

ORIGINAL ARTICLES

Stress situation and associated factors among nurses in clinical departments at Sa Dec General Hospital, Dong Thap province, in 2021

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ABSTRACT

Objectives: Nursing is an occupation that has high levels of stress. This study was to find out the degree of work-related stress among nurses and some associated factors at Sa Dec General Hospital, Dong Thap province in 2021.

Methods: This cross-sectional survey design study was conducted with the participation of 200 nurses in clinical departments of the Sa Dec General Hospital, Dong Thap province, in 2021.

Results: 29% of nurses had stress. Divided by four levels of stress, 17.0% nurses had mild stress, 7.0% had moderate stress, 3.0% had severe stress and 2.0% had extremely severe stress. Some factors of job characteristics were associated to the stress of nurses: work overload; high intensity workplace; a large number of patients requiring care per day; witnessing the patient's death and pain. Working environment factors were associated with increased stress of nurses: facilities and work equipment; cramped space; working in a noisy workplace; working in conditions of extreme heat; being disrespected, no opportunities for further professional learning.

Conclusions: The hospital needs to ensure a suitable workload for nurses and to avoid exceeding the capacity of the nurse. Workplace condition in hospital should be improved.

Keywords: Nursing, clinical department, hospital, mental health, stress.

INTRODUCTION

Currently, mental health issues such as stress, anxiety, and depression are emerging as public health issues that need attention, especially for occupations with many risk factors, such as the health workforce. Stress is the human body's physical, mental, or emotional response to external stressors (1). Prolonged stress not only affects human health as well as daily life but also can affect society. A study conducted in other countries found that stress is increasing and more prevalent in many professions, including the medical profession (2,3). With

the characteristics of the environment and working conditions being very diverse and complex, in the course of work, medical staff must face the risk factors harmful to health, such as microbial, physical and chemical risk factors... (1). In addition to working time with great intensity and pressure, this quickly leads to occupational stress of medical staff in general, and of nurses. Prolonged occupational stress can have a broad and negative impact on individuals' health and their daily functioning.

Currently, in the world and Vietnam, there have been several studies on nurses' stress which



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yield mixed results. For example, according to a study by Zainiyah et al (2011) conducted on 110 nurses in a hospital in Kuala Lumpur, the prevalence of stress among nurses is 23.6% (2). Another study by Azad et al (2011) showed that out of 272 nurses serving in the military, 23.8% suffered from stress (3). A study by Trinh (2018) conducted on 316 nurses in Tien Giang Central General Hospital clinical departments showed that nurses suffered from stress of 21.5% (4). According to study of Nguyen Bach Ngoc et al. (2019) in 108 Military Central Hospital, the prevalence rate of stress among 327 internal medicine nurses was 19.6% (5).

Sa Dec General Hospital is a grade II provincial general hospital. The hospital is assigned to provide medical examination, treatment, and health care for about 900,000 people living in the area. With the number of beds as stated, the hospital is still unable to meet the medical examination and treatment needs of the people. It is often overloaded, putting pressure on medical staff. In order to create a safe working environment, improve the capacity to cope with stress, and improve the working efficiency of nurses, it is necessary to have a better understanding of stress levels and some factors related to the occupational stress of nurses at the hospital. This study was conducted with two objectives (i) Describe the current state of stress in nursing staff in clinical departments at the hospital and (ii) Analyse some factors related to stress in nurses at Sa Dec General Hospital, Dong Thap province in 2021.

METHODS

Study Design: A cross-sectional study.

Study subjects: Nurses working in clinical departments of Sa Dec General Hospital. Excluded subjects: Nurses who went to long-term school or taken a leave of absence was excluded from this study.

Study site and time: At the clinical departments of Sa Dec General Hospital, Dong Thap province from August 3, 2020, to June 25, 2021. Time for collected data was one month from March 1 to March 31, 2021.

Sample size and sampling: The sample size was calculated according to the formula:

$$n = Z^2_{(1 - \alpha/2)} \frac{p(1-p)}{d^2}$$

In there: n: total number of samples; $Z = 1.96$ with 95% confidence; d: absolute precision required (choose $d=0.06$); $p = 0.215$ is the stress rate of nurse (4)

Instead, the calculation formula is $n = 181$. It was estimated that about 10% of the subjects would refuse to join, the sample size was increased to 200 nurses for the study. Sampling method: randomly selected 200 nurses from the list of 243 nurses in clinical departments.

