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Degree of stress among shipyard workers: cross-sectional study

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ABSTRACT

Aim: describe the degree of stress of the shipyard workers, according to the dimensions of demand and control. **Method**: descriptive research of the sectional type. A self-applied structured questionnaire was used. Demand and control were measured by the scale adapted to Portuguese, based on the short version of the Job Stress Scale. **Results**: among the 114 participants, the following points were presented.: Demand 11 points, with 63.2% of workers below the median; and Control 12 points, most employees with scores below the median (57.9%). Most of the workers were in low demand (36.8%). **Discussion**: the environment and the proper relationship to the work activity, according to the conditions in which they occur, can also produce physical and mental wear. **Conclusion**: the low demand situation provides greater motivation to create and develop positive behavior at work. It's should also be alert to the need to develop inter-institutional and multidisciplinary actions in mental health and work.

Descriptors: Burnout, Professional; Occupational Health; Working Environment; Quality of Life.

INTRODUCTION

The term "stress" is used as the cause or explanation for numerous disorders that afflict modern human life[1,2]. In addition, it is often associated with feelings of discomfort - many people define themselves and to other people as stressed[3]. Stress is often seen as something counterproductive and negative, which causes damage to the individual's quality of life[4].

Hans Selye[5] gave prominence to the concept of stress, popularizing the term. The picture given here is characterized by abnormal wear and/or reduced work capacity, caused primarily by prolonged disproportion between the degree of stress to which the individual is exposed and the ability to support it. Thus, it is not considered to be a disease or distinct nosological situation, but potentially source of emotional disorders[1,6].

As social human action, the work includes man's ability to produce both for himself and for the environment in which he lives. In the process of interaction with nature mediated by produced instruments, man, while modifying the nature, is also changed by it[7.8].

These situations provide a set of restrictive responses that can be emotional (increased dissatisfaction, disinterest and irritability), physiological (increased blood pressure, heart rate and hormone levels) and/or behavioral (fragility of interpersonal relationships and difficulty concentrating), favoring a decrease in individual health and well-being[9,10].

Regarding the psychosocial work study, Karasek and Theorell understand that the cause-effect relationship of stress occurs by a complex system involving the interaction of multiple factors[11]. Stress represents an unbalanced system as a whole, in particular the control system, which includes a biological level, a psychoendocrine level and also a level of cognitive and interpersonal function[12].

The demand-control model, originally developed by Robert Karasek[13], considered the interaction of two components that could favor the wear at work: psychological demands and job control. Subsequently, the model now includes a third dimension - the perception of social support of work developed by Johnson and Hall[14]. The demands are pressures of a psychological nature, being either quantitative, as time and speed in performing work, or qualitative, as conflicts between contradictory demands. Control is the ability of the worker to use their intellectual skills to carry out their work as well as having sufficient autonomy to make decisions on how to do it[11,15].

The organization of work is becoming an important social instance in mental health--disease process. Such an organization shall take effect on the worker's body, through the psychic apparatus, in which is the right mode of operation imposed model in the light of the demands, contents and requirements of the mode of production's logic[1,3,16].

The workplace is configured as an important space for the development of interventions aimed at promoting health and quality of life, given the possibility of reaching large numbers of people, and because much of the adult population designed countless hours of their lives to work[17].

Labor events may negatively impact individuals well-being[18]. But in recent years, the research of stress in organizations and its consequences for the health of workers has sparked significant interest and disclosure. As the main source of this investment research, there have been undesirable effects on the

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economic plan that stress situations bring to organizations[3,9,19].

Work on the site is done mostly by men, and services predominantly as technical support. Although there is an administrative and a management section, the large workforce at the shipyard is related to manual, heavy and repetitive work. These workers are exposed to the constant noise of ventilation and machinery; suffer manual wear by the tools used in their services. They are exposed to high temperature and air pollution by aerosol, mixing engine oils, dust, and other harmful chemical agents [20].

In order to develop the research and reach the desired results the following research problem may be raised: What degree of stress, according to demand-control model, exists among shipyard workers in the state of Rio de Janeiro?

