



Levels of occupational stress and stressful activities for nurses working in emergency

Níveis de estresse ocupacional e atividades estressoras em enfermeiros de unidades de emergência

Niveles de estrés laboral y actividades estresantes en enfermeros de unidades de urgencia

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The study aimed to identify stress levels, areas and their activities identified as stressful by nurses working in the emergency in Manaus, AM, Brazil. It is an epidemiological, cross-sectional design, with 36 emergency nurses from December 2010 to January 2011. The Bianchi Stress Scale with 57 questions was used. The nurses were at risk for high levels of stress. The most stressful areas were the operation of the unit, conditions of work and personnel administration, and the most stressful activity was the request for equipment review and repair. The difference by Friedman test between the areas was significant ($p < 0.05$), Dunn post-test significant ($p < 0.05$) when compared by peers. The accumulation of management activities with the assistance activities can generate higher levels of stress, it is necessary to invest in improving the work environment and management support to minimize the stress experienced at work.

Descriptors: Nursing; Burnout Professional; Emergency Nursing.

O estudo teve como objetivo identificar os níveis de estresse, as áreas e suas respectivas atividades apontadas como estressoras pelos enfermeiros de unidades de emergência em Manaus, AM, Brasil. Desenho epidemiológico, transversal, com 36 enfermeiros de emergência, de dezembro 2010 a janeiro de 2011 utilizou-se a Escala Bianchi de Stress com 57 questões. Os enfermeiros estavam em risco para alto nível de estresse. O Funcionamento da unidade, condições de trabalho e administração de pessoal foram as áreas mais estressoras. A solicitação de revisão e conserto de equipamento a atividade mais estressora. A diferença pelo teste de Friedman entre as áreas foi significativa ($p < 0,05$), pós-teste de Dunn significativo ($p < 0,05$) na comparação por pares. O acúmulo de atividades gerenciais com as atividades assistenciais pode acarretar maiores níveis de estresse, sendo necessário investir na melhoria do ambiente ocupacional e de suporte gerencial para minimizar o estresse sofrido no trabalho.

Descritores: Enfermagem; Esgotamento Profissional; Enfermagem em Emergência.

El objetivo fue identificar los niveles de estrés, áreas y sus actividades señaladas como estresantes por enfermeros de unidades de urgencia en Manaus, AM, Brasil. Diseño epidemiológico, transversal, con 36 enfermeros de urgencia, de diciembre de 2010 a enero de 2011, se utilizó la Escala Bianchi de Estrés con 57 preguntas. Los enfermeros estaban en riesgo para alto nivel de estrés. El funcionamiento de la unidad, condiciones de trabajo y administración de personal fueron las áreas más estresantes. La solicitud de revisión y reparación de equipamientos fueron las más estresantes. La diferencia por test de Friedman entre las áreas fue significativa ($p < 0,05$), posttest de Dunn significativo ($p < 0,05$) en comparación en pares. La acumulación de actividades de gestión puede generar mayores niveles de estrés, con necesidad de invertir en la mejora del entorno laboral y de soporte gerencial para disminuir el estrés en el trabajo.

Descriptorios: Enfermería; Agotamiento Profesional; Enfermería de Urgencia.

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Introduction

Nursing activities in emergency are considered the most stressful of professional practice as they may compromise the health and quality of life. The stress resulting from this context is a current problem and a risk to the worker, because it can lead to illness and death. In this sense, the growing concern about health and the social and economic changes that affect the occupational activity of nurses has allowed the increase in research on stress among emergency nursing workers⁽¹⁻⁴⁾.

Work of nurses in emergency requires physical, mental, emotional and psychological effort, considering it demands attention, performing activities with a high degree of responsibility and difficulty, fast-paced work, excessive hours and less leisure hours, which can lead to occupational stress, arising from stress at work⁽⁵⁾.

Stress is a set of external and internal situations which can cause extremely, anger or happiness, or both, which requires an effort of the human organism to adapt itself to these stressors. They can be perceived by the individual as a threat (negative) or a challenge (positive) and trigger a stress response⁽⁶⁻⁷⁾.

Stress is defined as a syndrome characterized by a set of reactions a body develops when is submitted to a specific event that requires individual effort to adapt⁽⁷⁾.

