

## Burnout and Stress Among Nurses in a University Tertiary Hospital<sup>1</sup>

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This cross-sectional, analytical and correlational study investigated the existence of Burnout based on a sample of 149 nurses of a university tertiary hospital from October to December 2008 and correlate Burnout with stressors in the hospital work environment. The Maslach Burnout Inventory, the Nurses' Stress Inventory and a questionnaire to characterize the subjects were applied. The results indicated the presence of Burnout in 7.3% of nurses (quartile) and 10.22% (tercile), and also a correlation among the inventories' domains. Vulnerability to this type of illness among nurses was increased by stress experienced in the work environment.

Descriptors: Public Health; Occupational Health; Mental Health; Nursing; Burnout, Professional.

<sup>1</sup> Article extracted from Master's Dissertation "A Síndrome do Esgotamento Profissional e os Fatores de Estresse em Enfermeiros de um Hospital Universitário" presented to Programa de Pós-graduação em Enfermagem, Faculdade de Ciências Médicas, Universidade Estadual de Campinas, SP, Brazil. Supported by Fundação de Amparo à Pesquisa do Estado de São Paulo, under process n. 2007/57528-6.

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## **Burnout e estresse em enfermeiros de um hospital universitário de alta complexidade**

Estudo transversal, analítico e correlacional que objetivou investigar a existência de Burnout em amostra de 149 enfermeiros de um hospital universitário de alta complexidade, no período de outubro a dezembro de 2008, correlacionando-o com estressores do ambiente de trabalho hospitalar. Foram aplicados o inventário de Burnout de Maslach, o inventário de estresse em enfermeiros e uma ficha de caracterização dos sujeitos. Os resultados indicaram a presença das três dimensões sugestivas de Burnout em 7,3% dos enfermeiros (quartil) e 10,22% (tercil), bem como a correlação entre domínios dos inventários. A vulnerabilidade para esse tipo de adoecimento em enfermeiros foi potencializada pela vivência de estresse no ambiente de trabalho.

Descritores: Saúde Pública; Saúde do Trabalhador; Saúde Mental; Enfermagem; Esgotamento Profissional.

## **Burnout y estrés en enfermeros de un hospital universitario de alta complejidad**

Se trata de un estudio transversal, analítico y de correlación que tuvo por objetivo investigar la existencia de Burnout en una muestra de 149 enfermeros de un hospital universitario de alta complejidad, en el período de octubre a diciembre de 2008, correlacionándolo con factores de estrés del ambiente de trabajo hospitalario. Fueron aplicados el Inventario de Burnout de Maslach, el Inventario de Estrés en Enfermeros y una ficha de caracterización de los sujetos. Los resultados indicaron la presencia de las tres dimensiones indicativas de Burnout en 7,3% de los enfermeros (cuartil) y 10,22% (tercil), así como la correlación entre dominios de los inventarios. La vulnerabilidad para ese tipo de enfermedad, en enfermeros, fue potencializada por la existencia de factores de estrés en el ambiente de trabajo.

Descriptorios: Salud Pública; Salud Laboral; Salud Mental; Enfermería; Agotamiento Profesional.

### **Introduction**

The focus of this study emerges from the context of relations between psychological load and work, acknowledged by the Psychodynamics of Work<sup>(1)</sup>. Lack of adaptation between the needs that accrue from the mental structure and the tasks' ergonomic content in the workers' experience lead to dissatisfaction, suffering or anxiety, feelings rarely expressed in words or clearly manifested by workers<sup>(2)</sup>. That is why this study assumes that nurses are especially vulnerable to mental disorders related to work such as Burnout, since their objects of work such as care, education, management, research and political participation are actions that depend on intense interpersonal relationships that occur in dynamic and overloaded work contexts.

In terms of profession, it is acknowledged that an expressive number of nurses with Burnout not

characterized as a consequence of their occupation, can contribute to belittling their activity as these workers may be seen by clients and colleagues as bad and cold professionals, indifferent to human suffering, disease and death. Burnout in nursing workers is harmful in the individual and professional spheres because it can negatively affect the quality of nursing care delivered to patients and family members in health services in a time when humanization in health care is a priority.

