TEXTO & CONTEXTO enfermagem
TEXT & CONTEXT NURSING TEXTO & CONTEXTO ENFERMERÍA

IMPACT OF STRESS ON THE QUALITY OF LIFE OF HOSPITAL NURSING WORKERS

Marcelo Ribeiro da Silva[1]
Fernanda Maria de Miranda[2]
Debora Bessa Mieiro[3]
Tatiana de Oliveira Sato[4]
Jaqueline Alcântara Marcelino da Silva[5]
Vivian Aline Mininel[5]

[1]Unimed São Carlos. São Carlos, São Paulo, Brasil.
[2]Universidade Federal de São Carlos, Programa de pós-graduação em Enfermagem. São Carlos, São Paulo, Brasil.
[3]Rede D'Or São Luiz. Rio de Janeiro, Rio de Janeiro, Brasil.
[4]Universidade Federal de São Carlos, Departamento de Fisioterapia. São Carlos, São Paulo, Brasil.
[5]Universidade Federal de São Carlos, Departamento de Enfermagem. São Carlos, São Paulo, Brasil.

ABSTRACT

Objective: to analyze the association between socio-occupational characteristics, stress level, and quality of life in hospital Nursing workers.

Method: a cross-sectional, quantitative study, with data collected by means of a socio-occupational questionnaire to survey the profile of the workers, the Bianchi Stress Scale to assess stress, and the WHOQOL-Bref to assess quality of life.

Results:180 Nursing workers participated in the research, being 49 nurses and 131 Nursing technicians and assistants, most of them women, predominantly aged up to 35 years old, married, and with up to three years of experience in the sector. In general, the participants presented medium stress level, with a higher level among the nurses, and greater satisfaction with the quality of life level related to the physical (65.6%), psychological (64.7%), and social relationships (67.9%) domains. This study identified significant associations between stress and quality of life in hospital Nursing workers.

Conclusion: it was demonstrated that there was an association between stress and quality of life, and the greater the stress, the lower the quality of life in hospital Nursing workers.

DESCRIPTORS: Nursing. Professional exhaustion. Quality of life. Worker's health. Occupational stress.

IMPACTO DO ESTRESSE NA QUALIDADE DE VIDA DE TRABALHADORES DE ENFERMAGEM HOSPITALAR

RESUMO

Objetivo: analisar a associação entre as características sociolaborais, o nível de estresse e a qualidade de vida em trabalhadores de enfermagem hospitalar.
Método: estudo transversal, quantitativo, com dados coletados por meio de questionário sociolaboral para levantamento do perfil dos trabalhadores, da Escala Bianchi de Stress para avaliação do estresse e do WHOQOL-Bref para avaliação da qualidade de vida.
Resultados: participaram da pesquisa 180 trabalhadores de enfermagem, sendo 49 enfermeiros e 131 técnicos e auxiliares de enfermagem, a maioria mulheres, com idade predominante de até 35 anos, casadas e com até três anos de atuação no setor. Em geral, os participantes apresentaram nível médio de estresse, com maior nível entre os enfermeiros, e maior satisfação com o nível de qualidade de vida relacionado aos domínios físico (65,6%), psicológico (64,7%) e de relações sociais (67,9%). Este estudo identificou associações significativas entre estresse e qualidade de vida em trabalhadores de enfermagem hospitalar.
Conclusão: demonstrou-se associação entre estresse e qualidade de vida, e quanto maior o estresse menor a qualidade de vida em trabalhadores de enfermagem hospitalar.

DESCRITORES: Enfermagem. Esgotamento profissional. Qualidade de vida. Saúde do trabalhador. Estresse ocupacional.

EFECTO DEL ESTRÉS SOBRE LA CALIDAD DE VIDA DE LOS TRABAJADORES DE ENFERMERÍA HOSPITALARIA

RESUMEN

Objetivo: analizar la asociación entre las características sociolaborales, el nivel de estrés y la calidad de vida en trabajadores de Enfermería hospitalaria.
Método: estudio transversal y cuantitativo, con datos recolectados por medio de un cuestionario sociolaboral para sondear el perfil de los trabajadores, de la Escala Bianchi de Estrés para evaluar el estrés y del instrumento WHOQOL-Bref para evaluar la calidad de vida.
Resultados: los participantes de esta investigación fueron 180 trabajadores de Enfermería: 49 enfermeros(as) y 131 técnicos(as) y auxiliares de Enfermería, en su mayoría mujeres, con una edad máxima predominante de 35 años, casadas, con hasta tres años de desempeño en el sector. En general, los participantes presentaron un nivel medio de estrés, con un nivel más elevado entre los enfermeros, y mayor satisfacción con el nivel de calidad de vida relacionado con los siguientes dominios: físico (65,6%), psicológico (64,7%) y de relaciones sociales (67,9%). Este estudio identificó asociaciones significativas entre el estrés y la calidad de vida en trabajadores de Enfermería hospitalaria.
Conclusión: se demostró que existe una asociación entre el estrés y la calidad de vida, y que, cuanto mayor es el estrés menor es la calidad de vida en trabajadores de Enfermería hospitalaria.

DESCRIPTORES: Enfermería. Agotamiento profesional. Calidad de vida. Salud del trabajador. Estrés ocupacional.