Inadequate adaptation of the organism to the stressor agent for a long period can lower immunity and predispose the person to mental illness, emotional conflicts and imbalances that result in 75% of health care for stress-related disease⁽⁸⁾. Thus, it is noteworthy that stressor can be any situation of personal or professional character, evidenced by any event occurring in the individual ongoing relationship with the internal and/or external environment, being this positive or negative evaluation by the subject to the stressor which determines whether this causal relationship exceeds its adaptability⁽⁶⁾.

In the working environment in emergency,

nurses experience challenging situations as: high workload and complexity of concomitant care and management activities, which are perceived as stressful and generating stress negative responses and therefore compromising the four areas: social, family/emotional, health and professional tending to isolation and interpersonal conflicts^(2,9).

The triggers of stress stressors can influence personal and professional behaviour, compromising effectiveness, outcomes and quality of life, being this understood as the individual's perception of his position in everyday life, in the context of culture, value systems in which he lives and in relation to his goals, expectations, standards and concerns^(2,4). In this context, it is understood that the wear suffered by the worker can raise the rates of stress, and bring serious risks to health.

Development of studies on occupational stress among emergency nurses in the context of each situation is vital, since the wear suffered by each professional nursing depends especially on the interaction with the work environment and the influences on personal life.

The study aimed to identify stress levels, areas and their activities identified as stressful by nurses in emergency departments.

Method

It is an epidemiological cross-sectional, quantitative research with nurses who develop activities in emergency units in Manaus/AM. Professionals from two public hospitals which hold Emergency Care Specialized service and serving adult patients registered with Ministry of Health and Emergency Specialist were studied. These are reference services for general population and considered the oldest institutions in the city of the State of Amazonas.

Population consisted of nurses working in the emergency departments from the two institutions, called Institution A and B. Inclusion criterion was: nurses who work in the emergency room for more

than six months and excluded those who were removed from service for any reason.

Data collected in December 2011 and January 2012, we used a self-administered structured questionnaire based on Bianchi Stress Scale⁽¹⁰⁾, adapted for this study. Questionnaire was given to all nurses at the beginning of the work process, and collected at the end of the shift, which were placed in unmarked envelopes, in order to maintain the anonymity of the participant.

Data collection questionnaire sought the following information: In section A – there was a closed question to identify the level of stress experienced at work. In item B, the Bianchi Stress Scale consisted of 57 questions to identify the stressors related to daily activities; among those relationships with laboratory and hospital removal service were added because they were considered to be central activities in the work of nurses in emergency units. For the responses in items A and B, there was the possibility of indicating just a number of a Likert scale with values 1-7, which comprised intervals: 1 was a bit exhausting and 7 very stressful. The value 0 (zero) was assigned when the event does not apply to the analysis of scale. The 57 questions were grouped into six major areas⁽¹⁰⁾: Area A – Relationship activities to other units and seniors, Area B - Activities related to the coordination of the activities of the unit, Area C - Activities related to the adequate functioning of the unit, Area D - Activities related to the nursing care provided to patients; Area E - Activities related to working conditions to perform nursing activities and Area F - Activities related to personnel administration.

Data were analyzed and was assigned to each nurse a score corresponding to the sum of all items marked, subtraction of items indicated by zero (not applicable) and divided by items answered effectively. Thus, scores of standardized score in determining the level of stress was below 3.0 - low stress level, between 3.1 and 4.0 - average stress level, between 4.1 and 5.9 - alert high stress level, above 6.0 - high stress level⁽⁹⁾.

For analysis, SPSS programme version 21, with which it was analyzed by descriptive statistics, such as the relative frequencies (%) and absolute (N) average, a statistical nonparametric for multiple comparisons Friedman test and Dunn post test were used, to check the differences between the areas. We adopted a significance level of 0.05 and a confidence interval of 95%. To assist the internal reliability the Cronbach's alpha was used.

Participants in this study had to be exposed to minimal risks such as fatigue and discomfort by the time spent in completing the questionnaire, and the opportunity to look back at the stressful feelings about their experiences as emergency nurses. The benefits were indirect, because information obtained provided the necessary elements for building nursing knowledge and development of new research.

Project approved by the Research Ethics Committee from Federal University of Amazonas, with the Certificate of Approval for Ethics Assessment No. 0458.0.115.000-11 of 14/12/2011.

Results

34 of 70 subjects did not return the questionnaire or refused to participate, claimed lack of time as a reason.

