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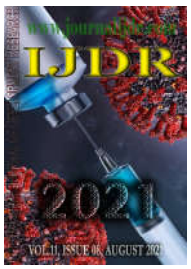

RESEARCH ARTICLE OPEN ACCESS

PSYCHOSOMATIC IMPACTS ON A QUALITY OF LIFE OF THE PROFESSIONALS OF THE URGENT MOBILE CARE SERVICES

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ABSTRACT

Aims: the objective of this study was to evaluate factors that cause psychosomatic impacts on the well-being of rescuers, with a sample of 136 professionals working in a Pre-Hospital Care service. **Method:** questionnaires were used as instruments: sociodemographic/professional, sleep problems through the Pittsburgh Sleep Quality Index and the Epworth Sleepiness Scale, Depression by the Beck Depression Inventory. The evaluation of Burnout Syndrome was realized through of the Maslach Burnout Inventory and the quality of life used the WHOQOL. Data analysis was performed using statistical software R for Windows, including descriptive and inferential statistics. **Results:** the relationship between categorical variables was made through contingency tables, where it was found that there were no correlations between professional categories and instruments used. The factors addressed may interfere in the life quality of these professionals, which was observed by correlation matrix. **Conclusion:** the professionals who had alterations in the sleep index are more likely to have depression and emotional exhaustion and consequently the quality of life will be worse.

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INTRODUCTION

Occupations related to human health care stand out, especially those inserted in the urgency and emergency environment, as these units are unique in relation to psychological demands because they are environments permeated with frustration, impotence, fear, hopelessness, helplessness, among others (BEZERRA and BERESIN, 2009). Health care is strongly associated with overcrowding, overload and a fast pace of work for healthcare professionals (DAL PAI and LAURET, 2008). Little attention has been paid to these factors, which can contribute to the performance of first-aid professionals and their general well-being, such as sleep problems, depression, substance use, social interaction and quality of life (CAREY, *et al.*, 2011). Therefore, the aim of this study was to evaluate the psychosomatic impacts, such as sleep disorders, Burnout syndrome and depression, on the well-being and quality of life of professionals at the Mobile Emergency Care Service (SAMU).

METHODS

This study was carried out descriptively with a quantitative approach. The research was approved by the Ethics and Research Committee of the Francisco Mascarenhas Foundation/Faculdades Integradas de Patos – FIP, with Certificate of Presentation of Ethical Appreciation (CAAE), nº 625.221/2014. After its approval, the participants were contacted in their work area to confirm their participation in the study through the Informed Consent Form (FICF) in accordance with Resolution 466/2012 of the National Health Council (CNS), in which refers to research involving human beings. The study was conducted at the Regional Mobile Emergency Care Service (SAMU) of Patos,

Paraíba, with the city of Patos as the central base, where the medical regulation center is located, and a comprehensive area of seven more cities, called bases decentralized, they are: Santa Luzia, Passagem, Teixeira, Condado, São José de Espinharas, São José do Bonfim and Santa Terezinha. The study population consisted of the multiprofessional team of first responders crewing all pre-hospital care transports at SAMU Regional de Patos-PB. As inclusion criteria for the research, professionals who worked in this service and who agreed to participate in the research were defined. The sample was delimited from the established inclusion criteria, such as being an interventionist professional and accepting to be part of the research, totaling 136 subjects, of which 65 are nurses, 43 are first-aid drivers, 18 physicians and 10 nursing technicians. The interviews were conducted during working hours with each professional, the team's rest room was used for this, lasting about 30 to 40 minutes with each professional, the researcher made the necessary clarifications and answered the participants' doubts. The instruments used in data collection were five previously validated questionnaires on the topics covered in this research and another one elaborated by the researcher of socio-demographic and professional characterization of these rescuers.

Pittsburgh Sleep Quality Index (PSQI) and Epworth Sleepiness Scale (ESE - BR): To assess sleep problems, the Pittsburgh Sleep Quality Index (PSQI) was used, the PSQI consists of an instrument composed of 19 questions related to normal sleep habits referring to the month before the individual is found (BUYSSE, *et al.*, 1989). The Epworth Sleepiness Scale (ESS - BR) was also used to assess sleep problems, which allows for the assessment of sleepiness behavior presented in common everyday situations (JONHS, 1991).