INTRODUCTION

Health workers are subjected to occupational diseases of a physical and psychological nature, with considerable losses regarding the personal and professional goals due to exposure to various risks in the work environment.[1]

The work dynamics in the hospital environment can contribute to the disease process, due to the inadequate working conditions and to the intense and exhausting routines to which the health workers are exposed, especially Nursing workers.[2–3]

Stress is a modifiable risk factor which, associated with other disorders, can contribute to the development of chronic dysfunctions.[4] Occupational stress results from stressors in the work environment and can cause physical and emotional exhaustion in the worker,[5] characterizing a complex and dynamic phenomenon, understood from different perspectives and associated with body fatigue and with sensations of anguish, feelings of tension, sadness, fragility, tiredness, and devaluation.[6]

Nursing is one of the professional categories that suffers and is affected the most due to occupational stress, as a result of the specificities of the work process in the health area, with emphasis on the hospital context. Thus, a number of studies demonstrated the importance of the work environment in stress generation among the Nursing workers.[1,3]

Occupational stress, professional wear out, and job dissatisfaction result in emotional exhaustion and in a reduction in the quality of the service provided, and new studies in this area are relevant to identify the variables that influence such dimensions.[7] Early recognition of stress signs and symptoms, carried out by means of specific questionnaires, allows adequate interventions for recovery and return to activities.[8]

Even moderate stress levels represent a considerable risk for the Nursing workers, who often end up exposed to various stress situations in the work environment, favoring physical, mental, and psychosocial health problems,[9] with a consequent impairment of Quality of Life (QoL).

QoL is a complex concept, of great scientific and social relevance. It is defined by the World Health Organization (WHO) as the individuals' perception on their position in life, in the context of the culture and value systems in which they live and in relation to personal objectives, expectations, standards, and concerns; it involves physical health, psychosocial status, personal beliefs, social relationships, and relationships with the environment.[10]

The QoL of the Nursing workers in the hospital environment is influenced by structural and environmental deficiencies, double working hours, dissatisfaction with the overload of activities, exhausting work process, and night work.[11] Work overload and the relationships between team members also impact QoL, impairing the quality of care and patient safety,[12] in addition to making the worker vulnerable to acute and chronic diseases that can cause irreversible sequelae.

National studies that analyzed stress[7] and QoL[13] in Nursing workers showed a relationship between the type and number of employment contracts, length of employment with the institution, work shifts, and stress with impairment of QoL in the workers.[7,13]

Studies associating stress and QoL have been conducted with different professional groups;[14–16] however, there is little evidence that portrays such a relationship in the context of Nursing workers.[17–18] In this sense, this research analyzed the association between socio-occupational characteristics, stress level and QoL in hospital Nursing workers.

METHOD

This is a quantitative and cross-sectional study, conducted in 2017 in a philanthropic hospital institution of the state of São Paulo which predominantly serves the Unified Health System. The assistance sectors and their annexes were contemplated in the research.

The study population consisted of 104 nurses and 438 Nursing technicians and assistants, totaling 542 workers. The inclusion criteria considered were the following: employment contract with the hospital institution for at least six months and not being away from work, on leave or on vacation during the data collection period.

For sample definition, stratified random sampling was used, admitting a maximum sampling error of 0.05 (CI = 95%). From these parameters, a sample of 230 participants was obtained: 46 nurses and 184 Nursing technicians and assistants. The random draw by professional category was carried out in the Microsoft Office Excel 2010® program, in a numbered list containing the name and professional category of all the Nursing workers, previously made available by the institution. If the selected participant did not meet the inclusion criteria or refused to participate in the study, the next number was selected for contact. Data was collected by means of three self-referred questionnaires: Bianchi Stress Scale (BSS),[19] WHOQOL-bref[20], and a socio-occupational identification questionnaire.

BSS assesses stress level by means of 51 items, with answers on a seven-point Likert scale, divided into six domains: (1) relationships with other units and supervisors; (2) activities related to the adequate functioning of the unit; (3) activities related to staff management; (4) Nursing assistance provided to the patient; (5) coordination of the unit's activities; and (6) working conditions for the performance of the nurse's activities. The final score was calculated using the mean score of each domain, varying from one to seven, considering low stress level a value equal to or below 3.0; medium stress level between 3.1 and 5.9; and high level a value equal to or greater than 6.0.[19]

QoL was assessed by means of WHOQOL-bref, a shortened version of WHOQOL-100, proposed by the Quality of Life Group of the World Health Organization - WHOQOLGroup.[20] It contains 26 questions assessed on a five-point Likert scale, including two QoL general questions and 24 questions representing the facets of the original instrument, grouped into four domains: (A) physical, (B) psychological, (C) social relationships; and (D) environment. The mean score for each domain represents the participant's perception on that aspect, and the higher the score, the better their perception of QoL. Data collection could be carried out at the workplace, after authorization from the institution and prior contact with the heads of the sectors, or outside this environment, so that the participant should return the completed questionnaire on the next shift. The mean time to complete the three questionnaires was approximately 20 minutes.

To characterize the participants, a socio-occupational identification questionnaire was prepared, containing questions about gender, age, marital status, professional category, schooling level, religion, training time, work sector, working time in the sector, work shift, other employment contracts, and wage income.

The collected data were entered and consolidated in the Microsoft Office Excel 2010® program and later exported to the IBM SPSS Statistical Package for Social Science for Windows®, version 23.0. Descriptive statistics was conducted, by means of relative and absolute frequency, minimum and maximum values, mean, and standard deviation. The groups of Nursing technicians/assistants and nurses were compared in relation to the sociodemographic variables and the BSS using the chi-square test for qualitative variables and the t test for independent samples and for quantitative variables. The analysis of the association between dependent variables (WHOQOL-bref domains) and independent variables (stress, age, gender, profession, schooling level, marital status, professional training time, sector of activity, position, income, age, and other sociodemographic data) was performed by means of the multiple linear regression model using the SPSS automatic linear modeling. This modeling automatically prepares the data, grouping categories and substituting the missing data. The method for selecting the model adopted was *forward stepwise*. A significance level of 5% was adopted for all the statistical tests performed.