Study variables

- *Dependent variable:* stress was measured with the stress component of the Depression, Anxiety, and Depression scale 21 items (DASS-21), which was developed to measure symptoms of depression, anxiety, and stress. This study only used the psychological stress component (DASS-S), which included seven 4-point items ranging from 0 (did not apply to me at all) to 3 (applied to me very much, or most of the time). The seven items measured the degree of chronic non-specific arousal. It assessed difficulty in relaxing, nervous arousal and being easily upset or over-reactive and impatient. The sum of the seven-item scores was the stress score (ranging from 0 to 21), which was then multiplied by 2 to create the final stress score (ranging from 0 to 42). Severity levels of psychological stress were categorized into normal, mild, moderate, severe, and extremely severe (with cut-off points of 15, 19, 26, and 34, respectively). A cut-off score of 15 was used to categorize participants into two

groups: No stress (score less than 15) and with stress symptoms (score from 15 to 42)

- *Independent variable:* Includes groups of individual variables, job characteristics variables, and working environment variables.

Data collection:

- Data collection tool: The questionnaire was built based on the DASS 21 scale to survey the current state of stress and some related factors according to the abovementioned variables.

- Data collection method: Self-administered questionnaire was carried out at the administrative offices of the faculties and at the end of official working hours.

Data analysis: The test sheets were cleaned before being processed and analyzed with SPSS 20.0 software. Descriptive statistical analyses are used to describe the situation of nurses' stress. Analytical statistics evaluated the association between nurses' stress and related factors. The degree of association is accredited through odds ratio and 95% CI.

Ethical approval: The study protocol was approved by the University of Public Health ethics committee under Decision No. 45/2021/YTCC-HD3, dated February 8, 2021. The study complied with the requirements for approval of the Ethical issues of Biomedical research.

RESULTS

Table 1. General information about the subject of study

Variables	Groups	Number (n)	Percent (%)
Gender	Male	37	18.5
	Female	163	81.5
Age	Under 30	62	31.0
	31 - 40	118	59.0
	41 - 50	12	6.0
	More than 50	8	4.0
Marital status	Married	151	75.5
	Divorced/Widow	8	4.0
	Not married	41	20.5
Educational status	Vocational school	39	19.5
	College	108	54.0
	Undergraduate	53	26.5
Working years	Under 10 years	94	47.0
	11 - 20 years	90	45.0
	More than 20 years	16	8.0
Department	Internal medicine	90	45.0
	Surgery	32	16.0
	Emergency & resuscitation	78	39.0

Table 1 shows that female nurses make up the majority of 81.5%; nearly 60% of nurses are aged 31 - 40 years old; more than half of the study subjects are living with their spouses. Most nurses have college degrees, accounting for 54.0%, the rest are 26.5% with university degrees, and 19.5% at an intermediate level. The group of nurses with less than ten years of service experience at the

hospital accounted for the highest proportion of 47.0%, followed by the group of nurses with seniority of work from 11 to 20 years, accounting for 45.0%. The group working in the internal sector accounted for the highest proportion of 45.0%, followed by the group of nurses working in the emergency sector, accounting for only 39.0%. The lowest was the surgery group accounting for 16.0%.

Table 2. Some family characteristics of nurses at Sa Dec General Hospital

Variables		Number (n)	Percent (%)
Taking care of children under 5 years old	No	119	59.5
	Yes	81	40.5
Taking care of elderly relatives	No	130	65.0
	Yes	70	35.0
Main income in the family	No	76	38.0
	Yes	124	62.0
Relationships between family members	Not Good	3	1.5
	Normal	40	20.5
	Good	157	78.5

Table 2 shows that more than 40% of nurses must take care of young children; 35% of nurses must take care of elderly relatives. The number of nurses who are the primary breadwinner in the family accounts for 62.0%.

Regarding the relationship between family members, most nurses rated themselves as good and relatively good (Good accounted for 78.5%; relatively good, 20.5%).

Table 3. Percentage of nurses suffering from stress

Variables	Number (n)	Percent (%)
Normal	142	71.0
Stress	58	29.0
Mild	34	17.0
Moderate	14	7.0
Severe	6	3.0
Extremely severe	4	2.0

Table 3 results show that 29% of nurses are stressed. In which, the rate of mild stress accounted for 17.0%, followed by moderate stress accounted for 7.0%, severe stress accounted for 3.0%, and extremely severe stress accounted for 2.0%.