Burnout, also called Professional Burnout Syndrome or Burnout Syndrome, is a process in which the work context and interpersonal aspects contribute to the development of burnout and a condition of psychological suffering related to work organization characterized by three dimensions: Emotional Exhaustion (EE), Depersonalization (D) and feelings of

Professional Incompetence (PI) (Reduced Professional Accomplishment), which can be independent or associated<sup>(3)</sup>.

Emotional exhaustion is the first response to chronic occupational stress, accompanied by physical exhaustion and depleted emotional resources to deal with the stressing situation<sup>(4)</sup>. Depersonalization, in the sense of dehumanization, refers to the perception of deteriorated problem-solving capacity and diminished satisfaction with work accomplishments, leading to emotional insensitivity, at which point the professional starts to treat the recipients of health care, colleagues and the organization in a dehumanized manner<sup>(4)</sup>. Manifestations such as anxiety, increased irritability, lack of motivation, reduced work goals and commitment to results, reduced idealism, alienation and egoistic attitudes<sup>(5)</sup> are common at this point. Professional incompetence or reduced professional accomplishment is characterized by a tendency of workers to negatively self-evaluate themselves, thus becoming unhappy and dissatisfied with their professional performance, which as a further consequence, leads to a diminished sense of competence, success and ability to interact. Burnout is the final phase of an ongoing process, with feelings of inadequacy in relation to the job, lack of resources to tackle the job, insufficient education, and diminished problem-solving capacity.

The literature discusses the limits between stress and Burnout: the exposure to work factors perceived as dissatisfaction by workers leads to physical and emotional exhaustion, which initially appears under the form of stress accompanied by efficient coping mechanisms<sup>(6)</sup>. If exposure to stress factors is perceived by the worker as dissatisfaction without efficient and sufficient coping strategies, Burnout sets in. While stress can present both positive and negative aspects, Burnout always has a negative character<sup>(3)</sup>.

In terms of recognition of workers' health protection and promotion arising in the Constitution of the Federative Republic of Brazil<sup>(7)</sup> and the Organic Health Law<sup>(8)</sup>, the Regulation of Social Security<sup>(9)</sup> was approved, which acknowledges Burnout as a disease related to the special condition of work, associating it with risk factors of an occupational nature such as "laborious work pace" and "other physical and mental difficulties related to work". The Social Security Protocol on Medical-Expert Procedures on Burnout states that in the face of the syndrome's epidemiological evidence in certain occupational groups, its occurrence in these

groups can be classified as "occupational disease"<sup>(10)</sup>. It is important to stress that for a condition to be characterized as Burnout Syndrome, a relationship with occupation must exist<sup>(10)</sup>.

The levels of Burnout differ according to culture, professional category and occupational characteristics, evidencing the importance of specific studies for each population<sup>(3)</sup>. Despite the academic and legal acknowledgement of Burnout, its diagnosis and report as an occupational-related disease is still a challenge for Worker Health. Hence, this study investigates the existence of Burnout in a group of nurses in a tertiary university hospital and its relation with occupational stress.

From this perspective, this study can support the understanding of this condition and provide suggestions to cope with occupational problems such as professional dissatisfaction, absenteeism, job turnover, occupational accidents, occupation-related diseases and abandonment of profession, and also allow the comparison of results among studies, demonstrating its social relevance.

## Method

This is a cross-sectional, exploratory, analytical and correlational study. Data collection was carried out between October and December 2008 in clinical, medical and surgical inpatient units, intensive therapy units, Emergency Department, Pediatric Nursing Service, Nephrology Integrated Center, and Day Hospital for AIDS treatment, all linked to the Nursing Department of a large tertiary university hospital, that solely cares for patients within the Brazilian Single Health System (SUS).

