

## DESCRIPTION OF WORKLOADS AND FATIGUE EXPERIENCED AMONG HEALTH WORKERS IN A TEACHING HOSPITAL

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### ABSTRACT

This is an exploratory, descriptive and quantitative study, based on the following categories: work process, workloads and fatigue in a teaching hospital in Curitiba in the southern region of Brazil. The article characterizes the load and stress experienced in a university hospital, based on a previous study entitled "System for monitoring the health of nursing workers" (SIMOSTE). The results show that females were the most affected (85.9%) and the most affected professionals were nursing assistants (53.1%). The highest number of sick leaves was due to diseases of the osteoarticular system (25.2%) and the most significant loads were mechanical and physiological with 33.06% each. These results may support intervention strategies in the policies directed toward the workers' health to ensure a better quality of life and consequently improve the quality of care provided to the user.

**Descriptors:** Nursing. Occupational health. Workload. Health-disease process. Health personnel.

### RESUMO

*Estudo exploratório, de caráter descritivo e de abordagem quantitativa, alicerçado nas categorias "processo de trabalho", "cargas de trabalho" e "desgaste" em um hospital de ensino em Curitiba, região sul do Brasil. Neste artigo, são caracterizadas as cargas e os desgastes vivenciados em um hospital universitário, captados pelo estudo prévio intitulado "Sistema de monitoramento da saúde do trabalhador de enfermagem" (SIMOSTE). Os resultados demonstram que o gênero feminino foi o mais acometido (85,9%); os profissionais mais afetados foram os auxiliares de enfermagem (53,1%). O maior número de afastamentos ocorreu por doenças do sistema osteoarticular (25,2%) e, dentre as cargas apresentadas, as mais expressivas foram as mecânicas e fisiológicas, com 33,06%, cada. Estes resultados poderão subsidiar estratégias de intervenção nas políticas direcionadas à saúde do trabalhador, para assegurar uma melhor qualidade de vida a este profissional e, por consequência, promover melhorias na qualidade da assistência prestada ao usuário.*

**Descritores:** Enfermagem. Saúde do trabalhador. Carga de trabalho. Processo saúde-doença. Pessoal de saúde.

**Título:** Cargas e desgastes de trabalho vivenciados entre trabalhadores de saúde em um hospital de ensino.

### RESUMEN

*Estudio exploratorio, descriptivo y cuantitativo, basado en el proceso de trabajo, las cargas de trabajo y el desgaste en un hospital universitario en Curitiba, sur de Brasil. En este artículo se caracteriza la carga y el estrés experimentado en un hospital universitario, planteada por un estudio previo titulado "Sistema de vigilancia de la salud de los trabajadores de enfermería". Los resultados muestran que las mujeres (85,9%) y los auxiliares de enfermería eran los profesionales más afectados (53,1%). El mayor número de ausencia del trabajo se debieron a enfermedades del sistema musculoesquelético (25,2%) y entre los cargos presentados, los más significativos fueron el mecánico y el fisiológico con el 33,06% cada uno. Estos resultados pueden apoyar las estrategias de intervención en las políticas dirigidas a la salud de los trabajadores, para garantizar una mejor calidad de vida a este trabajo y promover mejoras en la calidad de la atención prestada al usuario.*

**Descriptorios:** Enfermería. Salud laboral. Carga de trabajo. Proceso salud-enfermedad. Personal de salud.

**Título:** Descripción de cargas de trabajo y el desgaste experimentado entre trabajadores de salud en un hospital universitario.

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## INTRODUCTION

Research conducted in the field of workers' health using different theoretical and methodological references point out that nursing staff suffer from a number of health problems related to work<sup>(1)</sup>.

In the social and historical context, given the inclusion of these workers in healthcare services, it is understood that they interact with a variety of workload process that cause fatigue, giving them the characteristic morbidity profile<sup>(2-5)</sup>.

In view of this reality, it is necessary to diagnose exposure to workload that occurs in the daily practice of these professionals in different settings to be able to propose monitoring in different scenarios to promote interventions that can reduce fatigue and exposure to it.