Based in the 36 nurses working in emergency, by verifying the degree of wear on these nurses we believed they were, and classifying them into levels of stress experienced at work, we can observe in high stress level 38.9%, on alert to stress level 22 2%, at a average stress level 8.3%, in low stress level 2.8%, however, 27.8% believed that stress did not apply to their activities in emergency services.

In turn, by obtaining the classification of nurses as the levels of stress from the scores measured by the questions contained in BSS, it is possible checking 52.8% of nurses on alert for high stress level, the highest percentage in relation to the classification described above (Table 1).

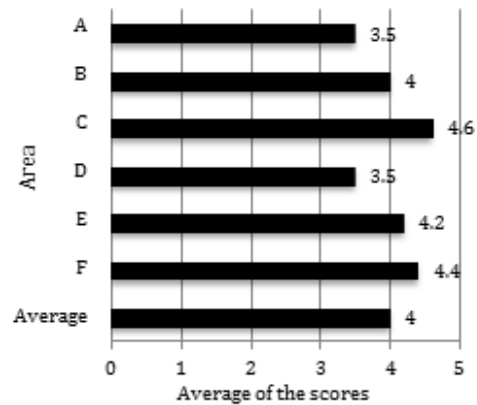
Table 1 - Levels of stress among nurses working in emergency according to the total score of Bianchi Stress Scale (n = 36)

Level of stress	n (%)
Risco para alto nível	19 (52,8)
Médio	9 (25,0)
Baixo	7 (19,4)
Alto	1 (2,8)

Related to work areas, the scale showed high reliability by Cronbach's alpha ranged from 0.71 to 0.93 between the areas and the overall alpha was 0.96. The appropriate functioning of the unit is the most stressful, Area C: scores of 4.6 (Figure 1).

By comparing the areas through the multiple comparison Friedman test and Dunn post-test, a significance level of $p < 0.05$ was considered. Significance was observed between the investigated areas (p -value: 0.000) indicating that the averages are really different, and in turn the study subjects perceived stress differently in each area.

By using the Dunn post-test, in the comparison of areas in pairs, we identified significance ($p < 0.05$) between areas A and C; A and F; D and C; D and E; D and F, it shows that the areas differ in stress scores (Figure 2).



Legend: Area A - relationship to other units and seniors; Area B - coordination of the activities; Area C - adequate functioning of the unit; Area D - nursing care; Area E - working conditions; Area F - personnel administration

Figure 1 - Distribution of average stress scores by area Bianchi Stress Scale

Areas	Area C: Adequate functioning of the unit	Area E: Working conditions to perform nursing activities	Area F: Personnel administration
Area A: Relationship activities to other units and seniors	.000*	.051	.003*
Area D: Nursing care provided to patients	.000*	.005*	.000*

*Significance of $p < 0,05$

Figure 2 - Comparison of the stress scores for pairs of areas of Bianchi Stress Scale

In area A corresponding to the relationship activities to other units and seniors, 38.9% of nurses were identified as at low stress levels. However, by adding the percentages of 33.3% on alert for high stress level with 27.8% in average stress level, 61.1% of professional classified from average to alert to high levels of stress were found. The most stressful activities were relationship with the pharmacy (score: 4.7), relationship with the hospital removal service (score: 4.4) and relationship with the laboratory service (score: 4.1), classified on the alert for high level of stress.

Regarding the coordination of activities of the unit (area B), 38.9% were classified on alert for high stress level and 11.1% at high stress level. The most stressful activities were: writing the unit monthly report (score: 5.1), monitoring the quality of care (score: 4.8), coordinating the activities of the unit (score: 4.8), classified into alert to high level stress. There was a little intervallic difference between the stress scores of these stress activities.

Related to the proper functioning of the unit (area C) activities, 61.1% of nurses were on alert for high stress level and 8.3% at high stress level. The most stressful activities were requesting review and repair of equipment (score: 5.4), prediction of material to be used (score: 4.7), material replacement (score: 4.7), materials usage control (score: 4.5), equipment control (score: 4.4) and raising the amount of existing material in the unit (score: 4.3), classified into alert to high stress level, there was also in this group, a little intervallic difference between the scores.

In area D corresponding to the nursing care provided to patient activities 38.9% of nurses were identified in low stress level. However, by adding the percentages of 27.8% in average level and 27.8% on alert for high stress, we obtained 55.6% of average and alert to high level.

