ISSN: 1676-4285

OBJN Online Brazilian Journal of Nursing
ENGLISH
Federal Fluminense University
AURORA DE AFONSO COSTA NURSING SCHOOL
uff
Original Articles

Stress levels of the surgical center nursing team: a cross-sectional study

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ABSTRACT

Aim: to measure the stress levels of nursing professionals from the surgical center of a university hospital in northeastern Brazil. **Method:** this is a descriptive and cross-sectional study using a quantitative approach that was performed with 57 workers from the researched sector. The data collection was performed in February 2015, through the application of a sociodemographic questionnaire and the Lipp Stress Symptom Inventory. **Result:** it was verified that only 11 (19.3%) professionals presented some stage of stress; however, a concern is pointed out in the study regarding the stage of stress in which workers are: resistance. This indicates that stress is no longer in its initial phase. Regarding the inferential analysis of the data, it was evidenced that the practice of physical activity is a protective factor against the incidence of stress. **Conclusion:** although the investigated sector has potentially stressful characteristics, being a closed sector, the population investigated presented low levels of stress incidence.

Descriptors: Surgicenters; Stress, Physiological; Nursing.

INTRODUCTION

In today's labor world, the demands generated by globalization and technological innovations encourage workers to increase productivity, competitiveness, and professional qualification, so that these demands can be understood as variables that modulate the quality of work[1,2].

Moreover, the workplace is where individuals stay during a significant part of their day. Thus, the relationships and situations experienced in this environment begin to influence the affective bonds and conceptions of life of these workers. And when there are changes in the dynamics of work, they generate in professionals demands that can exceed their adaptive capacity and interfere in the balance of their homeostasis[1].

Changes in homeostasis produce reactions in the body that result mainly in stress, which, at adaptive levels, acts as a physiological and protective element called *Eustress*. However, when it is constant and individuals are not able to deal with it, it becomes harmful and is reflected in acute and/or chronic diseases, characterizing itself as *Distress*[3].

Stress has been studied since the 14th century, primarily to justify distress situations. Later, in the twentieth century, by Seyle, who defined it as a set of adverse agents that generate an imbalance in homeostasis[1]. This author classified stress in three phases: alarm, resistance, and exhaustion.

Based on Seyle's study, another researcher (4) included one more phase, the almost exhaustion phase that is prior to exhaustion. For these two scholars, the classification of the individual into one of the phases of stress is elucidated from their physical and/or psychological signs and symptoms[5].

Thus, the manifestation of stress can be constant in the life of individuals, depending on their external and/or internal demands and their adaptive capacity. It can reverberate both in personal life and at work. The development of work-related stress varies according to the characteristics of each profession and makes the worker more susceptible to stress[1].

Nursing is one of several professions that suffer from stress. Recognized as the caring profession, these professionals act more directly with patients and their families. This relationship with patients during their care results in demands on nursing workers, both physical and psychological, and its consequence is stress[6].

In relation to nursing and the incidence of stress, emphasis is placed on its development in closed areas such as Surgical Center (SC) and Intensive Care Units (ICU). Some studies[7] relate the higher risk for stress incidence in these sectors, considering the difficulties of coexistence and communication between the teams in the face of critical situations of the patients, the immediacy of the procedures, the biological risk, the lack of inputs, among others.

In SC, a differential stressor is the surgical act, in which the nursing has to be attentive to the monitoring of the health status of the patient and to deal with a possible instability in the intraoperative period. In addition, it has the responsibility of providing and predicting all the materials for the surgery to be performed, as well as giving support to other working professionals. Moreover, the SC is considered an industry in which there are constant technological innovations to carry out the procedures, and this requires of the nursing a continuous process of updating to meet the demands[7].

Moreover, as in other sectors, the nursing team of the SC has both assistance and administrative work. The SC's assistance characteristic occurs directly to patients, through nursing care, either during surgical procedures or in the preparation of the surgical room, in the physi-

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cal and/or psychological support to patients, among other activities.