Depression Assessment Survey: In the survey to assess depression, the Beck Depression Inventory (BDI-II) was used, which is an instrument to measure depressive behavior. The BDI-II has 21 multiple-choice questions, including symptoms and attitudes, whose intensity ranges from 0 to 3 (BECK, *et al.*, 1988).

Survey for the evaluation of burnout syndrome: To investigate the Burnout Syndrome in these professionals, the validated Maslach Burnout Inventory – Humam Services Survey (MBI-HSS) questionnaire was used (MASLACH,*et al.*, 2001). In this inventory (MBI), it is evaluated how the subject experiences his work, according to the three dimensions proposed by Maslach: Emotional Exhaustion (9 items), 1, 2, 3, 6, 8, 13, 14, 16 and 20. Personal Achievement at work (8 items) 4, 7, 9, 12, 17, 18, 19 and 21. Depersonalization (5 items) 5, 10, 11, 15 and 22; totaling 22 items that indicate the frequency of responses with a scoring scale ranging from 01 to 07. Each of the MBI components is analyzed separately as a continuous variable.

Quality of life assessment: In the assessment of quality of life, the validated questionnaire of the World Health Organization Quality of Life, WHOQOL – BREF (WORLD HEALTH ORGANIZATION, 2004) was used, which is the abbreviated version of the WHO generic instrument to assess the quality of life of people (ROCHA and FLECK, 2009).

Statistical analysis: Data were imported into the statistical SW and the scores of each instrument were calculated according to the instructions in their respective manuals (WORLD HEALTH ORGANIZATION, 2013). For the relationship between categorical variables, contingency tables were used. The evaluation of these tables was performed using Chi-square tests without Yates' correction. In situations where more than 20% of the cells to be compared had an expected frequency of occurrence less than five, or any of the cells for tables of any size with an expected frequency less than one, Fisher's exact test via Monte Carlo simulation was used (run with 2000 simulations). For continuous variables, the one-way ANOVA test was used for different variances between groups. For the relationship of numerical variables, Pearson's correction was used. In the inferential analysis, the statistical significance normally considered for levels of $p < 0.05$ was corrected using the Bonferroni correction to avoid the inflation of the Family Error Rate. Data were analyzed using the statistical software R for Windows, version 3.1.0 and its packages Hmisc version 3.14-4 (2013-07-10), gplots version 2.14.1 (2014-06-30), gpairs version 1.2 (2014 -03-09) and epicalc version 2.15.1.0 (2012-09-19). About the inferential results, we present the results (p-values) of each statistical test individually. The total of tests performed sums up to 49, all of them applied to 136 cases.

RESULTS

Workplace and professional profile: Most drivers are male (42 - 97.7%) and only 01 - 2.3% female. Regarding the workplace, 72.1% work in Patos; 9.3% in Passage; 9.3% in Teixeira; 4.6% in São José de Espinharas; 2.3% in Condado and 2.3% in Santa Luzia. The weekly workload can vary according to the place and type of work, with a workload of 36 hours per week (23 - 53.5%), 48 hours (44.2%) and only 2.3% with 40 hours. Drivers who work at the central base in Patos-PB work a fixed 24-hour shift on weekdays and a 12-hour shift on weekends. Those who work in the decentralized bases work 24 hours a day and leave 72 hours off. And the coordinator works 40 hours a week from Monday to Friday. The existence of other employment relationships was also addressed in this study and revealed that 67.4% do not have another relationship while 32.6% do. There was a predominance of female nurses with 77% and 23% male. Of the 65 nurses interviewed, 63% work in Patos, 7.7% in Santa Luzia, 6.2% in Condado, 6.2% in Passagem, 6.2% in Teixeira, 6.2% in São José do Bonfim and 4.6% and São José de Espinharas. The weekly workload is divided between those who work 36 hours (58.5%), 40 hours a week (4.6%) and 48 hours (36.9%). Nurses who work at the central base work 24 hours a day on a fixed shift a week and a 12-hour shift on the weekend, totaling 36 hours a week. In decentralized bases, nurses work 24 hours and leave 72 hours, thus having a greater workload. Those who work 40 hours a week are in positions linked to coordination. About the existence of other bonds, 50.8% have and 49.2% do not. The male physicians category corresponded to 94.5% of respondents and only 5.5% females. Regarding the workplace, there are only doctors in the cities where they have advanced support ambulances, Patos and Santa Luzia, with 88.9% working in Patos and 11.1% working in Santa Luzia. The workload of these professionals varies between 24 hours (55.5%), 36 (22.2%) and 48 hours/week (22.2%). All have another employment relationship (100%). As for nursing technicians, there is a predominance of females with 70% and males with 30%. From the entire region of Patos, only nursing technicians work in Patos and Santa Luzia. 70% are in Patos and 30% in Santa Luzia. In a workload of 36 hours per week, 80% of these professionals total, 10% with 40 hours and 10% with 48 hours. About the existence of other employment relationships 70% do not have and 30% do.

