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Factors that cause stress for physicians and nurses working in a pediatric and neonatal intensive care unit: bibliographic review

Fatores que tornam estressante o trabalho de médicos e enfermeiros em terapia intensiva pediátrica e neonatal: estudo de revisão bibliográfica

ABSTRACT

Objectives: Bibliographic review on occupational stress and burnout presence in physicians and nurses that work in pediatric and neonatal intensive care units.

Methods: The articles were selected from the MedLine, LILACS and SciElo data base using the key words: stress, burnout, physicians, nursing, intensive care unit, pediatric intensive care unit and neonatal intensive care unit. The studied period was from 1990 to 2007.

Results: Health professionals who work in pediatric and neonatal intensive care units are strong candidates for developing stress, psychological alterations and burnout syndrome. Research-

es on this subject identified important alterations suffered by these physicians and nurses, such as: work overload, burnout, desires of giving up their jobs, high levels of cortisol, among other alterations.

Conclusions: Professionals, who work in pediatric and neonatal intensive care units, due to the specificity of their job, are liable of developing occupational stress, and consequently burnout. These results suggest the need to research the matter further, with the objective of developing preventive measures and intervention models.

Keywords: Burnout, professional; Intensive care units, neonatal; Nursing; Stress/etiology; Physicians

INTRODUCTION

In the last years, the relationship between occupational stress and the workers' mental health has been the subject of many studies¹⁻³ in our environment as well as in other countries, due to the alarming levels of temporary incapacitation, absenteeism, early retirements and health risks associated to professional activity.⁴

Several studies⁵⁻⁹ developed theoretical models in order to evaluate the prevalence of emotional problems and professional dysfunctions in the occupational setting and to identify the phenomena which are comparable in multiple working places and with different occupational groups. These models include the evaluation of the capacity of the professional to adapt to stress¹⁰, the development of the burnout syndrome,^{7-8,11} the control over the job and the psychological demands that result from it⁵⁻⁶ and the balance between effort and reward in the job that continuously provokes emotional and physiological reactions.⁹

Nowadays, there is enough information affirming the need to dedicate more attention related to the physicians' and nurses' health,^{3,12-13} especially to their

mental health.^{1,13-18} Candeias et al. point out that the hospital setting in itself generates stress in different levels. Death, an inherent fact in hospitals, demands a very strong emotional control of the health professionals in relation to the patients and their relatives¹⁹ Physicians and nurses of high complexity specialties, who often work in the limit of life and death, such as emergency and intensive care units, are more exposed to psychological stress.²⁰⁻²²

The effect of occupational stress in physicians and nurses from intensive care units, as well as the physical and mental overload is emphasized in literature.²⁰⁻³² Stress can be of utmost importance in a pediatric and neonatal intensive care unit (PNICU), as the interpersonal relations between staff and relatives can create dysphoric and depressive reactions in the professionals.³¹

Burnout is present in these units, and it has been identified in considerable levels, due to working conditions and specific characteristics of the work that create physical and emotional demands in regard to critically ill patients.³²

In face of these results, it is valid to affirm that the studies in question agree to the fact that working in intensive care units creates occupational stress and burnout in physicians and nurses, but there is not a consensus as to which factors trigger these phenomena and how they express themselves. This review aims to identify the organizational and professional factors related to the presence of stress and burnout, and to verify if the literature presents evidence if occupational stress is a consequence

in these factors (overload of work, turnover, overcrowding, inadequate physical space, high levels of noise, professional unpreparedness, professional dissatisfaction, among others).

METHODS

A bibliographic review on occupational stress and burnout in physicians and nurses who work in PNICU was done. The articles studied were researched in MedLine, LILACS and SciElo data bases, using the key words: stress, Burnout, physicians, nursing staff, intensive care unit, pediatric intensive care unit and neonatal intensive care unit. The studied period was from 1990 to 2007. We included all articles that reported original investigations on the matter, excluding all systematic reviews and meta-analysis.

RESULTS

We identified 18 studies, of which 11 were descriptive investigations, 3 were longitudinal prospective studies and 4 were qualitative studies (Chart 1). Only three studies (two descriptive investigations and one prospective study) evaluated stress among physicians and 17 evaluated the nursing staff.

Five of the transversal descriptive studies³³⁻³⁷ measured the burnout levels of the professionals, pointing

Chart 1 – Synthesis of the studies presented

| Authors | Place | Type of Study | Samples (N) | Instruments | Results |
|--------------------------------|---------|---------------|---------------------------------------|---|---|
| Oehler et al. ³⁴ | England | Transversal | 49 neonatal ICU nurses | Maslach Burnout inventory; state-trait anxiety inventory; nursing stress; social support measures | Moderate emotional exhaustion, with depersonalization and lack of personal satisfaction; relation between anxiety and stress at work and lack of support from colleagues. |
| Benica et al. ⁴⁰ | USA | Transversal | 99 pediatric ICU nurses | Stress audit | High stress levels due to high rotation of shifts; insufficient information and professional inability. |
| Oehler, Davidson ³⁵ | England | Transversal | 121 pediatric and neonatal ICU nurses | Maslach Burnout Inventory; state-trait anxiety inventory; nursing stress scale; social support measures | Stress was associated to burnout. |
| Downey et al. ⁴³ | USA | Transversal | 50 neonatal ICU nurses | Stress audit | There is an increase of stress associated to the presence of emotional exhaustion; physical exhaustion, irritability and depersonalization |
| Fields et al. ³⁶ | USA | Transversal | 387 pediatric ICU physicians | Burnout scale (elaborated by the authors) | 14% presented Burnout syndrome |