On the other hand, the administrative role of nursing in the SC includes the organization of the nursing staff work shift, the distribution of operating rooms for the accomplishment of procedures and the management of materials and equipment. This broad nursing performance in the sector may require much of the adaptive capacity of these professionals and may result in stress[7].

From this perspective, SC is described as a sector that demands nursing a range of responsibilities in different perspectives and functions. Therefore, there is a need for studies that analyze the relationship of the incidence of stress in this environment, given the limited number of current research on the incidence of stress in the SC[7].

Thus, this study delimits the following guiding question: What are the stress levels of nursing professionals working in a surgical center of a university hospital? The objective of this study was to measure the stress levels of nursing professionals from the surgical center of a university hospital in northeastern Brazil.

METHOD

This is a descriptive and cross-sectional study using a quantitative approach performed with the nursing team filled in the SC of a university hospital in northeastern Brazil. Data collection was performed in February 2015, using two self-applied instruments: a sociodemographic questionnaire, which aimed to characterize the professionals who participated in the study and the Lipp Stress Symptom Inventory (LSSI)[4].

The LSSI consists of three tables that portray possible signs and symptoms that may be and/or have been affecting the professional in the last 24 hours, the last month and the last three months[4].

Esse instrumento fornece dados quantitativos dos sinais e sintomas prevalentes do estresse na amostra investigada e, consequentemente, a fase do estresse predominante. Dessa forma, a mensuração do LSSI se dá a partir dos sinais e sintomas relatados pelo indivíduo.

In the LSSI, if subjects score above six points in the first frame, they will be in the first phase, alarm. If in the first part of the second frame, they score more than three points, they will be in the resistance phase and will be almost exhausted when they score more than three points in the second part of the second frame. Finally, the subjects will be in exhaustion when they indicate more than eight assertions in the third frame[4].

The sample of this study consisted of 57 nurses of the SC, being three nurses and 54 nursing technicians, who work in the three shifts (morning, afternoon and evening). No sample calculation was performed, since all the workers who were willing to respond to LSSI participated in the study and agreed to contribute to the study. Professionals who were only on call, not in the sector and on vacation or leave were excluded. After analyzing LSSI, the data was tabulated and analyzed in Microsoft Excel 2010.

Data were analyzed in two steps: simple descriptive – absolute frequency (n) and relative frequency (%); and bivariate, from the tests of significance for variables. For the categorical variables (sex, marital status, double employment relationship, physical activity, and children), the Fisher's test and Pearson's chi square were performed; for the continuous (age, training time, length of service, weekly working hours and sleeping hours) the U-Mann Whitney test was used. The value of $p<0.05$ was considered for statistical significance.

The study followed the recommendations of the research with human beings, according

to the Resolution 466/2012, and was approved by the Ethics and Research Committee, by means of the Consolidated Written Opinion No. 565.434 of 02/28/2014, and CAAE No.: 27393514.6.0000.5537.

RESULTS

The sample consisted of 57 professionals, active in the SC, predominated by women (82.45%), married (59.64%) and with a double employment relationship (64.91%). The sociodemographic characteristics of the sample are presented in Figure 1.

Figure 1. Sociodemographic data of SC professionals, Natal/RN, 2016

Variable	N	%
Sex		
Female	47	82,5%
Male	10	17,5%
Marital Status		
With partner	23	40,4%
Without partner	34	59,6%
Double bond		
Yes	37	65%
No	20	35%
Physical activity		
Yes	23	40,4%
No	34	59,6%
Children		
Yes	33	58%
No	24	42%

In addition to these characteristics, the participants were also evaluated in terms of age, length of training, length of time as a health professional, length of time in the department, hours of work per week and hours of sleep, as in Figure 2.

