 (**19.8**)
	Circulating (Evening & Night)	194 (**80.2**)
Interested in Nursing	Yes	224(**92.5**)
	No	18(**7.5**)

The study results also showed that Mean stress, anxiety and depression levels among the nurses were moderate as presented in table (2)**.**

Table 2. The level of stress, anxiety and depression in nurses

Gender	Level[*]	Depression n (%)	Anxiety n (%)	Stress n (%)
Female	*Normal*	86(46.5)	66(35.7)	29(15.7)
	Mild	**94(50.8)**	**104(56.2)**	**136(73.5)**
	Severe	5(2.7)	15(8.1)	20(10.8)
	Total(n)	185	185	185
Male	*Normal*	34(59.7)	37(64.9)	42(73.7)
	Mild	**22(38.6)**	**17(29.8)**	**15(26.3)**
	Severe	1(1.7)	3(5.3)	-
	Total(n)	57	57	57
	[*]Scores (0-4 = Normal, 5-11 = Mild, 12-21 = Severe)			

Statistical tests

Correlation Coefficient
The results indicated a statistical significance in relation to gender and stress, anxiety and depression in women had higher scores than men ($p<0.05$). We also found significance in relation to ward and the rate of stress among nurses, where nurses in burn unit had the greatest amount of stress compared to others ($p<0.05$). There was a significant inverse relationship between education level and depression rate among nurses with a graduate or Masters of Science in Nursing (MScN) degree at ($p<0.05$). Shift rotation and stress level had a significant relation ($p<0.05$), compared to nurses on a fixed work schedule. Having interest in the nursing profession had an inverse statistical significance with stress, anxiety and depression among nurses ($p<0.05$).The results also showed statistical significance between marital status and depression, whereas married nurses had less depression than others ($p<0.05$) as seen in table (3).

Table 3.The relationship between anxiety, depression and stress of nurses with their demographic characteristics

Socio- demographic Characteristics		N (%)	Depression	Anxiety	Stress
Gender	Female	185 (**76.5**)	5.85±3.2	6.16 ±4.6	7.52±3.1
	Male	57 (**23.5**)	**4.23±3.2**	**4.89±4.1**	**3.95±2.9**
Correlation Coefficient			0.212-	0.186-	0.452-
p-value			p=0.02*	p=0.03*	p=0.01*
Age	22-30	134 (**55.4**)	5.05 ± 3.1	5.69±4.4	6.16 ± 3.0
	31-40	82 (**33.9**)	5.81 ± 3.5	7.15±4.5	7.12 ± 3.8
	41-50	26 (**10.7**)	5.50 ± 2.3	5.72±3.8	5.69 ± 3.5
Correlation Coefficient			-0.005	-0.001	0.07
p-value			p=0.949	p=0.987	p=0.434
Marital Status	Married	156 (**64.4**)	5.12 ± 3.4	5.75±4.5	5.85 ± 3.6
	Single	86 (**35.6**)	**7.85 ± 2.9**	6.00±4.5	6.23 ± 3.1
Correlation Coefficient			-0.245	-0.03	-0.03
p-value			p=0.02*	p=0.716	p=0.725
Academic level	Bachelor	224 (**92.5**)	5.95 ± 3.3	6.06±4.3	6.53 ± 3.4
	Master	18 (**7.5**)	**3.46 ± 2.1**	6.28±5.6	6.45 ± 3.8
Correlation Coefficient			-0.185	-0.006	0.03
p-value			p=0.04*	p=0.946	p=0.741
Work history	1-10	158 (**65.3**)	5.37 ± 3.0	6.38± 4.5	6.75 ± 3.2
	11-20	64 (**26.5**)	5.19 ± 3.7	5.62 ± 4.2	6.19 ± 4.2
	21-30	20 (**8.2**)	4.85 ± 0.7	5.43 ± 0.4	5.95 ± 1.4
Correlation Coefficient			0.008	-0.003	0.038
p-value			p=0.926	p=0.976	p=0.658
Type of Ward	Internal	52 (**25.0**)	4.23±2.6	5.69±3.6	5.51±2.4
	Surgical	68 (**40.0**)	5.80±2.8	7.05±4.4	6.45±3.3
	Pediatric	18 (**5.0**)	5.00±2.2	5.75±1.5	5.25±3.3
	Burn Ward	24 (**10.9**)	5.86±4.7	5.29±5.8	**11.14±4.6**
	ICU	26 (**10.7**)	4.33±3.7	4.24±3.2	6.33±3.1
	CCU	22 (**0.9**)	4.25±3.3	4.52±3.6	5.50±3.5
	Emergency	26 (**10.7**)	6.53±4.0	6.42±5.3	6.37±3.7
Correlation Coefficient			0.112	0.087	0.365
p-value			p=0.186	p=0.307	p=0.01*
Type of Shift	Morning	48 (**19.8**)	4.54±2.7	5.42±4.8	4.23±3.6
	Circulating (Evening & Night)	194 (**80.2**)	6.37±3.3	6.13±4.5	**7.60±3.5**
Correlation Coefficient			0.05	0.004	0.257-
p-value			p=0.533	p=0.960	p=0.02*
Interested in Nursing	Yes	224 (**92.5**)	4.91±3.0	4.69±4.0	4.21±3.2
	No	18 (**7.5**)	**6.56±3.7**	**7.22±5.4**	**7.64±4.0**
Correlation Coefficient			0.168	0.175	0. 252
p-value			p=0.04*	p=0.03*	p=0.02*
Spearmen's rho Correlation	** p <0.05 Statistical Significant at the level (2-tailed)*				

DISCUSSION

Researchers evaluated stress, anxiety and depression rates among hospital nurses and compared with their personal characteristics. The findings revealed a significant prevalence of stress, anxiety and depression among the Iranian hospital nurses in Tabriz, Iran. Several studies have reported similar findings regarding job stress among nurses(18, 36-38) and showing susceptibility to psychological disorders and burnout, which directly influence the quality of patient care (31, 33, 39) as we found in this study.