Most of the results of analyzing the relationship

between individual factors and the stress of nurses did not find a statistically significant relationship. Research results have not found a relationship between family factors such as (caring for children under five years old, taking care of elderly/infirm relatives, the main income earner for the family, family relationships. family) and stress in nurses.

Table 4. Association between job characteristics and stress of nurses (N=200)

Content	STRESS		OR (95%CI)
	Yes	No	
	n (%)	n (%)	
Work overload			
Regularly/Everyday	12 (60.0%)	8 (40.0%)	4.37 (1.68 – 11.36)
Never/Sometimes	46 (25.6%)	134 (74.4%)	
High-intensity workplace			
Regularly/Everyday	28 (37.8%)	46 (62.2%)	1.95 (1.04 – 3.63)
Never/Sometimes	30 (23.8%)	96 (76.2%)	
Number of patients assigned to care per day			
>20 patients	13 (50.0%)	13 (50.0%)	2.87 (1.24 – 6.64)
20 patients	45 (25.9%)	129 (74.1%)	
Number of days on night - shift per month			
>5 times/month	47 (30.9%)	105 (69.1%)	1.51 (0.71 – 3.21)
5 times/month	11 (22.9%)	37 (77.1%)	
The pressure of administrative procedures			
Yes/ Very	57 (29.2%)	138 (70.8%)	1.65 (0.18 – 15.11)
No	1 (20.0%)	4 (80.0%)	
Witnessed the patient’s death, dying and painful			
Regularly/Everyday	31 (36.9%)	53 (63.1%)	1.93 (1.04 – 3.58)
Never/Sometimes	27 (23.3%)	89 (76.7%)	

The results of Table 4 the relationship between factors of work characteristics and stress of nurses showed that there was a relationship between the following factors: The nurse group that had to be assigned a significant workload daily had a 4.37 times higher risk of stress than the group of nurses with a lighter workload (OR = 4.37; 95% CI 1.68 - 11.36). Nurses who have to work at a

high pace regularly have a 1.95 times higher risk of stress than nurses who do not or only occasionally work at a high pace with OR = 1.95; 95% CI (1.04 - 3.63). Nurses who take care of more than 20 patients in a day have a 2.87 times higher risk of stress than nurses assigned to care for less than 20 patients in a day (OR = 2.87; 95% CI 1.24 - 6.64). Nurses who often or very often witness patients' pain,

illness, and death are 1.93 times more likely to experience stress than nurses who do not have to witness these often with OR = 1.93; 95% CI (1.04 - 3.58).

Table 5. Association between working environment and stress of nurses (N=200)

Content	STRESS		OR (95%CI)
	Yes	No	
	n (%)	n (%)	
Facilities and work equipment			
Not good	15 (48.4%)	16 (51.6%)	2.75 (1.25 – 6.02)
Good/Excellent	43 (25.4%)	126 (74.6%)	
Workplaces			
Cramped	18 (52.9%)	16 (47.1%)	3.54 (1.65 – 7.59)
Sufficient/Spacious	40 (24.1%)	126 (75.9%)	
Working in a noisy workplace			
Regularly/Everyday	33 (43.4%)	43 (56.6%)	3.04 (1.62 – 5.61)
Never/Sometimes	25 (20.2%)	99 (79.8%)	
Working in cold or hot temperatures			
Regularly/Everyday	34 (38.7%)	52 (61.3%)	2.45 (1.31- 4.58)
Never/Sometimes	24 (21.1%)	90 (78.9%)	
Problem with colleagues			
Not good/normal	16 (33.3%)	32 (66.7%)	
Good/very good	42 (27.6%)	110 (72.4%)	
Respect for the profession			
No	17 (51.5%)	16 (48.5%)	3.27 (1.51 – 7.04)
Yes	41 (24.6%)	126 (75.4%)	
Learning opportunities to improve professional qualifications			
No/Little	49 (32.9%)	100 (67.1%)	
Many	9 (17.6%)	42 (82.4%)	

The results of Table 5 show that associations between the assurance of facilities and work equipment, the area of the workplace, the excessive noise at the workplace, the temperature of the workplace (too hot/ too cold), respect for the profession with stress in nurses:

Nurses working with inadequate facilities and equipment are 2.75 times more likely to suffer from stress than those working in poor conditions (OR = 2.75; 95% CI 1.25 – 6.02). The group of

nurses working in a cramped space had a 3.54 times higher risk of stress than those working in a large or spacious workspace with OR = 3.54; 95% CI (1.65 – 7.59). Nurses working regularly or daily exposed to noise have a higher risk of stress 3.04 times than those not regularly exposed to noise with OR = 3.04; 95% CI% (1.62 - 5.61). Nurses who regularly work in too-hot or too-cold temperatures have a 2.45 times higher risk of stress than the group of nurses who don't often

work in too hot or too cold temperatures with OR = 2.45; 95% CI (1.31- 4.58). The analysis of the relationship between the workplace relationship and the stress of nurses showed a statistically significant association between stress and the profession of respected nurses. Nurses who were disrespected have a 3.27 times higher risk of stress than nurses with professional respect with OR = 3.27; 95% CI (1.51 – 7.04). The group with no or few opportunities to learn to improve their professional qualifications also had a risk of stress 2.29 times higher than the group of nurses with many opportunities to learn and improve their professional qualifications with OR=2.29; 95% CI (1.03 – 5.07).

DISCUSSION

Stress status of nurses in clinical departments of Sa Dec General Hospital, 2021

The study was conducted with 200 research subjects who were nurses at the clinical departments of Sa Dec General Hospital. The study showed that the stress rate of nurses was 29%. The situation of nurses' stress in the clinical departments of this study was higher than the results of the study on stress of nurses and midwives at Gia Lai Provincial General Hospital in 2015 (25.2%) (5). The results of our study show that the stress rate is higher than that of Trinh Xuan Quang's study at Tien Giang Central General Hospital (stress rate was 21.5%) (4). The results of our study are also much higher than the results of 18% in Nguyen Van Tuyen's study at Binh Dinh General Hospital (8). The stress rate in nurses in this study was higher than in other studies. It can be argued that by the time the study was conducted in 2020, due to the covid pandemic, nurses, and the health workforce, in general, were affected by the physical burden of work—mental health related to the pandemic (Arnetz et al 2020) (11).

Research results on stress levels of nurses according to 4 levels: mild level accounted for

17.0%; moderate level accounted for 7.0%; Severe degree accounted for 3.0%, and 2% of nurses suffered from extremely severe stress. Compared with the research results of author Tran Thi Thuy, the situation of nurses' stress is divided at 4 levels, respectively: 24.4%, 8.1%, 3.6%, 0.9%”(6). Compared to Tran Thi Thuy's study, the rate of very severe stress in this study was 2.2 times higher. The rate of nurses suffering from very severe stress in this study was higher than those of Trinh Xuan Quang studied at Tien Giang Central General Hospital (rate 0.3%) (4); research by Nguyen Van Tuyen at Binh Dinh Provincial General Hospital (rate 1%) (8); Duong Thanh Hiep at Nguyen Dinh Chieu Hospital in Ben Tre (1.6%) (7).

Some factors related to the stress status of nurses in clinical departments at Sa Dec General Hospital.

This study has not found an association between some individual factors and the stress of nurses. The study found several associations between the content of work, the working environment, and the stress status of nurses.

Elements of job content: Four factors of job characteristics are significantly associated with the stress of nurses in clinical departments: assigned too much workload; high-intensity workplace; the number of patients assigned to care in a day, and witnessing the patient's death, dying and painful. The group of nurses who had to be regularly assigned too much work was 4.37 times more stressed than the group of nurses who were not assigned too much work. This can explain that the more work, the greater the pressure for the nurse. The nurse can't handle the work, and the work continues to pile up, quickly causing stress for the nurse. Regarding the high-paced work of nurses, according to the research results, the group of nurses who must work at a high pace will have stress 1.95 times higher than those who do not have to work at a high pace. In the study of Trinh Xuan Quang, this factor was

also mentioned, but the analysis results did not find a statistically significant relationship. Nurses who must care for more than 20 patients in a day are 2.87 times more likely to be stressed than nurses assigned to care for less than 20 patients in a day (OR = 2.87; 95% CI 1.24 - 6.64). This result is like the research results of Trinh Xuan Quang (4). Nurses who must regularly see patients' pain, illness, and death are 1.93 times more likely to experience stress than nurses who do not often witness pain, illness, and death of patients with OR = 1.93. Research results of Trinh Xuan Quang also show that: Nurses who regularly witness the pain, illness, and death of patients are 3.64 times more likely to suffer from stress than nurses who do not often witness pain, illness, and death of the patient (4). Thereby showing that the stress of having to be constantly in contact with pain, illness, and death of the patient, happens often, it will easily cause stress for nurses (10).