Total Beck Depression Inventory (BDI) level and professional performance: Assessing the professional category and levels of depression, it was observed that 32.3% of rescuer drivers, 45.7% of nurses, 14.2% of physicians and 7.9% of nursing technicians had a low level of depression. At the moderate level, 25% of drivers and 75% of nurses were found, the other categories did not score. And at the significant level, only nurses were found (Fisher's exact test, $p = 0.722$).

WHOQOL-Bref Physical Score: According to the physical WHOQOL-Bref score, there was no significant difference between the professional categories (Figure 1). And for the psychological dimension of this test, there was no statistical difference between professional categories (Figure 2).

Total PSQI score and professional performance: According to the analysis of sleep quality by PSQI, it was observed that 90 subjects have sleep disorders and 46 have normal sleep quality. By categorization, subjects with normal sleep were distributed among 34.4% drivers, 45.6% nurses, 13.3% physicians and 6.7% nursing technicians.

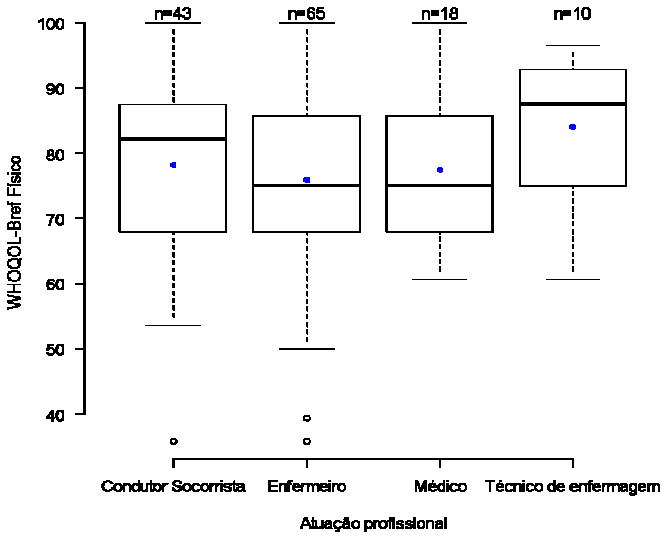

Figure 1. Boxplots of the scores of the «physical» dimension of the WHOQOL-Bref by professional performance of the rescuers in the study. Patos-PB, 2014. One-way ANOVA test, p = 0.31.

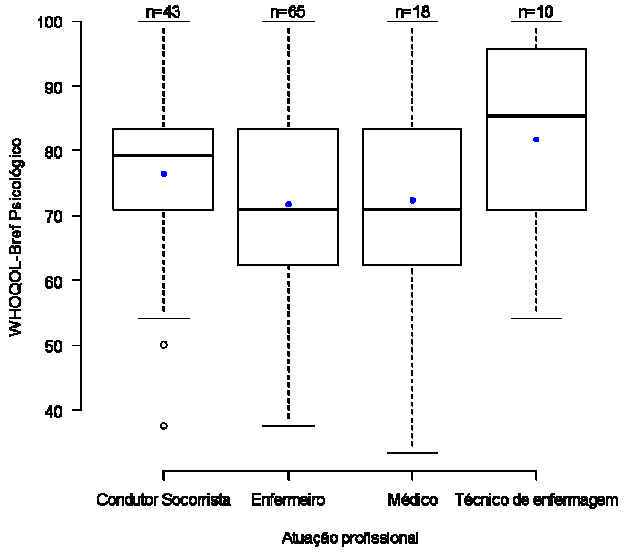

Figure 2. Boxplots of the scores of the « psychological » dimension of the WHOQOL-Bref by professional performance of the rescuers in the study. Patos-PB, 2014. One-way ANOVA test, p = 0.31.