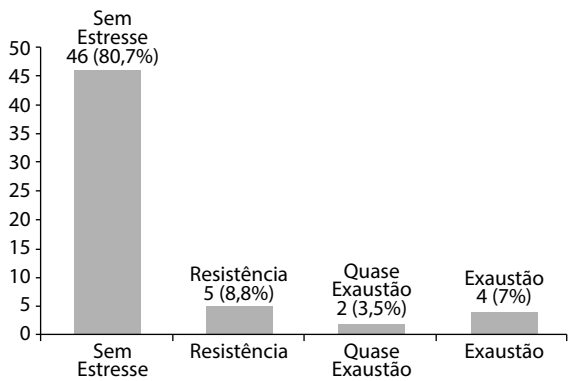
Figure 2. Mean and Standard Deviation of the continuous sociodemographic variables of the professionals who work in the SC, Natal/RN, 2016.

Variable	Minimum	Maximum	Mean	Standard Deviation
Age*	23	63	37,2	DP = 9,983
Time of Graduation*	2	41	13,6	DP= 9,138
Time of Operation in the Sector**	2	432	60,1	DP = 113,913
Weekly Work Hours	30	66	38,3	DP= 8,611
Sleeping Hours	4	10	6,8	DP= 1,182

**Time in Years; **Time in Months*

Regarding the incidence of stress in the research participants, it was present in 11 professionals (19,3%). From the stress phases in the professionals studied, Figure 3 demonstrates the distribution. No professional presented the first phase of the so-called alarm.

Figure 3. Distribution of stress phases in SC professionals, Natal/RN, 2016



In addition, the bivariate analysis of categorical and continuous variables was performed using the Pearson chi-square test, Fisher's test and the U-Mann Whitney test, as shown in Figures 4 and 5, respectively.

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Figure 4. Bivariate analysis between the incidence of stress and the categorical sociodemographic variables of the professionals working in the SC, Natal/RN, 2016

Variables		With Stress		Without Stress		P value
		n	%		%	
Sex						
	Female	10	90,9	37	80,4	0,668*
	Male	1	9,1	9	19,6	
Children						
	Does not have	3	27,3	21	45,6	0,326*
	Has	8	72,7	25	54,4	
Marital Status						
	Married	5	45,5	29	63	0,322*
	Single	6	54,5	17	37	
Double Bond						
	Does not have	6	54,6	31	67,4	0,491*
	Has	5	45,4	15	32,6	
Work shift						
	Day Shift	9	81,8	39	84,8	0,809**
	Night Shift	2	18,2	7	15,2	
Physical activity						
	Do not Practice	10	90,9	24	52,2	0,019**
	Practices	1	9,1	22	47,8	

** Fisher's test; ** Pearson's chi-square test*

According to Figure 4, it was verified that there was statistical significance (p = 0.019) regarding the relation between physical activity and stress.

The analysis of the continuous variables (Figure 5) showed that there was no significant static relationship with stress and the sociodemographic variables evaluated.

DISCUSSION

The professionals participating in this research were mostly women, an intrinsic characteristic of nursing in which the predominance of the female sex is considerable, despite the increasing insertion of men in the profession[8].

Figure 5. Bivariate analysis between the incidence of stress and the continuous sociodemographic variables of the professionals working in SC, Natal/RN, 2016

Variables	With Stress	Standard deviation	Without Stress	Standard deviation	P value
Age*	34,55	6,81	37,89	10,55	0,941***
Time of Graduation*	14,00	7,69	13,61	9,52	0,062***
Time of Operation in the Sector**	12,64	8,26	13,24	9,6	0,332***
Weekly Working Hours	39,82	9,00	37,93	8,57	0,542***
Sleeping Hours	6,55	1,03	6,89	1,18	0,068***

**Time in Years; **Time in Months; ***U-Mann Whitney Test*

This predominance has a historical origin, since before nursing was structured as science, it was practiced exclusively by women in an empirical way. In this sense, for many years, the image of nursing was associated with women[8]. However, nursing as a science has brought a new perspective of the profession and, with this, provided the idea that care is not a feminine characteristic and can be also practiced by men.