The simple random sample was composed of 149 nurses (care, support, supervision and management) of the morning, afternoon, and night shifts and administrative office hours, proportionally drawn according to the workplace, obtained from a population of 267 nurses. The following inclusion criteria were used: being a nurse, working in the places previously defined in the study, and returning appropriately completed instruments. The exclusion criterion was being on leave or vacation during data collection. In order to meet the study's objectives the following instruments were used: a form developed by the researchers to collect characterization data of participants, the Maslach Burnout Inventory (MBI)<sup>(11)</sup>, and the Nurses' Stress Inventory (NSI)<sup>(12)</sup>.

According to the MBI's authors, it was constructed with 22 items scored on a Likert scale from 0 to 4 according to the frequency with which stressors are perceived. The 22 items are composed by the subscales Emotional Exhaustion (9 items), Depersonalization (5 items) and Incompetence (8 items). The subscales' scores are summed into a global score; the higher the Emotional Exhaustion and Depersonalization, the higher the final score. In the case of Incompetence, the higher the score the lower is for Competence, generating Incompetence<sup>(11)</sup>.

There is no consensus in studies investigating the prevalence of Burnout in specific groups of workers regarding the cutoff point to classify subscales in low, moderate and high according to the original version of the Maslach Burnout Inventory<sup>(13-14)</sup>. Therefore, this study established cutoff points by quartiles (25% and 75%)<sup>(11)</sup> and terciles (33.3% and 66.6%)<sup>(15)</sup> to classify the studied sample in low, moderate or high levels of Burnout.

The Nurses' Stress Inventory (NSI) was developed to measure the frequency with which the strongest stressors in the workplace are perceived by nurses<sup>(12)</sup>. It has 38 valid statements on a 5 points Likert scale where the highest scores are attributed to the highest level of stress. Scores are computed by factor (domain) and global score. The NSI has three domains: Interpersonal Relationships (IR) with 17 items, related to interpersonal relationships with other professionals, patients, family members, students, workgroup, and also updated and repetitive work; Role Stressors in Career (RSC) with 11 items related to non-defined roles, lack of acknowledgment, lack of a recognition, lack of autonomy in the profession, impossibility of performing certain tasks, organizational aspects and physical environment; and Intrinsic Work Factors (IWF) with 10 items related to functions performed, work hours, and inadequate resources<sup>(12,16)</sup>. Similar to the MBI, cutoff points in quartiles and terciles were used to classify scores as high, average and low.

Data were stored in an electronic spreadsheet in the Excel for Windows, version 2007, checked, corrected and transferred to the Statistical Analysis System (SAS) version 9.1.3 to perform the statistical analysis.

Cronbach's alphas of 0.504; 0.669 and 0.769 were obtained for the dimensions Emotional Exhaustion, Depersonalization and Incompetence of BMI respectively,

which varied from 0.898 to 0.909 per question. For the NSI, alphas were 0.840; 0.687 and 0.768 for the domains Interpersonal Relationships, Role Stressors in Career and Intrinsic Work Factors respectively and varied by question from 0.941 to 0.945. Considering that an alpha above 0.50 is acceptable<sup>(17)</sup>, the obtained values were accepted and allowed the study to proceed.

To identify and ordinate the magnitude of correlations between stress (NSI) and Burnout (MBI), correlation values below 0.30 were considered weak, between 0.30 and 0.50 moderate and above 0.50 strong<sup>(18)</sup>. Level of significance was set at 5.0%.

The guidelines of the resolution 196/96, National Council of Health, which were applicable to the study, were fully complied with and the research project was submitted to and approved by the Research Ethics Committee at the Faculty of Medical Sciences, State University of Campinas (N. 190/2008).

## Results

A total of 84.6% were women and 15.4% were men in the total sample (n=149). Age varied between 23 (minimum) to 59 years old (maximum), an average of 40.5 years, standard deviation 8.4 and median 42 years; 52.7% of the nurses had children (from 1 to 4) and 47.3% had no children.