All the ethical and legal aspects involving research with human beings set forth in Resolution 466/2012 of the National Health Council were observed. All the participants signed the Free and Informed Consent Form.

RESULTS

Of the 542 Nursing workers linked to the hospital institution at the time of the research, 441 (88.5%) met the inclusion criteria and, of these, 180 participated in data collection (41% response rate). The number of study participants was lower than the sample forecast, since few professionals answered and returned the completed questionnaires to the researchers.

Among the participants, 49 were nurses and 131 were Nursing technicians and assistants. Due to the little distinction between the work process and the activities performed by Nursing technicians/assistants, it was decided to analyze these two professional categories together. The socio-occupational profile of the studied sample is described in Table 1.

Table 1 – Socio-occupational data of the nurses (n=49), of the Nursing technicians and assistants (n=131), and of the total sample (n=180). A city in the state of São Paulo, Brazil, 2017. (n = 180)

Characteristic	Nurses	Technicians/ Assistants	Total	*P*
Gender [n (%)]				
Female	42 (86.0)	114 (87.0)	156 (86.7)	0.81
Male	7 (14.0)	17 (13.0)	24 (13.3)	
Age [n (%)]				
18 – 25 years old	7 (14.3)	22 (16.8)	29 (16.1)	0.14
26 – 29 years old	10 (20.4)	25 (19.1)	35 (19.4)	
30 – 35 years old	16 (32.7)	25 (19.1)	41 (22.8)	
36 – 40 years old	10 (20.4)	20 (15.3)	30 (16.7)	
41 – 45 years old	1 (2.0)	17 (13.0)	18 (10.0)	
46 – 50 years old	2 (4.1)	14 (10.7)	16 (8.9)	
Over 50 years old	3 (6.1)	8 (6.1)	11 (6.1)	
Marital status [n (%)]				0.17
Married	23 (46.9)	56 (42.7)	79 (43.9)	
Stable relationship	3 (6.1)	21 (16.0)	24 (13.3)	
Single	20 (40.8)	36 (27.5)	56 (31.1)	
Separated	0 (0.0)	7 (5.3)	7 (3.9)	
Divorced	3 (6.1)	7 (5.3)	10 (5.6)	
Widow/Widower	0 (0.0)	2 (1.5)	2 (1.1)	
Other	0 (0.0)	2 (1.5)	2 (1.1)	
Schooling level [n (%)]				<0.01
Complete elementary school	0 (0.0)	**6 (4.6)**	6 (3.3)	
Incomplete high school	0 (0.0)	**3 (2.3)**	3 (1.7)	
Complete high school	0 (0.0)	**20 (15.3)**	20 (11.1)	
Complete technical school	0 (0.0)	**80 (61.1)**	80 (44.4)	
Incomplete higher education	0 (0.0)	**16 (12.2)**	16 (8.9)	
Complete higher education	**18 (36.7)**	6 (4.6)	24 (13.3)	
Complete specialization	**29 (59.2)**	0 (0.0)	29 (16.1)	
Complete Master's degree	**2 (4.1)**	0 (0.0)	2 (1.1)	

Table 1 – Cont.

Characteristic	Nurses	Technicians/ Assistants	Total	*P*
Religious belief [n (%)]				0.80
Catholic	24 (49.0)	66 (50.4)	90 (50.0)	
Evangelical	14 (28.6)	36 (27.5)	50 (27.8)	
Spiritist	7 (14.3)	15 (11.5)	22 (12.2)	
None	1 (2.0)	8 (6.1)	9 (5.0)	
Others	3 (6.1)	6 (4.6)	9 (5.0)	
Time in the profession [n (%)]				0.46
Less than 1 year	4 (8.2)	13 (9.9)	17 (9.4)	
Between 2 and 5 years	18 (36.7)	52 (39.7)	70 (38.9)	
Between 6 and 10 years	10 (20.4)	31 (23.7)	41 (22.8)	
Between 10 and 15 years	11 (22.4)	15 (11.5)	26 (14.4)	
Over 16 years	6 (12.2)	20 (15.3)	26 (14.4)	
Work sector [n (%)]				0.09
Clinical and Surgical Hospitalization	10 (20.4)	37 (28.2)	47 (26.1)	
SMC	1 (2.0)	7 (5.3)	8 (4.4)	
Surgical Center	5 (10.2)	12 (9.2)	17 (9.4)	
Urgency/Emergency	8 (16.3)	14 (10.7)	22 (12.2)	
Maternity	7 (14.3)	21 (16.0)	28 (15.6)	
Pediatrics	2 (4.1)	8 (6.1)	10 (5.6)	
Nursing Management	3 (6.1)	0 (0.0)	3 (1.7)	
ICU	12 (24.5)	23 (17.6)	35 (19.4)	
Outpatient clinics	1 (2.0)	9 (6.9)	10 (5.6)	
Time of performance in the sector [n (%)]				0.26
Less than 1 year	18 (36.7)	34 (26.0)	52 (28.9)	
Between 2 and 3 years	17 (34.7)	40 (30.5)	57 (31.7)	
Between 4 and 5 years	5 (10.2)	21 (16.0)	26 (14.4)	
Between 6 and 7 years	1 (2.0)	15 (11.5)	16 (8.9)	
Over 8 years	8 (16.3)	20 (15.3)	28 (15.6)	
Not specified	0 (0.0)	1 (0.8)	1 (0.6)	
Position held [n (%)]				**<0.01**
Nurse	**38 (77.6)**	0 (0.0)	38 (21.1)	
Nursing Technician	0 (0.0)	**112 (85.5)**	112 (62.2)	
Nursing Assistant	1 (2.0)	**12 (9.2)**	13 (7.2)	
Circulating Nurse	0 (0.0)	**3 (2.3)**	3 (1.7)	
Registry Clerk	0 (0.0)	**3 (2.3)**	3 (1.7)	
Coordinating Nurse	**10 (20.4)**	0 (0.0)	10 (5.6)	
Surgical Instrument Nurse	0 (0.0)	**1 (0.8)**	1 (0.6)	
Work shift [n (%)]				**<0.01**
From 7 am to 1 pm	**4 (8.2)**	7 (5.3)	11 (6.1)	
From 1 pm to 7 pm	2 (4.1)	**14 (10.7)**	16 (8.9)	
From 8 am to 6 pm	**12 (24.5)**	7 (5.3)	19 (10.6)	
Day shift 12/36	19 (38.8)	**56 (42.7)**	75 (41.7)	
Night shift 12/36	12 (24.5)	**47 (35.9)**	59 (32.8)	