The relationship between stress and environmental factors at work.

Through the results of the analysis, six factors have been found that have a statistically significant relationship to the situation, including the assurance of facilities and work equipment; workplace area; working in a noisy workplace, workplace temperature (too hot/cold); respect for careers and opportunities for learning to improve qualifications. Group of nurses working with poor facilities and equipment were 2.75 times more likely to suffer from stress than those working with good facilities and equipment. This is entirely appropriate because, with good facilities, it makes working more convenient, speeding up work progress so that nurses can have time to rest, so there is less stress. The results of this study are consistent with the research of author Trinh Xuan Quang in 2018: People who work with poor facilities and equipment have a 2.62 times higher risk of stress than those who do not. maintenance work with relatively good facilities and equipment (4). Nurses working in a cramped environment were 3.54 times more likely to be stressed than

nurses working in a small or spacious workspace. In addition to the working space, nurses need a suitable rest space to reduce pressure at work. If the area is too cramped, there is no space for nurses to rest and recover, which can easily lead to stress. Regarding excessive noise in the workplace, there was also a statistically significant association with the stress status of nurses, while in univariate analysis, nurses working regularly or daily were exposed to noise. had 3.04 times higher risk of stress than those who were not exposed to noise regularly. Nurses who must regularly and daily work in too-hot or too-cold temperatures have a 2.45 times higher risk of stress than those who do not often work in too-hot or too-cold temperatures. The results of this study are like those of the author Trinh Xuan Quang in 2018 (4).

In addition to physical environmental factors, socioenvironmental factors such as relationships in the hospital, including superiors, colleagues, and patients, also affect the mental health of the health workforce. The results of this study showed that nurses who felt disrespected while working were 3.27 times more likely to be stressed than nurses who felt respected. It can be argued that while medical doctors are perceived as having the highest authority over patients, on the other hand, patients tend to take a nurse for granted. Moreover, a proportion of doctors also have the idea that nurses are assistants for doctors, which adds to the need for nurses to do extra heavy work under much pressure. Research by author Nguyen Van Tuyen also found a relationship between occupational pressure and stress like this study (8). Educational opportunities to improve professional qualifications are also factors related to nursing stress. Nurses who have no or few opportunities to learn to improve their professional qualifications are also 2.29 times more likely to be stressed than the group of nurses who have many opportunities to learn and improve their professional qualifications. According to Arjunraj and Abraham (2023), by learning to improve their professional

qualifications, nurses can improve their respect for the profession, so they can work more actively, contributing to improving labor productivity.

CONCLUSION

Stress in nurses in clinical departments of Sa Dec General Hospital, Dong Thap province

The stress rate of nurses in the clinical departments of Sa Dec General Hospital, Dong Thap province, is 29%. Of which, mild stress accounted for 17.0%, followed by moderate stress accounted for 7.0%, and severe stress accounted for 3.0%. Finally, stress at a very severe level accounted for 2.0%.

Some stress-related factors of nurses at Sa Dec General Hospital, Dong Thap province.

Some factors about the job characteristics were associated to the stress of nurses: work overload; high-intensity workplace; many patients requiring care per day; witnessing the patient's dead dying, and pain.

Working environment factors were associated with increased stress of nurses: facilities and work equipment; cramped space; working in a noisy workplace; working in conditions of extreme heat; being disrespected, no or few opportunities for further professional learning.

From the results, it can be argued that hospital is recommended to ensure a suitable workload for nurses and to avoid exceeding the capacity of the nurse. Furthermore, the hospital should improve its facilities to create the best working space. Every year, the hospital needs to conduct monitoring of the working environment so that nurses can work in an environment without excessive noise or extreme temperatures. Finally, hospitals are suggested to support the health workforce's working efficiency by encouraging and improving their working environment.

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