Those who had altered sleep totaled 26.1% of drivers, 52.2% nurses; 13% physicians and 8.7% nursing technicians. There was no significant difference between the categories (Chi-square test, p = 0.77).

ESE sleepiness score and professional performance: Regarding the level of sleepiness obtained by the ESS-BR, the medium level predominated with 61 professionals, 56 with normal sleepiness, 18 with discharge and 1 with dangerous score. Among the normal data, we obtained 46.4% of drivers; 37% nurses, 10.7% physicians and 7.1% technicians. With an average score, 24.6% drivers, 54.1% nurses, 14.8% physicians and 6.6% nursing technicians scored. With high sleepiness, 11.1% were drivers, 66.6% nurses, 11.1% physicians and 11.1% technicians. And of the index with dangerous score, only 1% physician presented (Fisher's exact test, p = 0.032).

Burnout Score - Emotional Exhaustio: As for emotional exhaustion (EE) assessed by the MBI-HSS, it was found that 107 participants had a low level, 24 subjects had a moderate level and only 5 subjects had a high level. Of those with a low level, 34.6% are drivers; 43.9% nurses; 12.1% physicians and 9.3% nursing technicians. In moderate EE, 20.8% are conductors; 62.5% nurses and 16.7% doctors. In the high rating he was 20% driver; 60% nurses and 20% physician. There was no difference between professional categories (Fisher's exact test, p = 0.375).

Burnout Score of depersonalization (DP) and professional performance: Regarding PD, 102 subjects were found with low scores, 25 moderate and 9 with high scores. With low scores were 33.3% drivers, 48% nurses, 9.8% doctors and 8.8% technicians. In the moderate index there were 28% drivers, 52% nurses, 16% physicians and 4% technicians. In high depersonalization there were 22.2% drivers, 33.3% nurses and 44.4% doctors. There was no significant difference between categories (Fisher's exact test, p = 0.247).

Burnout RP score and professional performance: When evaluating the personal achievement (PR), a total of 77 subjects in the sample with high level, 31 low and 28 moderate. Those who scored low on personal achievement were 32.3% drivers, 48.4% nurses, 9.7% physicians and 9.7% technicians. In moderate personal achievement, there were 35.7% drivers, 46.4% nurses, 10.7% physicians and 7.1% technicians. In personal discharge, there were 29.9% drivers, 48.1% nurses, 15.6 physicians and 6.5% technicians (Fisher's exact test, p = 0.975). Only 0.7% of the entire sample had Burnout.

Correlations between scores: To analyze the hypothesis of correlations between the scores of the various instruments, 49 correlations were made. For the number of cases in this study (136), the value of the critical correlation coefficient (in module) adopted was 0.1684 for each correlation individually. It is inferred from the matrix data that the first "total" histogram referring to the WHOQOL-Bref, correlated with its physical and psychological dimensions, with the sleepiness index (total PSQI), depression, emotional exhaustion (EE); and a little with depersonalization (DP) (Figure 3).