Table 1 – Cont.

Characteristic	Nurses	Technicians/ Assistants	Total	*P*
Has another work contract [n (%)]			0.20	
No	47 (95.9)	118 (90.1)	165 (91.7)	
Yes, 1 more	2 (4.1)	13 (9.9)	15 (8.3)	
Income, salary range [n (%)]				**<0.01**
Up to 3 minimum wages	23 (46.9)	**127 (96.9)**	150 (83.3)	
3 to 5 minimum wages	**23 (46.9)**	4 (3.1)	27 (15.0)	
5 to 8 minimum wages	**3 (6.1)**	0 (0.0)	3 (1.7)	

The sample was mostly composed of women (156; 86.7%), predominantly aged up to 35 years old (105; 58%), married (79; 44%), and with up to three years of experience in the work sector (109; 60%). Statistically significant differences were found between nurses and Nursing technicians and assistants in the schooling level, position, work shift, and income variables. Table 2 shows the results of the BSS for nurses, Nursing technicians and assistants.

Table 2 – Stress level in nurses (n=49), in Nursing technicians and assistants (n=131), and in the total sample (n=180). A city in the state of São Paulo, Brazil, 2017. (n=180)

Domains/Questions	Nurses	Technicians/ Assistants	Total	*P*
	n (%)	n (%)	n (%)	
Mean stress score				**0.02**
Low	10 (20.4)	**55 (42.0)**	65 (36.1)	
Medium	**38 (77.6)**	72 (55.0)	110 (61.1)	
High	1 (2.0)	4 (3.1)	5 (2.8)	
1) Relationship with other units and supervisors				**0.02**
Low	18 (37.5)	**74 (56.9)**	92 (51.7)	
Medium	**29 (60.4)**	49 (37.7)	78 (43.8)	
High	1 (2.1)	7 (5.4)	8 (4.5)	
2) Activities related to the adequate functioning of the unit				**0.04**
Low	12 (24.5)	49 (40.2)	61 (35.7)	
Medium	**36 (73.5)**	**65 (53.3)**	101 (59.1)	
High	1 (2.0)	8 (6.6)	9 (5.3)	
3) Activities related to staff management				0.07
Low	12 (25.0)	28 (43.1)	40 (35.4)	
Medium	31 (64.6)	28 (43.1)	59 (52.2)	
High	5 (10.4)	9 (13.8)	14 (12.4)	
4) Nursing assistance provided to the patient				**0.03**
Low	13 (27.1)	**60 (47.2)**	73 (41.7)	
Medium	**33 (68.8)**	60 (47.2)	93 (53.1)	
High	2 (4.2)	7 (5.5)	9 (5.1)	

Domains/Questions	Nurses	Technicians/ Assistants	Total	P
	n (%)	n (%)	n (%)	
5) Coordination of the unit's activities				<0.01
Low	10 (20.4)	**49 (47.6)**	59 (38.8)	
Medium	**38 (77.6)**	46 (44.7)	84 (55.3)	
High	1 (2.0)	8 (7.8)	9 (5.9)	
6) Working conditions to carry out the activities				0.04
Low	11 (22.9)	52 (41.3)	63 (36.2)	
Medium	**34 (70.8)**	**63 (50.0)**	97 (55.7)	
High	3 (6.2)	11 (8.7)	14 (8.0)	

In general, the participants presented medium stress level (110; 61.1%) and, when analyzing the domains in categories, there were differences in all of them, except in domain 3, with higher stress level among the nurses. Table 3 describes the QoL level perceived by the study participants.

Table 3 – Quality of Life of nurses (n=49), of Nursing technicians and assistants (n=131), and for the total sample (n=180). A city in the state of São Paulo, Brazil, 2017. (n=180)