MATERIAL AND METHOD

Descriptive research with a quantitative approach constitutes the sectional type. Data collection took place in 2012. As subjects, 114 employees of the 229 are allocated in the shipyard of maritime transport undertaking. This is a non-probabilistic sample, due to inaccessibility to the entire population. This event occurred although there was the possibility of reach the entire population, to withdraw part sample, which was readily accessible.

In the first contact, the research purposes and presentation of the Term of Consent were explained. Each participant completed the document in view of the National Health Council (CNS Resolution 466/2012). The study was approved by the Ethics Committee of the Antonio Pedro University Hospital under number 260/11 and CAAE 0271.0.258.258-11.

The instrument used was a self-applied structured questionnaire with open and closed questions which contained sections organized by subject (labor aspects, socio-demographic variables, work stress scales, background and lifestyle habits, emotional and physical health, sleep and reproductive health).

Among the socio-demographic characteristics, about the self-reported skin color aspect, the yellow, brown and Indian options were recoded to mestizos. Regarding marital status, we decided to recode "with companion" for married individuals or in a stable relationship, and "no companion" for single, separated, divorced and widowed.

In terms of labor variables, professionals were categorized into eight major occupational groups (mechanical, welding, carpentry, electrical and electronics, general services, administrative, supervision and engineering), for similar work in order to achieve better statistical treatment, since there were more than 30 different professional categories. The work sectors suffered dichotomization: technical support for the technical and mechanical services, against administration and management for the administrative and bureaucratic services.

In this study, the scale used was adapted to Portuguese, based on the short version of the Job Stress Scale (JSS), originally in English, according to Alves et al.[15]. The smaller version was created by Theorell et al.[21]. This version has 17 questions, five to evaluate psychological demand at work six to assess the degree of control at work and six for social support, although the latter was not evaluated in this study.

The scores were obtained by adding the points assigned to each of the questions. According to these questions, the score for demand ranges from 5 to 20 points, while the score for control can vary from 6 to 24 points, according to the stress assessment model at work adopted in this research[15.21]. It was built a score of the support degree on the professional work presented in this study.

To obtain a definition of stress exposure quadrants at work, based on the dimensions of demand and control, we used the median found in the scores of the dimensions investigated. To establish the demand-control model groups (MDC), the variables "psychological demand" and "job control" and their dichotomized degrees (high and low) were combined to build the quadrants of the two--dimensional model, in which: High exigency = combination of high demand and low control; active work = combination of high demand and high control; low exigency = combination of low demand and high control; and passive work = combination of low demand and low control[11].

Initially, univariate analysis was performed which allows us to describe the sociodemographic and work characteristics of the study population. Continuous variables were presented, according to their average frequencies (with a standard deviation), and categorical variables, according to their absolute values and proportions.

For the bivariate analysis, the age variable was analyzed according to the average found for the population. The chi-squared test (x2) was used to verify differences among the groups during the bivariate analysis. It was considered in the assessment of the significance, the value of $p \leq 0.05$. In the case of tables with caselas with less than or equal to five, in addition to the chi-square test, Fisher's test was used (only for tables of 2/2) in order to obtain better statistical treatment[22]. Each step of the data analysis process was carried out with the use of Microsoft Office Excel 2003 and Statistical Package for the Social Sciences version 2.1.

RESULTS

Among the 229 employees working at the shipyard, 114 were interviewed (about 50% of total) and are in the sample making up the universe of workers studied.

The average age was 40 years old, with a standard deviation of 14.2 years. Regarding gender, 97.4% of the population consisted of men and only 2.6% women. With regard to skin color, 46.5% were mestizos. Regarding marital status, 68.4% of the sample had a companion (a) and 68.4% of respondents had children. As for family income in minimum wages (SM), at the time of the interview (R$622.00), 22.8% had maturities between four and five SM. In terms of education, 44.7% had completed high school (see Table 1).

The mechanical and boiler categories divide the largest number of workers, with 24.6% of the total each. The 16 existing sectors were also recoded into two: technical support (86.8%) and administration and management (13.2%). In regard to the type of employment contract, 93.9% were part of the permanent staff of the institution. The average time in the company was 5.5 years, with a standard deviation of 10.2 years. Most workers (84.2%) worked less than six years in the institution. In terms of weekly working hours (CHS), 91.2% meet 44 hours, which is also the average number of hours worked, with a standard deviation of 8.3 hours (see Table 2).