Won and Kim (2002)asserted that excessive and repeated exposure to stress and anxiety causes a drop in performance, psychological problems and job dissatisfaction(40), in line with Khamseh and colleagues (2011) reporting that nurses work under excessive level of stress(31). Rahmani and colleagues (2010) indicated high level of occupational stress among nurses leading to burnout and consistent with the results of this study(32).

We also found that being a woman had a significant role in association with nurses' level of stress, anxiety and depression, compared to men. In recent decades, the epidemiologic studies have shown that stress, anxiety and depression is more prevalent among women due to their physiological characteristics and consistent with a study from Turkey, where female students experienced a higher level of stress than male students(41). Khamseh et al., (2011) reported a significant correlation between depression, stress and nurses' gender(31), similar to the findings of this study and the results from Greenfield et al., (2000) showing that medical female students experienced considerably more anxiety than males students in clinical settings(42).

The results of this study indicated type of clinical setting or hospital ward was associated with nurse's level stress. Burn unit provoked the greatest level of stress than other wards, whereas, Sawatzky (1996) found Canadian nurses working in intensive care unit (ICU),considered workload as the main stressor(43). Perhaps patients in burn unit having intense pain with a high mortality rate contributed to high stress level for Iranian nurses. Although, in a study by Abdi and Shahbazi (2001) Iranian nurses in intensive care unit found workload and work environment as the most important sources of stress (44), which supports our findings. In fact, Ehteshami (1992) found that intensive care unit environment was an important stressor(45)and other studies have reported similar findings (38, 46, 47).

Results of being interested in the nursing profession had an inverse relation with stress, anxiety and depression among the Iranian nurses who were interested in nursing and reported more job satisfaction with less stress, anxiety and depression compared to those who were uninterested in nursing. There are other studies reporting that job satisfaction and professional commitment contribute to less stress (48-50).

In this study, having a higher educational degree such as MScN inversely affected the level of depression among nurses compared to those with a BScN. In a study by Hegney et al., (2014), researchers revealed that burnout and secondary traumatic stress were significantly related to higher anxiety and depression levels and correlated with younger, full-time and BScN prepared nurses(50). Also, Lee et al., (2008) found a significant positive correlation between self-esteem and academic achievement with higher aptitude and deeper job satisfaction(51).

We found a relationship between marital status and the level of depression among nurses, where married nurses had less depression compared to others, similar to Akhtar-Danesh and Landeen (2007) reporting the lowest and highest rates of depression among married and single nurses, respectively. In addition, income had an inverse relation with the prevalence of depression among nurses (52).

The findings of this study showed that nurses who were assigned to rotating shifts, meaning shift changes between morning, evening and night on irregular basis, experienced a higher degree of stress than others and complained about negative work effects on their personal lives. In addition, nurses found night shift exhausting and boring followed with disrupted sleep after each shift and feeling drowsy on the next shift. Nurses with less wakefulness felt nervous and dissatisfied with co-workers and experienced lower performance quality at the end of night shift(53, 54).

There are number of situations associated with feeling stressed such as financial worries, heavy work overload with a short deadline, unemployment, balancing work and family, caregiving, health problems, competitiveness, peer pressure, and exams (55).Burnout among nurses was significantly associated with high level job stress and study results show that work load stressors are particular predictor of burnout(56).

Limitations

In this study we found a number of limitations such as sampling population that could not be generalizable as a full representative of Iranian nurses. Second limitation related to the use of certain hospital wards such as medical, surgical, pediatric, ICU, CCU, emergency and burn unit, which omitted other specialties and could not be generalizable, similar to other studies recommending further studies to encompass all areas of nursing profession. Third limitation involved data collection based on nurses' self-reports, which could have been biased.

CONCLUSION

The findings of this study showed the prevalence of stress, anxiety and depression among the Iranian nurses at a significant level, with a potential influence on the quality of patient care and subsequent psychological disorder and professional burnout. On a positive term, nurses' interest in their profession reduced the rate of stress and depression. In addition, we found that rotating shifts and work overload were detrimental to nurses' mental health and being married reduced depression prevalence.

According to our literature supported research findings, we recommend an overview and revision in the Iranian healthcare system and modification of current situation for nurses by adopting new strategies to address the stated problems and resolve the issues. There is a need for nurse managers to develop appropriate intervention programs to reduce workload, make regular shift schedules, and provide positive reinforcements for nurses to reduce anxiety, stress and depression. This intervention strategy may help increase job satisfaction and demonstrate organizational commitment in nurses' health and wellbeing. Most importantly, reduced stress, anxiety and depression among nurses can improve the quality of patient care.

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