Domain/Questions	Nurses	Technicians/ Assistants	Total	P
	Mean (SD)	Mean (SD)	Mean (SD)	
(A) Physical	65.0 (15.3)	65.5 (15.4)	65.5 (15.3)	0.85
To what extent do you think your (physical) pain prevents you from doing what you need?	1.9 (0.9)	**2.3 (1.0)**	2.2 (1.0)	0.02
How much do you need any medical treatment to lead your daily life?	1.7 (1.0)	2.0 (0.9)	2.0 (0.9)	0.08
Do you have enough energy for your daily routine?	3.0 (0.8)	3.3 (0.9)	3.2 (0.9)	0.05
How well are you able to get around?	**4.3 (0.6)**	4.0 (0.7)	4.1 (0.6)	0.01
How satisfied are you with your sleep?	2.8 (1.0)	2.9 (1.0)	2.9 (1.0)	0.62
How satisfied are you with your ability to carry out your daily activities?	3.0 (0.9)	**3.5 (0.8)**	3.4 (0.9)	<0.01
How satisfied are you with your ability to work?	3.6 (0.7)	3.8 (0.7)	3.7 (0.7)	0.12
(B) Psychological	63.2 (15.5)	65.0 (17.0)	64.5 (16.5)	0.52
How much do you enjoy life?	3.2 (0.8)	3.2 (1.0)	3.2 (1.0)	0.77
To what extent do you think that your life makes sense?	4.0 (0.6)	3.9 (0.8)	3.9 (0.8)	0.45
How much can you concentrate?	3.4 (0.7)	3.6 (0.8)	3.5 (0.8)	0.21
Can you accept your physical appearance?	3.6 (0.9)	3.6 (1.1)	3.6 (1.0)	0.93
How satisfied are you with your physical appearance?	3.5 (0.9)	3.7 (0.9)	3.7 (0.9)	0.12
How often do you have negative feelings (moodiness, despair, etc.)?	2.6 (0.9)	2.5 (1.0)	2.5 (0.9)	0.59

Table 3 – Cont.

Domain/Questions	Nurses	Technicians/ Assistants	Total	P
	Mean (SD)	Mean (SD)	Mean (SD)	
(C) Social Relationships	66.3 (17.2)	68.4 (19.7)	67.8 (19.0)	0.50
How satisfied are you with your social relationships?	3.6 (0.8)	3.8 (0.9)	3.7 (0.9)	0.32
How satisfied are you with your sex life?	3.6 (0.9)	3.8 (0.9)	3.7 (0.9)	0.44
How satisfied are you with the support you receive from your friends?	3.6 (0.7)	3.5 (0.8)	3.6 (0.8)	0.90
(D) Environment	**59.3 (13.2)**	53.5 (14.4)	55.1 (14.3)	0.01
How safe do you feel in your daily life?	3.4 (0.8)	3.5 (0.9)	3.5 (0.8)	0.62
How healthy is your physical environment (weather, noise, pollution, attractions)?	3.0 (0.9)	2.9 (0.8)	2.9 (0.8)	0.45
Do you have enough money to meet your needs?	**2.8 (0.8)**	2.4 (0.8)	2.5 (0.8)	<0.01
How available is the information you need in your daily life?	3.2 (0.7)	3.0 (0.7)	3.1 (0.7)	0.12
To what extent do you have opportunities for leisure activity?	**3.1 (0.8)**	2.7 (0.8)	2.8 (0.8)	0.01
How satisfied are you with the conditions of your place of residence?	4.1 (0.7)	3.9 (0.8)	4.0 (0.8)	0.20
How satisfied are you with your access to the health services?	3.2 (1.0)	3.2 (1.0)	3.2 (1.0)	0.77
How satisfied are you with your means of transport?	**3.8 (1.0)**	3.2 (1.3)	3.4 (1.2)	<0.01

The data demonstrate that the participants are more satisfied with the QoL level related to the physical (65.5%), psychological (64.5%), and social relationships (67.8%) domains of WHOQOL-bref. The environment was the domain with the lowest score (55.1%), which is significantly higher for nurses than for Nursing technicians and assistants. There was a difference between the groups in terms of pain, mobility, daily activities, income, leisure, and transportation. The nurses presented higher valuesthan the assistants and the technicians, except for pain and daily activities. Table 4 shows the results of the multiple linear regression.

Table 4 – Results of the multiple lineal regression.
A city in the state of São Paulo, Brazil, 2017.

Domain	ß	95% CI	P
Physical domain (R^2=0.28)			
Intercept	44.3	32.2 – 56.5	<0.01
Female gender	-7.1	-12.9 – -1.4	0.01
Schooling level: elementary school and Master's degree	12.6	3.3 – 22.0	<0.01
Income – More than 5 minimum wages	15.8	0.8 – 30.8	0.03
Domain 4 – Nursing assistance - low	13.4	3.3 – 23.4	<0.01
- medium	10.2	0.6 – 19.7	0.03
Domain 6 – Working conditions - low	16.8	8.3 – 25.4	<0.01
- medium	10.0	2.3 – 17.7	0.01

Table 4 – Cont.

Domain	ß	95% CI	P
Psychological domain (R²=0.20)			
Intercept	48.3	35.7 – 60.8	<0.01
Female gender	-8.1	-14.6 – -1.5	0.01
Belief - Catholic, Evangelic, Spiritist	11.6	4.2 – 19.0	<0.01
Work sector – Clinical and Surgical Hospitalization, Pediatrics	10.5	0.8 – 20.2	0.03
Domain 4 – Nursing assistance - low	18.2	6.8 – 29.5	<0.01
- medium	15.2	4.6 – 25.9	<0.01
Domain 6 – Working conditions - low	10.9	1.2 – 20.7	0.02
- medium	7.5	-1.2 – 16.3	0.09
Social relationships domain (R²=0.16)			
Intercept	46.6	31.8 – 61.3	<0.01
Female gender	-7.7	-15.4 – -0.1	0.04
Domain 4 – Nursing assistance - low	16.4	3.0 – 29.7	0.01
- medium	15.3	2.7 – 27.8	0.01
Domain 6 – Working conditions - low	18.1	6.6 – 29.6	<0.01
- medium	11.6	1.2 – 21.9	0.02
Environment domain (R²=0.29)			
Intercept	34.0	24.4 – 43.5	<0.01
Belief - Catholic, Evangelic, Spiritist	6.8	0.8 – 12.9	0.02
Schooling level: elementary school and Master's degree	16.1	1.2 – 31.1	0.03
Time in the profession – Less than 1 year	-7.9	-14.1 – -1.7	0.01
Domain 4 – Nursing assistance - low	16.8	7.4 – 26.3	0.01
- medium	16.1	7.3 – 24.9	0.01
Domain 6 – Working conditions - low	13.5	5.4 – 21.7	<0.01
- medium	9.0	1.7 – 16.3	0.01

Multiple linear regression analysis showed that the gender, schooling level, belief, sector, time in the profession, income, and stress variables are associated with QoL, and that the socio-occupational variables and stress impact on 16% to 29% of the QoL of the Nursing workers. The gender variable was a significant predictor for the physical, psychological, and social relationships domains, with the female gender showing a reduction estimate between 7.1 and 8.1 points in QoL.