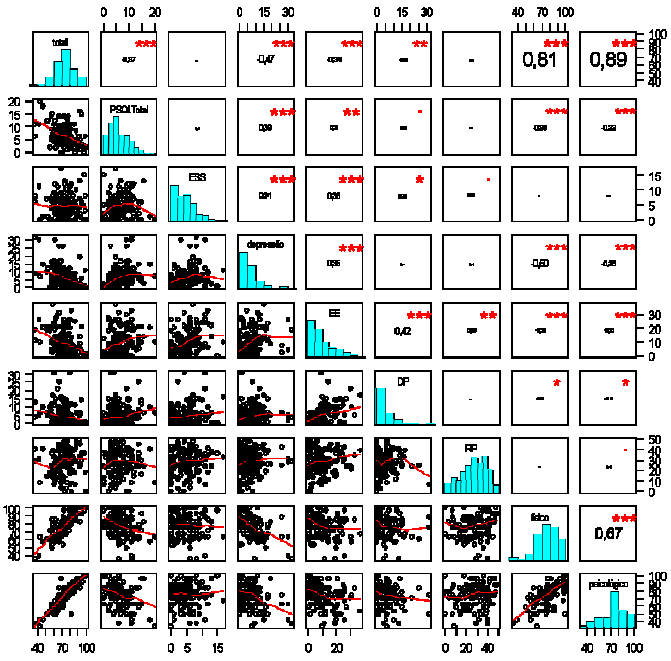

Figure 3. Matrix of correlations of the scores of the various assessment instruments for rescuers in this study. Patos-PB, 2014. Significance codes: 0 '*' 0,001 '**' 0,01 '*' 0,05 '.' 0,1 ' ' 1**

The total PSQI correlated well with depression, the physical and psychological dimensions of the WHOQOL-Bref, with EE in a smaller proportion and little with PD. The ESS, Epworth sleepiness scale, correlated with depression and EE, to a lesser extent with PD and RP. Depression was correlated with almost all instruments, with no correlation only with PD and PR. Thus, the greater the depression, the greater the sleepiness, the greater the sleep rate, the greater the emotional exhaustion, the lower the quality of life, as well as its physical and psychological dimensions. In EE, there was a correlation with all analyzed instruments. PD correlated with EE, a little with quality of life (total) and, to a lesser extent, with physical and psychological dimensions, ESS and PSQI. RP showed no significant

correlation. Only a trend with EE, and to a lesser degree with ESS and the psychological dimension. The physical dimension of quality of life is correlated with the psychological dimension, with quality of life, PSQI, depression, EE and a little with PD. The psychological dimension was correlated with quality of life, total PSQI, physical dimension, depression, EE; to a lesser extent with PD and RP (Figure 3). Correlations whose statistical significance (level 5%) are equal to or greater than this value are indicated by asterisks, and the strength of the correlation by the font size of the value entered in the graph.