In this study, it was possible to obtain information on the workload and fatigue that occurs with the nursing staff and other health workers from the Monitoring System on Nurses' Health (SIMOSTE)<sup>(6)</sup>, which consists of an information system based on a nationwide research project under development. The project was implemented with the IT technical support and expert advice from the School of Nursing, University of São Paulo (EEUSP) and funding from the São Paulo State Foundation for Research Support (FAPESP).

The aim of this system is to obtain information on health problems of nurses and other health workers as well as the determinants, potential causes of fatigue, and strengthening. The database receives information from the institutions participating in the project that is obtained from Notices of Accidents (CAT) and sick leaves resulting from medical certificates.

The data obtained in the regional units are forwarded to the national coordinator of the project, treated and returned to the institutions with suggestions on preventive measures. It was implemented in 2008 and the data are stored and statistically analyzed<sup>(7)</sup>.

From the analyses, interventions are proposed in the work environments with the purpose of improving working conditions. Considering that the data obtained in the first months after its implementation, a preliminary diagnosis of the workload situation and fatigue in health workers was obtained.

Thus, the aim of this study was to characterize health workers, workload and fatigue at a university hospital in the Southern region of Brazil.

## METHODS

This is a descriptive, retrospective, and quantitative study based on the following categories: workload and fatigue. For the data collection, the following variables were used: sex, workload, professional category, employment status, type of occurrence, and workload or fatigue in a hospital called HT-S in the Southern region of Brazil, using the data from the database of SIMOSTE.

Quantitative data obtained in 2009 and consolidated the national database were used. The population consisted of all the health workers of the teaching hospital, which consists of 1,490 employees, of which 407 are nursing staff. The sample was collected from 128 health workers that corresponded to the totality of health workers who were on sick leave in 2009.

After the project was approved by the Research Ethics Committee of the School of Nursing under protocol number 718/2008, the data were collected and systematized according to descriptive statistics in accordance with the relative and absolute frequencies and analyzed quantitatively.

## RESULTS

A total of 128 cases of work-related illness were recorded in 2009 in the study setting. With regard to gender, there was a predominance of females composed of 110 individuals (85.9%). With regard to the weekly workload of the health workers, it was noticed that most of these, namely 106 (82.8%) professionals, work between 20 and 40 hours per week at the hospital where the study was conducted.

Nursing seems to be the most affected professional category, with a total of 83 (64.8%) accidents and of these, 68 (53.1%) were nursing assistants and 15 (11.7%) nursing technicians. This percentage is quite significant for the profession since, although in different categories, these professionals perform similar technical and operational procedures in patient care.

As for the situation in the labor market, 106 (82.8%) are employed under Employment Laws (CLT) and 22 (17.2%) are civil servants.

Most of the sick leaves were related to medical certificates, 96 cases, representing 75.0%. Of these, 32 (25.2%) were mainly caused by diseases of the musculoskeletal system, 27 (21.3%) were due to external causes (trauma), 26 (20.5%) were related to mental and behavioral disorders, 13 (10.2%) due to respiratory diseases and 07 (5.5%) due to circulatory diseases, among others, as shown below:

With regard to fatigue to which the professionals are subjected, the results show a predominance of physiological and mechanical loads with 41 (33.06%) cases each (Table 2).

## DISCUSSION

It is important to emphasize that the data of the nursing staff and other health workers were

collected from the institution where the research was conducted. The Ministry of Health (MoH) defines health workers as a professional working who work in the public or private health services and carry out their work activities at these locations<sup>(8)</sup>. Within this definition, all professionals who develop activities directly related to the care of patients and/or clients, as well as those belonging to the support services and infrastructure service, such as cleaning, maintenance, diagnostic support, and others are included.

The study shows that the most affected professional category was nursing, thereby confirming the great exposure of workers to the morbidity. Although the number of nurses is lower than the mid-level and technical professionals, it is possible that, due to the responsibility for the supervision

**Table 1** - Causes of sick leaves among health professionals in HT-S according to data from SIMOSTE. Curitiba, PR, 2009.

ICD – 10*	N	%
Disease of the osteoarticular system	32	25,2
External causes (traumas)	27	21,3
Mental and behavior disorders	26	20,5
Diseases of the respiratory system	13	10,2
Others	18	14,2
Diseases of circulatory system	07	5,5
No information	04	3,1
<b>Total</b>	<b>127</b>	<b>100</b>

Source: Authors, 2012.