The schooling level was a significant predictor for the physical and environment domains. The workers with complete elementary education and master's degrees showed an increase estimate of 12.6 and 16.1 points in the physical and environment domains of QoL. The work sector was a predictor for the psychological domain, with estimates of increase varying by 10.5 points in the sectors of clinical and surgical hospitalization and pediatrics. The time in the profession was a predictor in the environment domain, and the workers with less than a year in the profession had a reduction of 7.9 points in the that domain. Income was a predictor in the physical domain, so that incomes above 5 minimum wages caused an increase of 15.8 points in the physical domain.

The stress associated with Nursing assistance and the working conditions were significant predictors for the physical domain, with estimates of increase ranging from 7.5 to 18.2 points for the low and medium stress category. Thus, considering all the variables that predict QoL, stress related to

Nursing assistance and the working conditions were the most important variables for all the domains of QoL.

DISCUSSION

The results of this study demonstrated that both socio-occupational variables and stress impact on the QoL of the Nursing workers, pointing to a relationship between work, stress and QoL.

The study sample consisted of a young population, with a predominant age of up to 35 years old, a fact which converges with the profile of the Nursing category evidenced in the literature.[21] There was also a statistically significant difference for wage, position, schooling levels, and work shift between the categories of nurses and Nursing technicians/assistants, an expected relationship, considering the technical and social division of the Nursing work.

QoL obtained a mean of 63% in this study; the closer to 100%, the better the perceived QoL, since there is no defined cutoff point for the Brazilian context. The social relationships domain obtained the highest mean among the participants, demonstrating that personal and social relationships and family support are factors that favor QoL, unlike the low mean values obtained in this domain in another study with Nursing workers, which related the results found to their incompatibility in reconciling work with participation in social activities.[22]

On the other hand, the low percentages in the environment domain can be related to the precariousness of the conditions and organization of the work process, as pointed out by studies that identified lower scores in complex work sectors, such as the ICUs and the SCs, characterized by high workload, noisy environment, artificially lit and with insufficient availability of resources and materials.[22–23]

The work shift was a predictor of the physical domain: a reduction of 4.3 points in QoL was estimated in the morning and night shifts. The association of night work with the reduction of QoL is mainly related to the modification of the sleep pattern[12;22–24] and to the organic imbalances that impact on physical and psychological well-being.[12] The reduction in the QoL of the morning shift workers is not consolidated in the scientific literature, but it can be associated with the accumulation of Nursing care at this time of day.

Still in the physical domain, the values referred to for pain stand out, higher in Nursing assistants and technicians. The literature points out that Nursing technicians may be more affected by posture problems related to activities such as changing the patient to decubitus, daily tasks related to patient care and even work overload,[23] which can justify the increased occurrence of pain in these workers.

The female gender was a predictor for the reduction in perceived QoL among Nursing workers in the physical (6.4 points), psychological (8.6 points), and social relationships (8.9 points) domains. The literature indicates that the configuration of the workday is different between men and women, emphasizing that women work a total of hours similar to that of men, but spend a twice as long mean time with household chores.[25] This association between formal working hours and household chores results in an extension of the perceived workday, contributing to the reduction in the QoL of this group.[25]

Belief, regardless of which, was a protective factor for QoL, impacting between 6.7 and 13 points in the physical and psychological domains. The coping strategies for regulating emotion, which include those related to spirituality, are common among the nurses and can be influenced by the gender and cultural characteristics of these workers.[26]

The work sector was a predictor for QoL in the physical, psychological, and environment domains, with estimates ranging from a reduction of 22.6 for the physical domain (medical clinic) to an increase of 13.2 points for the environment domain (hemodynamic). In a complementary manner, stress related to the working conditions was the most important variable for the environment domain.

The findings converge with studies that point to the influences of aspects of the Nursing work process on QoL, such as direct assistance to the patients[18] and to highly complex patients,[22–24] as well as living with the patients' pain and suffering,[22–24] in addition to a high workload and an accelerated work pace.[12,23] These aspects result in a decrease in the sensation of healthiness[22] and in an increase in the stress level, negatively impacting on QoL.

When interpreting the isolated results referring to the mean stress scores of the BSS, a similarity is observed with recent studies[27–28] that also identified the majority of nurses with medium stress level in the hospital context.

It was observed that the stress associated with Nursing assistance was the most important variable for the psychological domain, so that this study evidenced medium and high stress levels in nearly 80% of the nurses and 58% of the Nursing technicians/assistants, unlike a study that showed a higher stress level among the technical workers,[29] related to direct patient care activities.

It is believed that this finding reflects the managerial dimension assumed by the nurses in the hospital work process, which involves team supervision, conflict management, and mediation between different professionals, sectors and institutional interests. This assertion is anchored in the significant differences found in the domains of relationships with other units, with supervisors, and with the coordination of the unit's activities.

The limitations of this study are the following: the application of the BSS in the group of Nursing technicians/assistants; its having been conducted in a single hospital institution; and the possibility of bias in the selection of the sample, considering that the Nursing professionals who were away from work were excluded.