DISCUSSION

The present study contributed to the evaluation of some aspects that may cause psychosomatic impacts on the well-being of professionals at the SAMU Regional de Patos, such as problems related to sleep, depression, Burnout syndrome and quality of life, evaluating whether there is an association between the categories. professionals and the instruments used. Double working hours often lead to work overload by itself. In addition, there are a large number of nursing professionals who are women and the female condition, in turn, also adds other activities at home, with a synergism between the attributions of this professional, which can lead to stress (ZONTEK, *et al*, 2009). In this sense, the alternating shift modality is considered as negative effects, as this can produce losses in the quality of sleep, preventing good physical performance, reducing the level of attention and significantly disturbing motor coordination and mental rhythm (HAYBATOLLAHI and GYEKYE, 2014). Most adults do not feel completely refreshed from their need for sleep with less than 7 hours a day, although sociocultural demands usually lead them to sleep less than their endogenous need. People with very little sleep need, such as 3 hours/day, without any physical, mental or intellectual impairment, are rare (MONK, *et al,* 2001). Sleep deprivation in rescuers is a constant factor, as there is no way to define a fixed rest time for this type of service, since the occurrences do not have a time to occur, nor how to control the frequency of calls (HIDALGO, *et al,* 2003). In a previous study, they observed a 30% prevalence of subjective excessive sleepiness, which is comparatively higher than that found in patients with depressive disorder, whose prevalence is around 10% (BITTENCOURT, *et al,* 2005). Epidemiological studies are unanimous regarding the high prevalence of sleep disorders. This high prevalence and multiple comorbidities make sleep disorders a significant health problem for on-call professionals. Sleep-related illnesses are associated with sleep-disordered breathing, cardiovascular, dental and learning behavioral impairments, and excessive daytime sleepiness, which is responsible for the high rates of traffic accidents (CAMARGO, *et al,* 2013). Our study showed that, in the assessment of the scores of the Pittsburg Sleep Quality Index and the professional categories, there was no association between them. However, about 66.2% of the sample have altered total sleep rate. It is common for workers on duty who are used to the shift and shift system of the service to present some problem related to sleep. It is important to emphasize this aspect, as people with sleep-related disorders show energy depletion when faced with mental and physical activities of the day, making them slower, with less concentration, reactions are more vigorous and the body responds with greater pain sensitivity (ARAÚJO, *et al,* 2013). Working in day and night shifts has been causing major changes to workers' health with regard to psychological, physical and emotional aspects and in their social, family and interpersonal aspects (ZHANG, *et al,* 2016), however in this sample, despite the higher percentage of them having an alteration in the sleep index, most of them did not maintain depressive states. The results presented here demonstrate that there was no difference between the BDI-II scores between the professional categories. Among the first responders, a small number of cases with moderate (5.9%) and significant (0.7%) depression was demonstrated, which may be related to work that has a common goal: to provide the best care, in a shortest time possible. Burnout syndrome, considered a pathological, adaptive and chronic process, associated with the psychosocial demands of working directly with people, installing itself over time and gradually, appearing when the stress in the work environment is very intense and the very basic personal satisfaction (O'DWYER, *et al,* 2017) was found in 0.7% of the sample in this study. The results obtained here denoted that 78.7% of the sample had a low EE, 75% a low DP and a high value (77%) in relation to the low PR, not presenting significant cases of Burnout in this study. Nurses are more emotionally and professionally exhausted in relation to nursing technicians and assistants, and nurses with less professional experience have higher levels of Burnout when compared to more experienced ones, as the number of technicians in this study was very small. it is possible to make such a comparison with nurses, as they represent the majority of the sample (47.8%) (MEALER, *et al,* 2009). Our study did not present relevant cases of professionals with Burnout, this may be related to the fact that SAMU Regional de Patos is a recent service, with only eight years of experience, has young professionals and a staff of professionals with constant changes. In the evaluation of the three dimensions of Burnout syndrome, it was found that there is no correlation between any of these dimensions with the professional category and there was only one case of Burnout syndrome in the entire sample. In EE and DP, the low level prevailed and in the low RP the high level prevailed. Depression and quality of life are closely related constructs, to the point that some authors suggest that they are tautological or redundant measures, which end up measuring a single construct (ANGERMEYER, *et al,* 2002). As for the quality of life of health professionals, this is essential for them to be able to safely, motivate and effectively perform their services to the population. In view of the evaluation of this study, there was no correlation between the scores between the professional categories.

In APH, the quality of life associated with work is directly related to the satisfaction and well-being of these professionals in the performance of their tasks, and it is essential to productivity and the realization of effective health care, free from further harm to the patient and institutions responsible for receiving, stabilizing and rehabilitating this population. A survey conducted at the SAMU in Florianópolis, Santa Catarina, revealed that professionals feel satisfied with their health and most, equally, positively assess their quality of life (STUMM, *et al,* 2009), as observed in this study by the data obtained through quality of total life and its physical and psychological dimensions, where there was no association between the scores of the instruments and the professional categories. It was observed in this study that the quality of life (total) was correlated with the sleepiness index (PSQI - total), with depression, emotional exhaustion, depersonalization and with the physical and psychological dimensions of quality of life. Thus, the worse the physical and psychological dimensions, the higher the sleep rate, the greater the depression, EE and PD, the worse the quality of life, and it can be statistically inferred that the opposite is also true. The physical and psychological dimensions of the WHOQOL – Bref in this research showed the same correlations, and could be analyzed together. The higher the physical and psychological levels, the higher the quality of life and the lower the sleep rate, depression, EE and PD.

CONCLUSIONS

In this study, we observed that the higher the sleep index, the lower the quality of life and its physical and psychological dimensions, the higher the levels of depression and emotional exhaustion, that is, professionals who had changes in the sleep index are more likely to have depression and emotional exhaustion and consequently the worse the quality of life. Work at the SAMU can be considered a negatively determining element of the quality of life levels of those who perform their work functions in this type of space, as these institutions usually have a rhythm of urgent and emerging demands, often frustrating, which are potentially exhausting.

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