It was found that the median dimension demand was 11 points, while the control scale was 12 points. In the dimension demand, 72 workers

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had demand below the median (63.2%), while the 42 remaining scores remained above the median (36.8%). In the dimension control, 66 employees had their scores below the median (57.9%), the other 48 had scores above the median control (42.1%).

In relation to the average age found (40 years), 44 workers aged less than average were with labor demand below the demand median (61.1%). The other 42 workers, whose demand scores exceeded the median, divided up equally between the two layers.

When evaluating gender issues, the vast majority were male (97.4%). In the dimension demand, all 72 workers were men whose demand was below the median. Where demand was above the median, 92.9% were men and 7.1% women.

As for the self-reported skin color, among subjects with demand below the median, 48.6% were classified as mestizos. Of the 42 workers whose demand exceeded the median, 42.9% were mestizos.

By analyzing marital status, with or without a companion, of the 72 workers who had values of

Table 1. Analysis between sociodemographic characteristics and demand/control by the median of shipyard workers. Rio de Janeiro, 2012.

Variable sociodemographic	Low demand		High demand		Low control		High control	
	N	%	N	%	N	%	N	%
Age by the average of 40 years old	(DP = 14,2)		p = 0,248		(DP = 14,2)		p = 0,364	
Up to 40 years old	44	61,1	21	50	40	60,6	25	52,1
Older than 40 years old	28	38,9	21	50	26	39,4	23	47,9
Gender			p = 0,48*				p = 0,618*	
Female	0	0	3	7,1	2	3	1	2,1
Male	72	100	39	92,9	64	97	47	97,9
Recoded Skin Color			p = 0,829				p = 0,724	
Black	13	18,1	8	19	11	16,7	10	20,8
White	24	33,3	16	38,1	25	37,9	15	31,2
Mestizo	35	48,6	18	42,9	30	45,5	23	47,9
Recoded Marital Status			p = 0,758				p = 0,949	
With companion	50	69,4	28	66,7	45	68,2	33	68,8
No companion	22	30,6	14	33,3	21	38,8	15	31,2
Have children			p = 0,253				p = 0,452	
Yes	52	72,2	26	61,9	47	71,2	31	64,6
No	20	27,8	16	31,8	19	28,8	17	35,4
The average education			p = 0,887				p = 0,887	
Up to high school incomplete	25	34,7	21	50	27	40,9	19	39,6
Above high school	47	65,3	21	50	39	59,1	29	60,4
Family income average of 5 SM			p = 0,950				p = 0,410	
Up to 5 SM	45	62,5	26	61,9	39	59,1	32	66,7
Higher than 5 SM	27	37,5	16	31,8	27	40,9	16	33,3

*Subtitle: N = gross value on the layers; % = Value of the percentage on the layers; DP = Standard Deviation; p = test value of chi square; * = value of Fisher's proof.*

demand below the median, 69.4% had a companion. As for the 42 employees with demand above the median, we found a similar proportion - 66.7% had a companion.

We assessed the presence of children in dimension demand from 72 workers with values below the median, to find that 72.2% generated descendants. As for professionals whose demand results exceeded the median, 61.9% had children.

On the issue of education, the average found was the incomplete high school degree. 46 workers were unable to complete high school (40.4%). However, most (59.6%) completed high school or obtained a higher education. Among the 72 workers with demand below the median, 65.3% had completed high school or advanced studies. The other 42 workers whose demand scores exceeded the median equally divided up between the two layers.

In the evaluation of the minimum wage at the time (R$622.00), the result obtained as average was five SM, while most workers (62.3%) earned wages to this average. As regards the demand below the median, 62.5% received up to five SM. As the demand above the median, found similar proportion: 61.9% had maturities of up to five SM.

Analysis of socio-demographic profile and dimension control

In terms of the dimension control, 40 workers aged below the average of 40 years old were with control values below the median (60.6%). In the age group above the average, 47.9% were in control scores on the work above the median.

Among women, two of them reached below the median scores control (3.0%) and above (2.1%). As for men, 97.0% were below the median control. The other 47 men had control over the work above the median (97.9%).

As for the self-reported skin color, among workers who had scores below the median, 45.5% were mestizos. The remaining 48, whose values were above the median of control, 47.9% declared mestizos.