\*International Classification of Diseases.

**Table 2** - Workload and fatigue to which the health workers at HT-S are exposed to, according to data collected from SIMOSTE. Curitiba, PR, 2009.

Load and fatigue	N	%
Physiological loads	41	33,06
Mechanical loads	41	33,06
Psychosocial loads	24	19,35
Biological loads	12	9,70
Physical loads	01	0,80
Chemical loads	05	4,03
<b>Total</b>	<b>124</b>	<b>100</b>

Source: Authors, 2012.

of nursing and the small number of professionals in comparison with other categories, these workers take less sick leaves than nursing assistants and technicians because they frequently choose to work even though they are sick not to leave the team without a reference person<sup>(9)</sup>.

The record of sick leaves of health workers from other support areas is also significant and impressive, such as: laundry, cleaning and nutrition services, showing their exposure to different workloads, particularly to physiological loads.

In setting of the study, the high rate of sick leaves among working women is noteworthy, corroborating the data from other studies<sup>(10,11)</sup>. Many women are included in the labor market to contribute to the family income that might cause activity overload. Professional work can be related to other duties extending the daily workday to up to 12 hours, which can contribute to accidents caused by fatigue. Moreover, one cannot exclude the characteristics of female morbidity such as hormonal disorders, which also endanger the health of women and are often responsible for work absence in this working class<sup>(9)</sup>.

Workloads are elements that interact dynamically with each other and with the body of the worker causing adaptation processes that result in fatigue, which are defined as the loss of effective and/or potential bodily and mental capacity that comprehend the biopsychic processes as a whole<sup>(12)</sup>. These processes show collective characteristics and define the pathological profile of the specific group. The fatigue process in work production is often characterized as the non-formal record of exposures experienced in labor activity<sup>(10)</sup>.

Work has undergone structural changes that require different integration into the labor market, new work relationships, management mechanisms, productive restructuring and demand for new professional profiles. The consequences of these changes are marked by flexibility, high specialization and de-specialization, versatility (multi-functionality), subcontracting, informal employment, loss of social rights, unemployment, and job insecurity<sup>(13)</sup>. Nursing as a practice in the labor market and healthcare establishes links with social laws and suffers the impact of these changes<sup>(1)</sup>.

Exposure to workloads can trigger health problems among nursing workers<sup>(1)</sup> and other

professionals by means of morbidity reported by the professional or morbidity observed in medical examinations or recorded work accidents. The morbidities reported by the workers in the health monitoring study<sup>(1)</sup> were blunt-cut injuries, infectious diseases, infectious and parasitic diseases, osteoarticular diseases, respiratory problems, mental imbalance, emotional exhaustion, migraines, headaches, skin problems, eye and hearing problems, poisoning by chemicals, and stress.

Among the morbidities that were not reported, but were recorded after medical examination were blunt-cut injuries, osteoarticular diseases, bladder problems, respiratory problems, hematological changes, infectious diseases, infectious and parasitic diseases, gastrointestinal problems, migraines, headaches, gynecological problems, and glycemic alterations. The only work accidents reported were those caused by sharp instruments and those affected by osteoarticular diseases<sup>(1)</sup>.

With the health problems listed above, the workers were frequently absent from work for not enduring the workload to which they are exposed, for getting sick or having accidents. These sick leaves show that the worker suffers different fatigue processes that cause damage that manifest compromising the quality of life throughout their existence.

The total nursing workforce in the country is of approximately 900,000 active workers, quite heterogeneously distributed in different regions, with about 70% of the workforce concentrated in the southeast and southern regions<sup>(14)</sup>. While this number is impressive, usually the nurse works at a fast pace due to the high demand for service and shortage of workers in the workplace. These conditions lead to sick leaves that, in addition to financial losses, endanger care since the overload on the team has a negative effect on the quality of care provided<sup>(15)</sup>.

Thus, studies on the health of nursing staff<sup>(15,16)</sup> indicate important determinants in the disease process in view of such behavior, but there are still gaps in knowledge that do not allow the problem to be completely understood.