Attending the family members of critically ill patients (score: 4.5) was considered the activity with

the highest stress in area D, followed closely by the activities of supervising the nursing care (score: 4.4), responding to emergencies in the unit (score: 4.3), preparing the unit for emergency situations (score: 4.3), guiding relatives of critically ill patients (score: 4.3) and meeting the needs of the family (score: 4.2), all classified on alert for high stress.

In area E, related to working conditions to perform nursing activities, 47.2% of subjects were on alert for high stress level and 5.6% at high stress level. The noise level of the unit (score: 4.7), performing bureaucratic activities (score: 4.6), and carrying out activities with minimal time available (score: 4.6) were the most stressful activities, classified into alert to high stress level, also with little intervallic difference between the scores.

Stress level in area F, activities related to personnel administration was 58.3% on alert for high stress level and 8.3% at high stress level. Controlling nursing team (score: 4.9) was considered the most stressful activity in this area, then supervising team activities (score: 4.6), elaborating monthly scale of employees (score: 4.6) and evaluating employee performance (score: 4.4). There was little intervallic difference between the stress scores of activities, all on alert for high stress.

Discussion

Recognition of nurses to the item on alert for high stress portrays the situations experienced in the workplace, in carrying out activities in emergency and highlights the difficulty that professionals have to define the concept of stress. The ranking, from the total score, showed that nurses were on alert for high stress level and not at a high level of stress, which may be related to the linkage of the term stress, at present, to a problem or illness, unlinking from its real concept.

Nurse is responsible for direct patient care and is subject to many unsanitary conditioning factors

and stressors in the workplace, which has raised restlessness⁽¹¹⁻¹²⁾.

Adequate functioning of the unit, personnel administration and working conditions were rated as the most stressful, which corresponds to alert to high stress. Study with emergency nurses also found alert for high stress level with the highest scores in the areas relating to activities related to personnel administration and labour exercise of coordination of the unit activities and nursing care provided to the patient⁽¹¹⁾.

Significant differences between the scores of the areas studied in the multiple comparison Friedman test and compared by pairs of areas (A and C, A and E, D and C, D and E, D and F) in the Dunn post-test have shown that the stress perceived by nurses in each of the areas was really different, allowing to consider the difference between the level of stress in each area.

In the relationships with other units and seniors, most professionals were in average and on alert for high level of stress, possibly because they represent activities that support the nurses' work. Among the activities cited as the most stressful are: the relationship with pharmacy staff, with removal service and laboratory staff, basic services for the continuity of nursing care to the patient.

Dispensing of drugs by the pharmacy, transportation and removal of patients to other units and/or collecting samples for examination and delivering laboratory results are activities that often are the nurse's responsibility, even not being their legal competence, which can be a generating stress by the workload and deviation of function.

When comparing the results of this research to another study with 19 nurses from the emergency unit in Porto Alegre/RS, we see that 47.7% of subjects noticed that performing different tasks simultaneously is sometimes stressful and for 15.8% of these professionals is often or always stressful. The study also reveals that 63.2% of nurses say that

they solve unforeseen work and 21% sometimes experience situations of stressful work. Experiencing uncertainties and contingencies are a threat, which requires to be prepared for any type of event, care and managerial decision making quick and effective⁽¹²⁾.

Developing clinical and managerial activities at the same time is a condition *sine qua non* of nurses due to the inseparability of their managerial-assistance competence. Managerial activities require decision making and problem solving that arise daily in emergency. These managerial activities are causes of wear and psycho-emotional suffering, since the assistance work is already perceived as stressful⁽¹³⁾.

Activities of relationship with professionals from other sectors are necessary for the continuity of patient care, so that brings physical, mental and social stresses and therefore, overload of work, which reflects the difficulty of reconciling the assistance management with the provision of patient care, which generates most of the time, frustration in the performance of duties for nurses⁽¹³⁻¹⁵⁾.

In coordinating the activities of the unit (area B), nurses were considered on alert for high stress and the most stressful activity was writing monthly report of the unit classified on alert for high stress. It is an eminently management activity and it is observed that is also developed by clinical nurses, the most in this research, which suggests an increase in the workload of nurses as previously discussed, the accumulation of functions and powers, as well as their caring roles.