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| Authors | Place | Type of Study | Samples (N) | Instruments | Results |
|---|----------------|--------------------------|--|---|---|
| Oates, Oates ³⁸ | Australia | Transversal | 34 physicians and 192 nurses of a neonatal ICU | Goldberg's questionnaire on general health | 27% of the physicians and 32% of the nurses presented psychological symptoms. |
| Oates, Oates ³⁹ | Australia | Transversal | 192 neonatal ICU nurses | Goldberg's questionnaire on general health | 32% of the nurses presented psychological symptoms due to excess of patients and lack of physical space. |
| Heuer et al. ⁴¹ | USA | Transversal | 59 neonatal ICU nurses | Stress audit | High levels of stress due to chaotic working environment, large number of emergencies and professional inadequacy. |
| Gibbons et al. ⁴⁴ | USA | Qualitative | 33 neonatal ICU nurses | Stress audit and semi-structured interviews | Stress was a result of insufficiency and malfunctioning of the equipment; large number of emergencies, and the inability to cater to the patients' needs. |
| Bratt et al. ⁴² | USA and Canada | Transversal | 1973 nurses of 65 pediatric ICU | Group judgement scale; Job stress scale and leader empowering behaviors | Stress was a result of the presence of certain staff members, organizational aspects and the relationship with the patients' relatives. |
| Fischer et al. ⁴⁵ | Switzerland | Prospective longitudinal | 112 nurses and 29 physicians of a neonatal ICU | Salivary cortisol levels and SF-36 | 71.3% of the stress reactions showed an increase of the salivary cortisol. |
| Bustinga Arriortua et al. ³⁷ | Spain | Transversal | 68 pediatric ICU physicians | Maslach Burnout inventory | 41% presented burnout. |
| Fischer et al. ⁴⁷ | Switzerland | Prospective longitudinal | 84 pediatric ICU nurses | Salivary cortisol levels and SF-36 | No alterations in salivary cortisol levels in stress situations. |
| Hoga ⁴⁸ | Brazil | Qualitative | 3 neonatal ICU nurses | Semi-structured interviews | Stress was present in unpredictable situations; due to constant attention in the care giving and in the relationship with the patients' relatives and between the staff. |
| Morrison et al. ⁴⁶ | USA | Prospective longitudinal | 11 pediatric ICU nurses | Salivary amylase levels, stress scale (specific rating of events scale) and audiogram | Salivary amylase levels did not vary in stress situations; stress was triggered by noise levels in the ICU. |
| Jofré, Valenzuela ³³ | Chile | Transversal | 26 health professionals (nurses, aides and paramedics) | Maslach Burnout inventory | 7.7% with burnout and low personal satisfaction. |
| Gomes, et al. ⁴⁹ | Brazil | Qualitative | 1 nurse and 7 aides in a neonatal ICU | Semi-structured interviews | Stress appears in situations of strict time control; lack of materials and adequate equipment; difficult relationship within the team; double shifts and death of the newborns. |
| Cronqvist et al. ⁵⁰ | Sweden | Qualitative | 8 neonatal ICU nurses | Semi-structured interviews | Stress experiences depend on the interconnection of structural and existential factors lived by the nursing staff. |

ICU – intensive care unit, N – number

out the relationship between burnout due to professional exhaustion and lack of personal accomplishment, and therefore, greater stress.

Oehler et al., evaluating nurses intensive care units in both studies, found in the first a percentage of 24% for emotional exhaustion, 7% for depersonalization and 32% for lack of personal accomplishment in the work, in other words, suggestive scores for burnout, in moderate level in the subscales emotional exhaustion and depersonalization, and high in subscales personal accomplishment.³⁴ The percentage for burnout in the second study was of 66%, including the total of the three subscales.³⁵

In the studies of Fields et al.³⁶ and Arriortua et al.,³⁷ that evaluated pediatric doctors from intensive care units, it was found 36% and 41%, respectively, with risks to develop burnout; while the study of Jofré and Valenzuela informs that 65% of the studied population (nurses, paramedic and nursing assistants) had not presented propensity for burnout in the subscales emotional exhaustion and depersonalization, 53.8% had presented one high score for personal accomplishment and 7.7% only showed lack of personal accomplishment in the work.³³

Psychological alterations were prevalent in 32% of the nurses and 27% of physicians in neonatal intensive care units³⁸⁻³⁹ and these levels were associated to the presence of professional stress. With the objective of identifying the factors associated to stress, the studies agree in stating that the main factors were lack of professional formation, as well as an inappropriate intensive care setting.⁴⁰⁻⁴³ The same results were found in a qualitative approach.⁴⁴

In an attempt to evaluate objectively the levels of stress in a difficult situation, 2 prospective studies were performed by Fischer et al.^{45,47} and one by Morrison et al.⁴⁶ showing the rise in salivary cortisol and amylase salivary levels in a neonatal intensive care setting, due to the excess of noise.