On the other hand, the relevance of the findings is pointed out, which evidenced the working conditions and stress in the hospital environment as predictive factors for the QoL of the Nursing workers, signaling the need for investments in improving the work context and reducing the number of stressors. The diverse evidence of this study also points to the urgency of actions directed at nurses, who presented greater stress, possibly because they assume the managerial dimension in care management.

CONCLUSION

This study demonstrated an association between the working conditions, stress, and QoL in Nursing workers, with a higher stress level (medium stress) in all the domains among the nurses. Female gender, schooling level, time in the profession, and income were predictive variables for QoL; the stress related to the domains of Nursing assistance and of the working conditions was the most important for all the domains of QoL.

The findings reinforce the relevance of institutional actions in promoting a healthy and safe environment for the Nursing workers, since stress reduction generates an increase in QoL and, in turn, contributes to the qualification of patient care and safety.

REFERENCES

1. Sousa VFS, Araujo TCCF. Occupational stress and resilience among health professionals. Psicol Cienc Prof [Internet] 2015 [cited 2019 Mar 30];35(3):900-15. Available from: https://doi.org/10.1590/1982-370300452014

2. Angelim RCM, Rocha GSA. Scientific production about the working conditions of nursing in emergency and urgent services. J Res Fundam Care Online [Internet] 2016 [cited 2019 Mar 30];8(1):3845-59. Available from: https://org/10.9789/2175-5361.2016.v8i1.3845-3859

3. Santana LL, Sarquis LMM, Miranda FMD, Kalinke LP, Felli VEA, Mininel VA. Health indicators of workers of the hospital area. Rev Bras Enferm [Internet]. 2016 [cited 2019 Mar 30];69(1):30-9. Available from: https://doi.org/10.1590/0034-7167.2016690104i

4. Silva JLL, Lima RP, Taveira RPC, Costa FSC, Soares RS. Arterial pressure control for nursing military professionals. J Res Fundam Care Online [Internet] 2016 [cited 2019 Mar 30];8(1):3646-66. Available from: https://doi.org/10.9789/2175-5361.2016.v8i1.3646-3666

5. Lahana E, Papadopoulou K, Roumeliotou O, Tsounis A, Sarafis P, Niakas D. Burnout among nurses working in social welfare centers for the disabled. BMC Nurs [Internet]. 2017 [cited 2019 Mar 30];16:15. Available from: https://doi.org/10.1186/s12912-017-0209-3

6. Martins MGT, Castro O, Pereira PPG. Body, stress and nursing: ethnography of an intensive care and surgical center. Estud Psicol [Internet]. 2013 [cited 2019 Mar 30];30(4):525-37. Available from: https://doi.org/10.1590/S0103-166X2013000400006

7. Cruz SP, Abellán MV. Professional burnout, stress and job satisfaction of nursing staff at a university hospital. Rev Lat Am Enfermagem [Internet]. 2015 [cited 2019 Mar 30];23(3):543-52. Available from: https://doi.org/10.1590/0104-1169.0284.2586

8. Junqueira L. A Importância da detecção do estresse: psicofisiologia e impacto na saúde física e mental das pessoas. Braz J Psychiatry [Internet]. 2015 [cited 2019 Mar 30];20(12):1. Available from: https://www.polbr.med.br/ano15/art1215.php

9. Ko W, Kiser-Larson N. Stress levels of nurses in oncology outpatient units. Clin J Oncol Nurs [Internet]. 2016 [cited 2019 Mar 30];20(2):158-64. Available from: https://doi.org/10.1188/16. CJON.158-164

10. World Health Organization. WHOQOL: measuring quality of life – introducing the WHOQOL instruments. WHO Online Content; 2019. Available from: https://www.who.int/healthinfo/survey/whoqol-qualityoflife/en/

11. Amaral JF, Ribeiro JP, Paixão DX. Quality of life work of nursing professionals in hospitals: an integrated review. Espac Saúde. 2015;16(1):66-74.

12. Costa KNFM, Costa TF da, Marques DRF, Viana LRC, Silviano GR, Oliveira MS de. Quality of life related to the health of nursing professionals. J Nurs UFPE Online. [Internet]. 2017 [cited 2019 Mar 30];11(2):881-9. Available from: https://doi.org/10.5205/1981-8963-v11i2a13456p881-889-2017

13. Zavala MOQ, Klinj TP, Carrillo KLS. Quality of life in the workplace for nursing staff at public healthcare institutions. Rev Lat Am Enfermagem [Internet]. 2016 [cited 2019 Mar 30];24:e2713. Available from: https://doi.org/10.1590/1518-8345.1149.2713

14. Alfredo PP, Biondi JCL, Manna V. Evaluation of quality of life and stress in academic course of physiotherapy. J Health Sci Inst [Internet]. 2016 [cited 2019 Mar 30];34(4):224-30. Available from: http://pesquisa.bvsalud.org/portal/resource/pt/biblio-848935?lang=fr

15. Silva MA, Lampert SS, Bandeira DR, Bosa CA, Barroso SM. Emotional health of community agents: burnout, stress, well-being and quality of life. Rev SPAGESP [Internet]. 2017 [cited 2019 Mar 30];18(1):20-33. Available from: http://pepsic.bvsalud.org/pdf/rspagesp/v18n1/v18n1a03.pdf

16. Cesário VAC, Leal MCC, Marques APO, Claudino KA. Stress and quality of life of the family caregivers of elderly with Alzheimer's disease. Saúde Debate [Internet]. 2017 [cited 2019 Mar 30];41(112):171-82. Available from: https://doi.org/10.1590/0103-1104201711214