Among the workers who had results below the median, 68.2% had a companion. As for professionals with control above the median, we encountered a similar proportion as 68.8% had a companion.

Regarding the presence of children, the 66 workers with scores below the median control, 71.2% had children. In the case of employees with control over the median, 64.6% had children and 35.4% didn't.

In regard to the issue of education among workers with scores below the median, 59.1% had completed high school or studied beyond. As for employees with control over the median, came to a similar proportion: 60.4% exceeded the average of schooling.

As for the salary component, among those whose control was below the median, 59.1% received up to 5 SM. Regarding the control over the work above the median, 66.7% had maturities of up to 5 SM.

With regard to the professional category, it appears that as the 72 workers with demand below the median, the boiler workers had the highest percentage (25%), followed by mechanical (22.2%). Among the 42 workers with demand above the median, 28.6% were mechanical and 23.8% were boilermakers.

As for the work sectors, among the 72 workers with demand below the median, 87.5% were in technical support. For the 42 workers with demand score above the median, there was a similar proportion, 85.7% were technical support.

When analyzing the employment contract (temporary and permanent), it appears that for the demand below the median, 93.1% were permanent staff. With the above average

Table 2. Analysis of labor characteristics and demand/control the median of shipyard workers. Rio de Janeiro, 2012.

Labor variable	Ow demand		High demand		Low control		High control	
	N	%	N	%	N	%	N	%
Professional category			p = 0,528				p = 0,600	
Mechanics	16	22,2	12	28,6	14	21,2	14	29,2
Boilers	18	25	10	23,8	15	22,7	13	27,1
Carpentry	6	8,3	3	7,1	4	6,1	5	10,4
Electrical and electronics	9	12,5	2	4,8	7	10,6	4	8,3
General Services	11	15,3	4	9,5	9	13,6	6	12,5
Management	8	11,1	4	9,5	8	12,1	4	8,3
Supervision	4	5,6	5	11,9	7	10,6	2	4,2
Engineering	0	0	2	4,8	2	3	0	0
Recoded sectors			p = 0,768				p = 0,154*	
Technical support	63	87,5	36	85,7	63	87,5	36	85,7
Administrative/management	9	12,5	6	14,3	9	12,5	6	14,3
Emplyment contract			p = 0,488*				p = 0,190*	
Temporary	5	6,9	2	4,8	7	10,6	0	0
Permanent	67	93,1	40	95,2	59	89,4	48	100
Time in the institution	(DP = 10,2)		p = 0,844		(DP = 10,2)		p = 0,520*	
Up to 6 years	61	84,7	35	83,3	52	78,8	44	91,7
More than 6 years	11	15,3	7	16,7	14	21,2	4	8,3
Weekly working hours	(DP = 08,3)		p = 0,460*		(DP = 08,3)		p = 0,124*	
Up to 44 hours	65	90,3	39	92,9	58	87,9	46	95,8
More than 44 hours	7	9,7	3	7,1	8	12,1	2	4,2

*Subtitle: N = gross value on the layers; % = Value of the percentage on the layers; DP = Standard Deviation; p = test value of chi square; * = value of Fisher's proof.*

demand, 95.2% of workers belongs to the permanent contract.

The average time the institution was six years, with 96 employees (84.2%) to this average. Of the 72 workers with demand below the median, 84.7% were in the institution with an average of six years. As for the workers with demand above the median, the ratio was very close, 83.3% had spent up to 6 years in their business.

The average weekly working hours (CHS) was 44 hours. Most workers (91.2%) fall below this regime. Of the 72 workers with a demand score below the median, 90.3% of them have average CHS, equal or inferior to 44 hours. With the above average demand, the outlook is similar, 92.9% work up to 44 hours a week.

Analysis of labor issues and the dimension control

As for the professional category among workers whose control scores were below the median, the highest percentages were among the boilermakers (22.7%) and mechanical (21.2%). Among the 48 workers with control values on the work above the median, it we found 29.2% were mechanics and 27.1% of boilermakers.

Regarding the issue of the labor sector, workers with control below the median, 85.3% were technical support. With control over the median, 91.7% of workers were in technical support.