Out of the four qualitative studies found^{44,48-50} three showed⁴⁸⁻⁵⁰ an association between professional stress of the nursing staff of a neonatal intensive care unit, and these issues go beyond the working place, such as: having to deal with the patient's unpredictability, the professional's relationship with the patient's relatives and with the team itself, as well as the death of newborn patients.

DISCUSSION

The results found in the studies about stress and burnout in PNICU were consistent, confirming the presence of stress in these units.

Regarding the methods of study, by a bibliographic review, we had an overall view of the types of outlines used in the investigations, in the area of occupational stress and burnout in pediatric and neonatal intensive care units. The studies thus presented, which used both a qualitative and quantitative approach, showed the need to pursue the matter further, stressing the necessity of developing a greater number of cohort longitudinal prospective studies, in order to establish the incidence of occupational stress and burnout in pediatric and neonatal intensive care units, enabling the evaluation of the relationship of stressing factors with certain diseases.

Regarding the burnout syndrome, it seems adequate to consider differentiated patterns to analyze the answers, that is, to discriminate the answers according to gender, adaptability to the organizational space, environmental and occupational factors. These characteristics should be taken into consideration for future studies that aim to investigate the professional wear out found in health professionals, as a great number of the samples studied in pediatric and neonatal intensive care units, mostly in the nursing area, are formed by female subjects, which could compromise the study regarding male professionals included in the same organizational environment.

It is a known fact that PNICU are places that generate tensions and stress, motivated by interpersonal relationship, intense emotions caused by the constant exposure to risks of dying, by the frequent oscillation between success and failure and by the demands imposed on the team. With all these stimuli, feelings such as inadequacy, insecurity and impotence arise, which can influence negatively in the interpersonal relationships and the professional ability, thus creating a vicious circle, marked for the difficulties in the interpersonal relation with patients' family, difficult relationships with some members of the multiprofessional team³⁹, desire to abandon the work, the emotional exhaustion, the lack of professional accomplishment³³⁻³⁷, the overload of work (overcrowding, unpreparedness of the team technique, inappropriate physical space) among others factors, will influence negatively in the quality of life in the work. Inasmuch, these sectors have their own characteristics, with the need of restraining personal contact outside the boundaries of the working place, they become environments with a high health liability. Then, the attention given to patients in these units is differentiated, requiring agility and ability, as they are situations of extreme urgency, where the patient's life is in risk. Also, it is an environment with very advanced technology, demanding constant updating of the team.

No prospective study was found, be it clinical trial or longitudinal cohort study, which analyzed more deeply stress and burnout, and their relation with psychological symptoms and its impact on the attention. We found studies which show the impact of the intensive care unit environment on the health professionals, suggesting that stress and burnout are caused by working conditions. More efficient personal management models need to be adopted in order to solve the conflicts for the health professionals working in this environment.

Another aspect to be considered is the need to adequate the use of technology with scientific knowledge, and the relationship between the staff and patients' relatives.

The current study presents some limitations, as a systematic review and meta-analysis of the subject in focus were not performed, because defining a single measurement to evaluate stress and burnout is very complex.

CONCLUSION

Professionals, who work in pediatric and neonatal intensive care units, due to the specificity of their job, are liable of developing occupational stress, and consequently burnout. These results suggest the need to research the matter further, with the objective of developing preventive measures and intervention models.

RESUMO

Objetivos: Revisão de literatura sobre estresse ocupacional e síndrome de *burnout* em médicos e enfermeiros que trabalham em unidade de terapia intensiva pediátrica e neonatal.

Métodos: Os artigos foram identificados a partir das bases de dados MedLine, LILACS e SciELO, usando as palavras-chave estresse, *burnout*, médicos, enfermagem, unidade de terapia intensiva, unidade de cuidados intensivos pediátricos e unidades de cuidados intensivos neonatal. O período pesquisado foi de 1990 a 2007.

Resultados: Médicos e enfermeiros que trabalham em unidade de terapia intensiva pediátrica e neonatal são candidatos a apresentarem estresse, alterações psicológicas e síndrome de *Burnout*. As pesquisas sobre a temática em questão identificaram alterações importantes que acometem médicos e enfermeiros intensivistas: sobrecarga de trabalho, *burnout*, desejo de abandonar o trabalho, níveis elevados de cortisol entre outros fatores.

Conclusões: Os profissionais que trabalham em unidade de terapia intensiva pediátrica e neonatal, pela especificidade do seu trabalho, estão expostos ao risco do estresse ocupacional e, conseqüentemente ao *Burnout*. Estes dados sugerem a necessidade de elaborar pesquisas, com o objetivo de desenvolver medidas preventivas e modelos de intervenção.

Descritores: Esgotamento profissional; Unidades de terapia intensiva neonatal; Enfermagem; Estresse/etiologia; Médicos

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