The average of time since graduation was 14.6 years, the average time working at the hospital was 13.7 years and average time working at the hospital as nurses was 13.3 years; 8.7% of nurses had more than one bachelor's degree (general administration, social communication, law, pharmacy, letters, medicine, veterinary and dentistry); the highest degree reported by 52.0% of nurses was specialization and MBA and 4.0% Master's degree and doctorate.

A total of 87.3% of the nurses delivered care and 12.7% were directors, supervisors or supporters, positions directly linked to management; 24.2% of nurses had more than a paid nursing job, especially that of professor. Paid jobs other than in the nursing field were reported by 3.4% of the nurses such as: surgical instrumentist, on-call physician and dentist. Occupational health problems in the last six months were reported by of 49.2% nurses.

The results of the MBI and NSI are presented in the tables that follow.

Table 1 – Distribution of nurses by domains of the MBI according to the categories low, moderate and high, Brazil, 2008

Domain	Category	Quartile			Tercile		
		Score	n	%	Score	n	%
Emotional Exhaustion	Low	0 to 11	37	25.2	0 to 14	58	39.5
	Moderate	12 to 24	77	52.4	15 to 21	40	27.2
	High	25 to 36	33	22.4	22 to 36	49	33.3
Depersonalization	Low	0 to 3	38	26.4	0 to 4	51	35.4
	Moderate	4 to 9	75	52.1	5 to 8	55	38.2
	High	10 to 20	31	21.5	9 to 20	38	26.4
Competence	Low	9 to 19	40	27.8	9 to 19	40	27.8
	Moderate	20 to 27	74	51.4	20 to 25	58	40.3
	High	28 to 32	30	20.8	26 to 32	46	31.9

Emotional Exhaustion: average 17.5; standard deviation 8.1; median 17.0

Depersonalization: average 6.4; standard deviation 4.3; median 6.0

Competence: average 22.7; standard deviation 5.1; median 22.5

A total of 22.4% (quartile) and 33.3% (tercile) fit in the category Emotional Exhaustion; 21.5% (quartile) and 26.4% (tercile) in the category Depersonalization; and 27.8% (quartile and tercile) in the category Reduced Competence (Incompetence).

High scores were found for Emotional Exhaustion and Depersonalization and low scores were found for Competence (generating Incompetence) and 7.30% (quartile) and 10.22% (tercile) of nurses obtained high scores in the three domains.

Table 2 – Distribution of nurses by domain of the NSI according to the categories low, moderate and high, Brazil, 2008

Domain	Category	Quartile			Tercile		
		Score	n	%	Score	n	%
Interpersonal relationships	Low	17 to 39	37	26.2	17 to 41	47	33.3
	Moderate	40 to 63	74	52.5	42 to 49	46	32.6
	High	64 to 83	30	21.3	60 to 83	48	34.0
Role Stressors in Career	Low	13 to 27	37	25.7	13 to 28	45	31.3
	Moderate	28 to 38	75	52.1	29 to 35	51	35.4
	High	39 to 53	32	22.2	36 to 47	48	33.3
Intrinsic Factors to Work	Low	14 to 26	41	27.5	14 to 27	51	32.9
	Moderate	27 to 36	71	47.7	28 to 35	56	36.1
	High	37 to 47	37	24.8	36 to 47	42	28.2
Total NSI	Low	44 to 97	36	26.3	44 to 105	48	35.0
	Moderate	98 to 135	68	49.6	106 to 126	43	31.4
	High	136 to 175	33	24.1	127 to 175	46	33.6

Interpersonal relationships: average 50.7; standard deviation 15.7 and median 50.0

Role Stressors in Career: average 32.5; standard deviation 8.2 and median 31.0

Intrinsic factors to career: average 31.2; standard deviation 6.8 and median 31.0

NSI total: average 114.8; standard deviation 26.6 and median 114.0

A total of 21.4% (quartile) and 34.0% (tercile) scored high in the category Interpersonal Relationships; 22% (quartile) and 33.3% (tercile) scored high in the category Role Stressors in Career; and 24.8% (quartile) and 28.2% (tercile) scored high in the category Intrinsic Factors to Work; 24.1% (quartile) and 33.6% (tercile) of nurses in the studied sample scored high in the global score (total NSI). The number of dimensions with high

scores for the categories Interpersonal Relationships, Role Stressor in Career and Intrinsic Factors to Work was computed and 8.03% (quartile) and 13.14% (tercile) of the nurses were identified with high levels of stress in the three domains.