When evaluating the type of employment contract between subjects with scores of control below the median, the majority belonged to the permanent staff (89.4%). As for workers with control score above the median, all were part of the permanent staff.

With regard to time in the company, workers whose findings were below the median, 78.8% had up to six years with the company. In terms of employees with control over the median, 91.7% were in the institution for six years or less.

As for CHS among subjects with scores of control below the median, 87.9% work up to 44 hours a week. Employees with control over the median, 95.8% have CHS up to 44 hours.

Karasek Quadrants

Looking at the indicators described above, the demand dimensions combine and control in order to form the four groups offered by Theorell and Karasek. In this sense, there are four categories of exposure to stress: high exigency, active work, low exigency and passive work[11].

We observed that the highest proportions among the categories were low exigency (36.8%) and high exigency (26.3%). The lower frequencies, 21.1% and 15.8%, were between passive work and active work, respectively.

DISCUSSION

In a study with 457 metallurgical workers the median of demand found was 12 points and the median of control was 9 points[23]. In the study of Sontag et al.[24] conducted with employees of the administrative public university sector, the median for demand and control were 14 and 17 respectively. Among the surgical nursing workers from 11 hospitals from Paraná, we met the following average values: 15 to demand and 17 for control[25]. For a survey of 470 truck drivers, the values of median of demand and control were as follows: 18 in demand, 16 in control over work[26].

It can be seen that this study find greater resemblance values attributed to medians of demand and control to the study of Padula et al.[23]. Interestingly, the profile of workers in the metal industry is the most similar to the employees of the shipyard, by being exposed to constant noise of ventilation and machinery, high temperature and pollution in the air by aerosols, mixing engine oils, dust, and suffering wear by manual tools used in their services, and other harmful chemicals[20].

The other studies with nursing professionals, truck drivers and administrative workers had median scores in two dimensions greater than those found in this study[24,25,26]. This shows that the nature of shipyard work has a specificity of demand and control in the work environment.

The passive work quadrant was composed by 21.1% of workers. The study of Prochnow et al.[27] with nursing professionals from a public university hospital and the research of Greco et al.[28] with childcare service agents in Rio Grande do Sul presented next percentages in this layer, of 19.7% and 21% respectively.

With regard to low exigency, Greco et al.[28] found 30.2% of the subjects contained in this quadrant, a value similar to that found in this study (36.8%).

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With regard to active work, we found that 15.8% of surveyed employees in this study belong to this quadrant. Once again, in relation to the scores obtained by the military police in Recife, the finding of the study of Ferreira, Bonfim and Augusto [29] are those closest to this study (19.6%).

The quadrant high exigency was composed by 26.6% of workers in this study. The work of Prochnow et al. [27] with nursing professionals from a public university hospital and the study of Ferreira Bonfim and Augusto [29] with military police, had close percentage, 29.7% and 27.8%, respectively.

As stated the MDC - work in high exigency conditions is harmful to the health of workers, and a predictor of most of the physical and mental exhaustion produced in the work environment. Knowing that workers in high exigency are more susceptible to stress and, consequently, decreased ability to work, the results of this study indicate that intervention measures of worker health promotion and functional capacity of the maintenance should be adopted and active.

It can be seen that the shipyard workers show up in low exigency work quadrant where they have greater motivation for creation and developments of positive behaviors at work. However, the second most common layer was the high exigency, exposing the population to greater risk of mental and physical illness.

The ideal job is one that represents the status of relaxation caused by conditions with low psychological demand and high levels of control (low exigency). In this context, it should be considered that environment and having a proper relationship to the work activity acts the same way in forming a privileged locus of human achievement, according to the conditions in which they occur, may also cause wear both physical and mental[30]. Requiring particular attention considering it as a determinant environmental of people's health conditions.

Limitations of Study

First, the study of pioneering was a major challenge with regard to comparisons, because there are few studies for labor groups similar to those addressed in this study. The data collection time was extended (10 months) and was also challenging the issue of logistics, since the shipyard is in a recluse neighborhood with only public transport options.

The work dynamics in the shipyard was a limiting factor. Data collection took place during the working hours of employees, who were released from their sectors by their foremen and supervisors, according to service demand.