Regarding the adequate functioning of the unit (area C), nurses were on alert for high stress and the most stressful activities were: review request and repair of equipment, provision of materials to be used and material replacement. We emphasize that all activities in this area were on alert for high stress level with scores above 4, being able to consider that inadequate or ineffective operation of the unit can lead to situations of high stress.

By considering the levels of stress and the

stressors activities related to the coordination of the activities of the unit (area B) and adequate functioning of the unit (area C), it is suggested an accumulation of managerial tasks to the assistance nurses, and generates, in response, an increased of stress levels. Managerial activities are important sources of suffering due to the difficulties in the nurse relationship with the work team, and these activities are responsible for the extra work when added to welfare activities. It must also be emphasized the roles assumed by nurses in professional practice, since they assume powers that exceed their responsibilities and activities that could be undertaken by other health professionals⁽¹³⁾. This is due also to a crisis in health services, with reduced number of professionals, materials and equipment, especially in the context of nursing professionals. The example of material resources for the development of work, this shortage causes improvisation and the search for materials in other sectors, which can generate physical and mental fatigue for the time spent⁽¹⁶⁾.

Need for changes in the managerial paradigm in nursing services has been discussed, with the understanding that it is necessary to move from a bureaucratic, hierarchical and individualistic vision for a more participatory, flexible and focused approach in collective dimension with the participation and commitment of all for valuing human life, which would lead to a less stressful job ratio⁽¹⁵⁻¹⁶⁾.

However, high levels of stress related to the functioning of the unit, cannot be reduced only with an appreciation of the skills that qualify the professional or the development of the individual to acquire skills needed for professional practice, but also with the State's own effort in trying to improve the work environment and the management process of the emergency services in the search for the quality of services and professional satisfaction, above all, reduce nurses' exposure to stressors facts.

The nursing care provided to the patient was

the one that brought less wear for nurses, considered at low stress levels. In nursing care, attend relatives of critically ill patients was the most stressful activity for nurses.

Nurse's activity involves the patient, family and staff, since his performance is complex and diverse. In this process of care, the nurse is the mediator between the nursing staff, the client, family and other professionals, establishes a communication link in the pursuit for balance between the developed relationships, which can be a generating factor of stress⁽¹⁷⁾.

The family plays a key role in the socio-cultural context, performance and socialization of its members, regardless of its structure. The family is perceived as a unit, and in a broader sense, involves friends, factor necessary of support and protection of the individual⁽¹⁸⁾.

Process of communication between the nurse and the family is perceived as a conducting wire of the therapeutic bond, fundamental in work, so that requires professional training and communication strategies. This communication, to be therapeutic, must be conveyed by the nurse, considered the originator of messages for guidance to family members, however, if it does not happen that way, breaking bad news to patients and other family members, can create stressful situations to everyone involved in the communication process, the nurse, patient and family⁽¹⁸⁾.

Working conditions (area E) led the nurses to alert to high stress level, and the noise in the unit was the most stressful activity on alert for high levels of stress, which may have consequences for the nurses' work and health. Elevated scores on the level of noise in the unit were also found in another study with emergency nurses⁽¹⁷⁾, confirming the findings of this research.

Study reveals that stress in emergency room nurses of Brazilian hospitals causes high levels of

stress in relation to the noise of the unit are related to the exposure time of the nurse and the repetitiveness of the noises that are common in the emergency department, leading the body to release corticoids, epinephrine and norepinephrine as a physiological result of exposure to stressors and can also lead to stress⁽¹⁷⁾.

Regarding personnel administration (Area F) nurses were on alert for high stress level, feel more stress to control the nursing staff. The nurse of the emergency unit has a characteristic assistance work but also develops managerial skills activities like controlling the nursing staff in its duties. However, the managerial activity requires availability of time for its execution, which compromises patient and family care, with multiple duties, leading to situations of stress and burnout.

Vocational training is also responsible for these problems because it is anchored in a traditionalist approach of management, able to influence nursing practice, once in the work market, faces a relationship of vertical power, numerous tasks to be performed without finding an organization based on equitable distribution of tasks by professional competence⁽¹⁵⁾.

There is a difficulty in developing the management of nursing care in the direct care of the patient along with performing tasks for managing people and managing the work sector, which may explain the suffering and frustration⁽¹⁴⁻¹⁵⁾.

The way of managing people underwent changes and should be directed to a focus on human relations. The two major changes in this context were the professional profile required and shifting the focus of managing people by controlling for management to people development and participation, since the appreciation of the skills that an individual possesses is important to qualify him for the job⁽¹³⁻¹⁵⁾.