The intra and inter correlations among the instruments' domains (MBI and NSI) were tested and are presented in the following tables.

Table 3 – Intra-domains correlations of the BMI, Brazil, 2008

	Depersonalization			Incompetence		
	n	p	r	n	P	r
Emotional Exhaustion	142	<0.0001	0,60	142	<0.0001	- 0.47
Depersonalization	-	-	-	139	<0.0001	- 0.36

n: nurses

p: p-value

r: Spearman's correlation coefficient

The MBI application indicated that the correlation between Emotional Exhaustion and Depersonalization was strong (0.60); the correlation between Emotional Exhaustion and Incompetence was moderate and

inverse (-0.47); and between Depersonalization and Incompetence, the correlation was also moderate and inverse (-0.36).

Table 4 – Intra domains of the NSI, Brazil, 2008

Domains	Stressor Role in Career			Intrinsic Factors to Work			Total NSI		
	n	p	r	n	p	r	n	p	r
Interpersonal Relations	137	<0.0001	0.58	141	<0.0001	0.50	137	<0.0001	0.91
Stressor Role in Career	-	-	-	144	<0.0001	0.72	137	<0.0001	0.86
Intrinsic Factors to Work	-	-	-	-	-	-	137	<0.0001	0.78

n: nurses

p: p-value

r: Spearman or Pearson correlation coefficient

The NSI application evidenced that the correlation between the Role Stressors in Career and Intrinsic Factors to Work was strong (0.72); between the Role Stressors in Career and Interpersonal Relations was also

strong (0.58); and the correlation between Interpersonal Relations and Intrinsic Factors to Work was moderate (0.50). The correlations between total NSI and each of the domains were strong.

Table 5 – Correlations between the inventories NSI and the MBI applied in nurses, Brazil, 2008

Domains	Interpersonal Relations			Role Stressors in Career			Intrinsic Factors to work			Total NSI		
	n	p	r	n	p	R	n	p	r	n	p	r
Emotional Exhaustion	139	<0.0001	0.50	144	<0.0001	0.57	147	<0.0001	0.65	137	<0.0001	0.60
Depersonalization	136	0.0013	0.27	140	<0.0001	0.46	144	<0.0001	0.38	133	<0.0001	0.40
Incompetence	137	0.0410	-0.17	140	0.0005	-0.29	144	0.0025	-0.25	133	0.0014	-0.27

n: nurses

p: p-value

r: Spearman or Pearson correlation coefficient

The correlations between the do mains MBI and NSI were strong between Emotional Exhaustion and Intrinsic Factors to Work (0.65), and moderate between Emotional Exhaustion and the Stressor Role in Career (0.57) and between Emotional Exhaustion and total NSI (0.60). Moderate correlations were found between Emotional Exhaustion and Interpersonal Relations (0.50); between Depersonalization and the Role Stressors in Career (0.46); between Depersonalization and Intrinsic Factors to Work (0.38); and between Depersonalization and total NSI (0.40).

## Discussion

The MBI analysis compared this study's averages to those of the original<sup>(6,11)</sup>, and increased Emotional Exhaustion and Depersonalization as well as diminished Competence were observed in the studied sample. The MBI application evidenced three dimensions that suggested Burnout in 7.3% (quartile) and 10.2% (tercile) of the sample. The application of the NSI revealed high levels of stress in the three domains 8.03% (quartile) and 13.14% (tercile), indicating the need for the health

service management and the Worker Health service to investigate epidemiological evidence<sup>(10)</sup>. The obtained results reinforce the assertion that psychosocial stressors are as potent as microorganisms and insalubrities in the onset of diseases. Hence, a tense and unsatisfactory work atmosphere coupled with long work hours result in stress factors<sup>(19)</sup>, which reinforce the view that nursing is a very stressful profession, given the results obtained in this study<sup>(16)</sup>.