There is a higher incidence of records of exposure to physiological loads, although there is significant fatigue of the worker under other workloads (Table 2). The health professionals work in a routine, mechanical and repetitive way, which can

compromise their health causing physical fatigue that may lead to the loss or reduction of their ability to be productive as well as the aggravate diseases such as osteoarticular lesions and other health problems.

As for **mechanical loads**, these are more easily recognized as accidents that cause lesions that consist of the rupture of body segments such as, for example, contusions, fracture, perforations, cuts and bruises. Other significant harmful events in this group are blunt-cut injuries, which are increased by biological loads, and the possibility of contaminating workers with lethal viruses such as Hepatitis B and C and acquired immunodeficiency syndrome (AIDS). Workers often seek to register and record exposure by fear and health impairment<sup>(10)</sup>.

With regard to the **psychic load**, mental and behavioral disorders that can impair and aggravate the health of the worker were recorded. This load is characterized by strict supervision; fast-paced work; interrupted work routine and monotonous and repetitive work; communication difficulty; psychological aggression, fatigue, tension, stress, and dissatisfaction. These situations can lead to work-related accidents and other health problems<sup>(16)</sup> such as emotional disturbances, anxiety, and depression. In healthcare organizations it is common to decrease human resources, which is the main reason for fast-paced work.

In a 2007 study<sup>(9)</sup>, the authors state that nursing workers are more vulnerable to mental burden due to users' dissatisfaction, lack of human resources and consequently work overload.

The **biological loads** are present in several health services, from primary care services to the secondary and tertiary services; however, in the hospital environment there is a higher concentration of patients with infectious and contagious diseases and a large number of health professionals<sup>(10)</sup>, a factor that contributes to the increase in risk related to exposure.

The study was conducted in a specific hospital scenario, a referral center for trauma care and infectious diseases in the state of Paraná, thus the concentration of patients with this type of disease significantly increases the risk of contamination. The literature<sup>(1)</sup> has reported a number of pathologies arising from such exposure, such as localized and systemic infectious

processes, toxoplasmosis, hepatitis, acquired immunodeficiency syndrome, pneumonia, colds and different types of influenza, urinary infections, among others.

As for records regarding **chemical loads**, it is important to emphasize that, although they were found in a small sample, it does not mean that the worker is not exposed to them. The way nursing work is organized exacerbates the fatigue processes of workers due to exposure to this type of workload, which can be enhanced by the interaction of the worker with chemicals in poorly ventilated rooms and inadequate physical spaces<sup>(17)</sup>. What happens is that, in most cases, workers do not perceive this as exposure and damage to their health.

Chemicals substances are widely used in health care, but workers seldom receive the necessary information about proper handling and the effects they have on the body. Although some of them are irritant, toxic, allergenic, carcinogenic, mutagenic or teratogenic<sup>(17)</sup> substances, the effects do not always appear in the short term and the problems arising from their exposure are not reported by health workers.

Work-related accidents or diseases continue to occur and cause personal, social and economic damages to the families in addition to the high costs to the national economy, both directly, through care and pension costs, as indirectly, with the loss of workforce and investments on personnel training<sup>(18)</sup>.

The days of absence resulting from sick leaves and accidents have become a major problem considering that the majority of health services, including the hospital, does not provide coverage for the days of absence, thus overloading other workers and interfering in the quality of care provided to users<sup>(16)</sup>.

## CONCLUSION

The results presented describe the situation of workloads and work-related exhaustion experienced by health workers in a teaching hospital in the southern region of Brazil, which could be used to promote intervention strategies in policies directed to the workers' health to ensure better quality of life of workers and consequently quality of care provided to the user.

Although evidence and studies have proved the economic losses and personal damages that impairs the quality of care, physical and psychological damages resulting from diseases and work-related accidents, and although the data presented in this study shows a high incidence of exposure of health workers to workloads, it may be inferred that, in reality, these data are underreported due to the low incidence of physical, chemical and biological loads.

This issue makes us question if policies directed toward the workers' health in health institutions are being implemented and what strategies are needed in view of the role of prevention and control of injuries resulting from professional activities.

Thus, it is suggested that further studies be conducted in order to reduce the causes of illness of these workers, particularly on the organizational model and work motivation.

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