It is understood that a process of change in

people management model is needed, and seek valuing human relationships and individual skills at work. For nurses must be prepared to change and adapt to new situations, be flexible, be able to relate, take on challenges, among others, as they are necessary requirements for the nurse's new profile⁽¹³⁻¹⁵⁾.

Nurses felt more stress on the functioning of the unit and less stress with nursing care. Nurses who possess both clinical and managerial positions have higher stress levels than those with assistance position; everyone realized that the functioning of the unit (area C) reflected increased wear. The clinical nurses perceived less stress in relationships with other units and seniors and nursing care. For nurses, who have both caring and managerial position, nursing care was less stressful. We note that the allocation of managerial activities to clinical nurses may raise levels of stress, especially in relation to the operation of the unit.

Managerial activities are presented as the main causes of occupational stress for nurses; they are associated with the characteristics of nursing work. In this context, there is the conflict of roles between the roles of clinical nurse and managerial nurse, with managerial responsibilities assumed by clinical nurses. Strategies that enable the reduction of these stress levels are required, along with clear definition of roles and responsibilities of nurses, to enable management support in carrying out the activities^(14,19).

Interventions related to work are important for improving emergency nurses' occupational health and should focus on reducing the demand for work, increasing job control, better social support system and a well balanced reward⁽¹⁴⁾.

Stress experienced at work can influence nurses private and family life, being viable strategies needed to be taken by hospitals to reduce the stressors^(16,20).

Regarding the stress levels by institution, it was found that nurses from the Institution A are more stressed than Institution B in all areas checked. In Institution A, the adequate functioning of the unit achieved the highest score and in Institution B, personnel administration achieved the highest score.

This difference in stress levels of the Institution A in relation to Institution B is suggestive that is something peculiar of the institution, inherent in the working environment, as highlighted by the interactive theory, where the individual perceives the environment as a stressor⁽⁶⁾. However, those are data that require further investigation in an attempt to elucidate the management process and its relationship to the stress levels in nurses, considering that the most stressful activities and areas identified in the results were related to the adequate functioning of the unit and personnel administration.

Requirement of working in emergency and the low control over the work process of the nurse to achieve simultaneously perform the clinical and managerial activities can generate wear at work and raise stress levels. The wear at work is related to excessive workload and lack of emotional support, negative factor for the professional. And factors such as interpersonal conflict, lack of social support may also affect the efficiency at work⁽²¹⁾.

When the level of control over the work activities is low, the levels of stress accumulated over a given period of time decreases the ability of learning and assimilating new strategies of *coping*, among the consequences are physical and emotional exhaustion. It is therefore important to have an effective control of work in emergency⁽²²⁾.

Thus, the stress experienced by nurses in the workplace in emergency can be harmful not only to the work context, but also for nurses' health and quality of life. The wear and tear on the work requires from nurses significant mechanisms that promote stress

management, so that contributes to the reduction of physical and psychological symptoms that may come at the expense of stress suffered.

Conclusion

Stress of nurses in emergency departments was related to the work environment and managerial activities undertaken concomitant with assistance activities. Nurses were in a state of alert for high stress, however, were recognized at a high level of stress.

Nurses were in average level of stress considering the level of stress classification from the total average scores of BSS. Relationship with other units and seniors, and nursing care provided to patients were the areas with lower stress scores. Adequate functioning of the unit and personnel administration and working conditions were the most stressful areas. The perceived stress in each area is significantly different. Request for review and repair of equipment and writing monthly report of the unit were the most stressful among the activities.

Nurses who held concurrently assistance and managerial positions had higher stress scores than nurses working only for assistance, with higher levels of stress in relation to working conditions and personnel administration. The study had limitations in relation to the small sample size as a result of the nurses' refusal of participating in the research, due to the short time available to respond to the instrument.

New researches on the managerial activities of nurses and conflict of roles in management and assistance activities are needed to further elucidate the findings. Adoption of strategies by the manager and the proper professional for coping with stress at work should be taken to reduce the levels and prevent the occurrence of health problems arising from this wear suffered.

Collaborations

Fonseca JRF contributed to project planning, design, analysis and final writing of the article. Lopes Neto D contributed to project planning, analysis and interpretation of results, final review and approval of the article.

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