Strong and positive MBI intra-domains correlations were verified between Emotional Exhaustion and Depersonalization, suggesting that nurses who obtain high scores in one of these domains will likely obtain high scores in the other<sup>(6)</sup>. Testing the NSI intra-domain correlations revealed positive correlations in all the factors, which confirm the existence of a global factor<sup>(12)</sup>.

Suffering experienced by nurses in intensive care units is related to the care these professionals provide to critical patients, problems they take home, the need to deal with patients' family members, teamwork, lack of acknowledgment and work-related technology<sup>(20)</sup>, which may explain the strong correlations found in this study among the MBI (EE, D and I) and NSI (RSC and IWF) domains. These correlations refer us to the psychodynamics and Psychopathology of labor, analytical aspects of which encompass the dynamics of psychological processes mobilized by the confrontation of the individual with the reality of work based on the categories of the analysis of work organization and mental suffering<sup>(21)</sup>. It highlights the importance of deeply investigating nursing work organization in the context of hospitals to diminish Burnout levels.

Qualities in the environment of health facilities such as autonomy, control over the environment, and work relationships among physicians and nurses favor good nursing practices<sup>(22)</sup>. In this context, the strong correlations found in this study between the MBI (EE, D, I) and NSI (RSC and IWF) domains demonstrate the importance of managing issues related to Role Stressors in Career and Intrinsic Factors to Work to minimize suffering that accrues from Burnout in nurses. Nursing management can, through knowledge concerning its team, promote organizational and educational actions to improve the workers' quality of life<sup>(23)</sup>.

Emotional Exhaustion displayed a moderate correlation with Interpersonal Relations in this study. A

recent study carried out with workers from the Family Health Strategy revealed that interpersonal relationships were determining factors for non-exhausted workers to cope with occupational stress, develop motivation at work, and deal with problems. For the exhausted workers, on the other hand, interpersonal relationships were a source of suffering and exhaustion at work<sup>(24)</sup>.

As verified in this study, hospital nurses experience high levels of stress and as perceived stress increased, the MBI dimensions also increased. When the stressing event is of a long duration, the consequences on the body can also be more intense and lead to progressive weariness and exhaustion<sup>(25)</sup>. While stress can present positive and negative aspects, Burnout always has a negative character<sup>(3)</sup>, which harms the worker, manager and citizen, hence the importance of acknowledging, preventing, treating and reporting Burnout.

## Conclusion

The collective approach, within the limits of the Maslach Burnout Inventory and the Nurses' Stress Inventory, indicated Burnout (work related) in 7.30% (quartile) and 10.22% (tercile) of the nurses, whose scores were high in all the BMI domains. High levels of stress were also seen in 8.03% (quartile) and 13.14% (tercile) of nurses, whose scores were high in all the NSI domains.

The conclusion is that nurses are vulnerable to being affected by Burnout due to stress experienced in the hospital environment. In this study, Emotional Exhaustion showed a strong correlation with Intrinsic Factors to Work (0.65), as with the Role Stressors in Career (0.57); and a moderate correlation with Interpersonal Relations (0.50). Depersonalization showed a moderate correlation with the Stressor Role in Career (0.46) and with Intrinsic Factors to Work (0.38) and a weak correlation with Interpersonal Relations (0.27). Incompetence presented an inverse weak correlation with Stressor Role in Career (-0.29), Intrinsic Factors to work (-0.27) and Interpersonal Relations (-0.17).

Finally, psychological and cognitive overload should be taken into account in the evaluation of workload in the work environment of health facilities, which would represent a leap forward in the investigation of risk in nursing practice, especially in highly complex university hospitals.

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Received: Jan. 29<sup>th</sup> 2009

Accepted: Oct. 21<sup>st</sup> 2010