However, due to a cultural issue, women, despite being inserted in an expressive way in the work environment, are still not disconnected from their household chores, in which they are mainly responsible for the maintenance of their routines. These tasks performed at home can be understood as another work shift, which implies in the reduction of the time allocated to the practice of leisure and rest, which can make these professionals overburdened and more susceptible to the development of stress[9,10].

When this characteristic is associated with another predominant factor in this sample, which is the double employment relationship, a propensity for developing stress is perceived, since this double working day interferes both in the physical aspects and in the psychological aspects of individuals, as it submits professionals to a greater work overload and decrease of the time for leisure activities and social integration[10,11].

This condition may be even more disquieting for nurses when they understand that this profession requires worker's full dedication, as they perform activities of different scopes when transporting patients, dealing with their pain, suffering, fear, with the management of professionals, maintenance of materials and supplies, and in relating to relatives[10,11].

Still with regard to the labor characteristics of these professionals, the work shift was also evaluated, in which the majority of the investigated sample operates during the daytime period. The work done in this period causes less damage to the body of the individuals, because it is considered that the professionals will have the night to sleep; therefore, the biological rhythm and secretion of nocturnal hormones are preserved[12].

Night shift workers have to deal with changes in their circadian cycle; thus, it is necessary to adapt the organism to such a situation and it becomes a stressor. In addition, there are the difficulties generated in personal and family relationships, the decrease in sleep quality, which during the day is influenced by the noises that are greater, besides the problems that can be developed by the lack of nocturnal sleep, such as insomnia, obesity, circulatory problems, stress, and others[12,13].

Another characteristic of the investigated professionals that may make them more susceptible to stress is related to the fact that the average age of professionals is 37 years old, young adults. Professionals in this age group may have less experience and therefore less practical ability and thus, when faced with different situations, may not be able to deal with and resolve them and it can consequently result in the development of stress[14].

However, it is known that professionals with a higher age, due to the physiological and natural wear and tear of the organism associated with chronic diseases, may not be able to adapt to the changes and necessities imposed in the work environment and these factors can also make these professionals more susceptible to stress[10,14].

Thus, it is understood that the relationship between age and the incidence of stress is not a unifactorial one and is related to other characteristics, because in the different phases of life there are triggers that can generate the stress for both new professionals and the professionals who already have more practical experience.

Although these professionals fit into the classification of young adults, they have, on average, 13 years of work experience as a health professional and have been working in the SC for an average of 5 years.

With this time of work activity, it can be considered that the nurses already have a considerable period of performance and, therefore, would be prepared to deal with different situations. In this sense, work experience would be understood as a protective feature regarding the development of stress, as evidenced in a study[15] that shows that professionals with less than five years of experience have a higher incidence of stress.

In addition, most of these professionals have a companion and children. Studies[10,16] show that the presence of the partner affects a sense of support and security, which reduces the incidence of stress in the individual.

On the other hand, the fact of having children may demand even more obligations in these professionals, since the responsibilities of parents are added to the professionals, and with this, the need to meet the needs of their children, and thus become more burdened and susceptible to the development of stress[16]. However, it was also evidenced that the presence of children is considered a protective agent of stress, because it arouses the feeling of personal fulfillment in these workers[10]. For this study, it was considered protective because there was no relation.

Regarding the evaluation of stress levels, it was evidenced that most of the professionals, 46 (80.7%) do not have stress, although SC is a closed sector. Consequently, the SC is more conducive to the development of this feeling, because it indirectly generates the exclusion of these workers from the activities and common spaces of the institution during work practice[7,17].

The 11 professionals who were affected by stress are distributed in three phases: resistance with 5 (8.8%), exhaustion with 4 (7%) and near exhaustion with 2 (3.5%) professionals.

Resistance is the second phase of stress and is characterized by the stage in which the body begins to feel the effects of stress, especially in the form of physical symptoms, which can generate in the worker the feeling of wear and constant physical fatigue. In addition, at this stage, there is a small suppression of the immune system due to increased cortisol secretion, which may make this worker more vulnerable to the involvement of infectious diseases[18].