17. Rodrigues CP, Amorim JSC, Cicero AC, Alves LA, Fernandes KBP, Trelha CS. Stress and quality of life in technical and auxiliary nursing in long term care institutions for elderly. O Mundo Saúde [Internet]. 2016 [cited 2019 Mar 30];40(2):180-8. Available from: https://doi.org/10.15343/0104-7809.20164002180188

18. Azevedo BDS, Nery AA, Cardoso JP. Occupational stress and dissatisfaction with quality of work life in nursing. Texto Contexto Enferm [Internet]. 2017 [cited 2019 Mar 30];26(1):e3940015. Available from: https://doi.org/10.1590/0104-07072017003940015

19. Bianchi ERF. Bianchi stress questionnaire. Rev Esc Enferm USP [Internet]. 2009 [cited 2019 Mar 30];43(Spe):1055-62. Available from: https://doi.org/10.1590/S0080-62342009000500009

20. Fleck MPA, Louzada S, Xavier M, Chachamovich E, Vieira G, Santos L, Pinzon V. Application of the Portuguese version of the abbreviated instrument of quality life WHOQOL-bref. Rev Saude Publica [Internet]. 2000 [cited 2019 Mar 30];34(2):178-83. Available from: https://doi.org/10.1590/S0034-89102000000200012

21. Machado MH, Aguiar W Filho, Lacerda WF, Oliveira E, Lemos W, Wermelinger M, et al. Características gerais da enfermagem: O perfil sócio demográfico. Enferm Foco [Internet]. 2015 [cited 2019 Mar 30];6(1-4):11-7. Available from: https://doi.org/10.21675/2357-707X.2016.v7.nESP.686

22. Moraes BFM, De Martino MMF, Sonati JG. Perception of the quality of life of intensive care nursing professionals. REME Rev Min Enferm [Internet]. 2018 [cited 2019 Mar 30];22:e-1100. Available from: https://doi.org/10.5935/1415-2762.20180043

23. Souza VS, Silva DS, Lima LV, Teston EF, Benedetti GMS, Costa MAR, et al. Quality of life of nursing professionals working in critical sectors. Rev Cuid [Internet]. 2018 [cited 2019 Mar 30];9(2):2177-86. Available from: https://doi.org/10.15649/cuidarte.v9i2.506

24. Silva AE, Lima PKM, Oliveira C. Quality of life of the average level of nurses in intensive care unit. Rev Enferm Cent O Min. [Internet]. 2016 [cited 2019 Mar 30];6(3):2318-30. Available from: https://doi.org/10.19175/recom.v6i3.1000

25. Fernandes JC, Portela LF, Griep RH, Rotenberg L. Working hours and health in nurses of public hospitals according to gender. Rev Saude Publica [Internet]. 2017 [cited 2019 Mar 30];51:63. Available from: https://doi.org/10.1590/s1518-8787.2017051006808

26. Zyga S, Mitrousi S, Alikari V, Sachlas A, Stathoulis J, Fradelos E, et al. Assessing factors that affect coping strategies among nursing personnel. Mater Sociomed [Internet]. 2016 [cited 2019 Mar 30];28(2):146-50. Available from: https://doi.org/10.5455/msm.2016.28.146-150

27. Zavalis A, De Paula VG, MachadoDA, Marta CB, Perez Junior EF, Santiago LC. The level of stress of nurses in the intensive care unit. J Res Fundam Care Online [Internet]. 2019 [cited 2019 Mar 30];11(1):205-10. Available from: https://doi.org/10.9789/2175-5361.2019.v11i1.205-210

28. Oliveira EM, Souza EA, Tonini NS, Maraschin MS. Stress level in nurses in a hospital institution. Nursing [Internet]. 2018 [cited 2019 Mar 30];21(244):2355-9. Available from: http://portal.fundacaojau.edu.br:8077/sif/revista_nursing/RevistaNursing_244.pdf

29. Trettene AS, Andrade CS, Kostrisch LMV, Tabaquim MLM, Razera APR. Stress in nursing professionals working at a specialized hospital. J Nurs UFPE Online [Internet]. 2016 [cited 2019 Mar 30];10(12):4450-8. Available from: https://doi.org/10.5205/1981-8963-v10i12a11509p4450-4458-2016

NOTES

ORIGIN OF THE ARTICLE
Extracted from the Course Conclusion Paper - Stress and Quality of Life in hospital Nursing workers, presented to the Nursing Graduation Course of the Universidade Federal de São Carlos, in 2017.

CONTRIBUTION OF AUTHORITY
Study design: Mininel VA.
Data collection: Silva MR, Miranda FM, Mieiro DB.
Data analysis and interpretation: Silva MR, Miranda FM, Mieiro DB, Sato TO, Silva JAM, Mininel VA.
Discussion of the results: Silva MR, Miranda FM, Mieiro DB, Sato TO, Silva JAM, Mininel VA.
Writing and/or critical review of content: Silva MR, Miranda FM, Mieiro DB, Sato TO, Silva JAM, Mininel VA.
Review and final approval of the final version: Silva MR, Miranda FM, Mieiro DB, Sato TO, Silva JAM, Mininel VA.

APPROVAL OF ETHICS COMMITTEE IN RESEARCH
Approved in the Research Ethics Committee of the *Universidade Federal de São Carlos*, UFSCar, under Opinion No.1,664,548 and Certificate of Presentation for Ethical Consideration No. 57073716.5.0000.5504.

CONFLICT OF INTEREST
There is no conflict of interest.

CORRESPONDING AUTHOR
Vivian Aline Mininel
vivian.aline@gmail.com