As for the bias of healthy workers, employees who were on sick leave during the collection period could not be interviewed, however, during the time of collection that may have been minimized in some way, for those who returned were interviewed in person or by phone. Furthermore, it was requested to occupational medical sector the link of workers on sick leave, and returning those workers were also addressed on the questionnaire.

In addition, the average staff time in the company stood at just 6 years, which shows employee turnover, damaging very much the type of study conducted (cross section). In addition to this issue, the cross-section only provides instant variable image to be studied, with the need for further studies with different designs that can assess the occupational stress among professionals over the time.

The discussion with the literature was hampered due to our approach by the medium demand and control related to socio--demographic and labor characteristics, while the works published in the academic world address the Karasek quadrants.

CONCLUSION

Among the 114 subjects who participated presented to the following scores in MDC: median demand with 11 points, with 63.2% of workers below the median, and control with 12 points, with most of the employees with scores below the median (57.9%).

Regarding the Karasek quadrants, in terms of those originated from the combinations of demand and control, the highest frequencies were found between the categories low exigency (36.8%) and high exigency (26.3%). The lower frequencies, 21.1% and 15.8% respectively, were split between passive work and active work.

It is essential to train the workers of health services, for signs and symptoms of mental suffering, in order to consider the importance of the work situation as one of the determining factors of health-disease. Thus, we should be alerted to the need to develop inter-institutional and multidisciplinary actions in mental health and work.

In addition, there is the need for a participatory organizational management, involving employees in the process of changes and improvements in the working environment. Together with measures to promote worker health, we would conclude that the focus of attention should be on the inclusion of preventive measures to combat occupational stress.

REFERENCES

1. Wickramasinghe V. Work-related dimensions and job stress: the moderating effect of coping strategies. Stress Health 2010; 26(5): 417-429.
2. Dias RP, Pereira A, Langaro F, Correa RN, Souza N, Lacerda LV. Riscos psicossociais e estresse ocupacional, parceiros numa relação presumida com burnout: um estudo de estressores que envolvem as atividades dos peritos criminais. Rev Bras Criminalística 2013; 2(1): 42-50.
3. Giorgi G. Do I look stressed or am I stressed? Work-related stress in a sample of Italian employees. Ind Health 2013; 52(1): 43-53, 2013.
4. Lima RAS, Souza AI, Galindo RH, Feliciano KVO. Vulnerabilidade ao burnout entre médicos de hospital público do Recife. Cienc Saúde Cole 2013; 18(4): 1051-1058.
5. Selye H. Psychosocial implications of the stress concept. In: Manschreck T. Psychiatric medicine update: Massachusetts General Hospital reviews for physicians. New York: Elsevier, 1979. p. 33-52.
6. Balassiano M, Tavares E, Pimenta R. Estresse ocupacional na administração pública brasileira: quais os fatores impactantes? Rev Admin Publ, 2011; 45(3): 751-774.
7. Pinto L, Figueiredo AE, Souza E. Sofrimento psíquico em policiais civis do Estado do Rio de Janeiro. Cienc Saúde Cole 2013; 18(3): 633-644.
8. Baggio S, Iglesias-Rutishauer K, Shutter P-E. Mesurer l'exposition au stress dans l'entreprise: le questionnaire des stresseurs organisationnels et sociaux (QSOS). Archives des Maladies Professionnelles et de l'Environnement 2014; 75(1): 34-42.
9. Silva JLL, Soares RS, Costa FS, Ramos DS, Lima FB, Teixeira LR. Fatores psicossociais e prevalência da síndrome de burnout entre trabalhadores de enfermagem intensivistas. Rev Bras Ter Intensiva 2015; 27(2): 125-133.
10. Aleksic A, Trkulja M, Cikota-Aleksic B, Aleksic D. Analysis of job stress in workers employed by three public organizations in Serbia. Int J Occup Med Environ Health 2013; 26(3): 373-382.