The higher incidence of the resistance phase among professionals is in line with other studies[17,18] that portray the high incidence of this phase in other realities and also infer the negative aspects that the presence of stress in the nursing team can result, such as the decrease in the quality of the nursing care provided and in the rates of absenteeism of the institution.

Regarding the bivariate analysis of the study, statistical significance levels were evidenced regarding the relationship between stress incidence and the practice of physical activities, demonstrating that among the professionals who practiced physical activity only one presented stress and among those who do not practice it, 10 are in some stage of stress.

This data corroborates the experimental study[19] that analyzed the cortisol levels of nursing professionals, which showed that the rates of this hormone, considered the "stress hormone", were lower in professionals who practice physical activity regularly.

In this sense, it is noted that physical activity has a protective effect on the body, as it acts on the control of cortisol secretion. Thus it provides a good physical conditioning, reduces musculoskeletal pain, as well as improvements in psychosocial aspects[19].

Although the bivariate analysis tests showed significance only for physical activity, other characteristics such as the time of formation and the hours of daily sleep presented values very close to having a significant relation with the development of the stress.

The analysis of the training time indicated that professionals who worked for approximately 14 years were more susceptible to stress. This fact can be justified by the natural aging process of the organism, in which there is a decrease in the energy to perform activities, tolerance to deal with conflicting situations, and a greater probability for the development of chronic diseases[10,14].

Regarding the sleeping hours, the study reports that professionals who sleep 30 minutes more per day have lower levels of stress. Adequate sleep is important for the control of hormonal secretion, which interferes with the immune system, obesity and insomnia[20].

In addition, inadequate daily sleep hours generate other problems, affecting the individual's attention levels, continued feeling of fatigue, and excessive irritability. Therefore, the important relationship between the adequate sleep pattern and the quality of the health care offered and the health of the worker[10].

CONCLUSION

It is concluded that the SC professionals investigated in the majority do not have stress. However, there is a concern among those who presented some of the phases, since they passed the initial phase (alarm) and are classified in resistance, almost exhaustion and exhaustion. These phases are mainly characterized by the appearance and worsening of psychological and physical symptoms over a longer period of time.

Therefore, it shows that the professionals affected by stress present physical and psychological suffering that interferes with their work dynamics, their interpersonal relations and their quality of life, which will affect directly and negatively the nursing care offered to patients and the valuation of nursing within the sector.

However, research reveals ways to reduce the incidence of stress with personal practices such as physical activity. In this sense, it is interesting that studies that investigate stressors of the work environment also seek to elucidate strategies for stress reduction.

However, it is emphasized that this research is limited to a single researched reality and may present different or similar results when compared to others. Thus, it is relevant that other institutions be analyzed for making comparisons to broaden the knowledge on the subject and to provide improvements regarding the health of nursing workers.

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All authors participated in the phases of this publication in one or more of the following steps, in according to the recommendations of the International Committee of Medical Journal Editors (ICMJE, 2013): (a) substantial involvement in the planning or preparation of the manuscript or in the collection, analysis or interpretation of data; (b) preparation of the manuscript or conducting critical revision of intellectual content; (c) approval of the version submitted of this manuscript. All authors declare for the appropriate purposes that the responsibilities related to all aspects of the manuscript submitted to OBJN are yours. They ensure that issues related to the accuracy or integrity of any part of the article were properly investigated and resolved. Therefore, they exempt the OBJN of any participation whatsoever in any imbroglios concerning the content under consideration. All authors declare that they have no conflict of interest of financial or personal nature concerning this manuscript which may influence the writing and/or interpretation of the findings. This statement has been digitally signed by all authors as recommended by the ICMJE, whose model is available in http://www.objnursing.uff.br/normas/DUDE_eng_13-06-2013.pdf

Received: 12/07/2016
Revised: 09/17/2018
Approved: 09/25/2018