Silva JLL, Soares RS, Teixeira ER, Daher DV, Almeida JA, Almeida JHA. Degree of Stress Among Shipyard Workers: Cross-Sectional Study. Online braz j nurs [internet] 2016 Mar [cited year month day]; 15 (1):61-72. Available from: http://www.objnursing.uff.br/index.php/nursing/article/view/5468

11. Karasek RA, Theorell T. Healthy work: stress, productvity, and the reconstruction of working life. New York: Free Press; 1990.
12. Reis ALPP, Fernandes SRP, Gomes AF. Estresse e fatores psicossociais. Psicol Cienc Prof 2010; 30(4): 712-725.
13. Karasek RA. Job demands, job decision latitude and mental strain: Implications for job redesign. Adm Sci Q 1979; 24(2): 285-308.
14. Johnson JV, Hall EM. Job strain, work place social support, and cardiovascular disease: a cross-sectional study of a random sample of the swedish working population. Am J Public Health 1988; 78(10): 1336-1342.
15. Alves MGM, Chor D, Faerstein E, Lopes CS, Werneck GL. Versão resumida da job stress scale: adaptação para o português. Rev Saúde Publ 2004; 38(2): 164-171.
16. Magalhães E, Oliveira ACMS, Gouveia CS, Ladeira LCA, Queiroz DM, Vieira CV. Prevalência de síndrome de burnout entre os anestesiologistas do Distrito Federal. Rev Bras Anestesiol 2013.
17. Tsai YC, Liu CH. Factors and symptoms associated with work stress and health-promoting lifestyles among hospital staff: a pilot study in Taiwan. BMC Health Serv Res 2012; 12: 199-206.
18. Tripodi D, Roedlich C, Laheux MA, Longuenesse C, Roquelaure Y, Lombrail P et al. Stress perception among employees in a French University Hospital. Occup Med 2012; 62(3): 216-219.
19. Silva JLL, Paixão TM, Costa FS, Soares RS, Teixeira LR. Aspectos psicossociais de trabalhadores de enfermagem intensivistas. Rev Enferm UFPE 2015; 9(10): 518-1528.
20. Leszczynska I, Jezewska M. Psychosocial burden among offshore drilling platform employees. Int Marit Health 2010; 61(3): 159-167.
21. Theorell T, Perski A, Akerstedt T, Sigala F, Ahlberg-Hultén G, Svensson J et al. Changes in job strain in relation to changes in psysiological state. Scand J Work Environ Health 1988; 14(3): 189-196.
22. Abramson JH. Survey methods in community medicine. 2. ed. Edinburgh: Churchill Livingstone, 1979.
23. Padula RS, Chiavegato LD, Cabral CM, Almeida T, Ortiz T, Carregaro RL. Is occupational stress associated with work engagement? Work 2012; 41: 2963-2965, 2012. Supl 1.
24. Sontag AA, Vilagra JM, Moreira HS, Moro AR, Cruz RM, Reis PF et al. Identification of the mental workload of public employees in the administrative sector at a public university. Work 2012; 41: 5828-5830. Supl 1.
25. Schmidt DRC, Dantas RAS, Marziale MHP, Laus AM. Estresse ocupacional entre profissionais de enfermagem do bloco cirúrgico. Texto Contexto Enferm 2009; 18(2): 330-337.
26. Ulhôa MA, Marqueze EC, Lemos LC, Silva LG, Silva AA, Nehme P et al. Distúrbios psíquicos menores e condições de trabalho em motoristas de caminhão. Rev Saúde Publ 2010; 44 (6): 1130-1136.
27. Prochnow A, Magnano TSBS, Urbanetto JS, Beck CLC, Lima SBS, Greco PBT. Capacidade para o trabalho na enfermagem: relação com demandas psicológicas e controle sobre o trabalho. Rev Latino-am Enferm 2013; 21(6): 1298-1305.
28. Greco PBT, Magnano TSBS, Beck CLC, Urbanetto JS, Prochnow A. Estresse no trabalho em agentes dos centros de atendimento socioeducativo do Rio Grande do Sul. Rev Gaúcha Enferm 2013; 34 (1): 94-103.
29. Ferreira DKS, Bonfim C, Augusto LGS. Condições de trabalho e morbidade referida de policiais militares, Recife, PE, Brasil. Saúde Soc 2012; 21(4): 989-1000.
30. Minayo MCS, Assis SG, Oliveira RVC. Impacto das atividades profissionais na saúde física e mental dos policiais civis e militares do Rio de Janeiro, RJ, Brasil. Cienc Saúde Cole 2011; 16(4): 2199-2209.

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