

WORKLOADS AND STRAIN PROCESSES OF NURSING WORKERS AT TEACHING HOSPITAL

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ABSTRACT

Exploratory, descriptive and transversal study, which aim was to relate the workloads and strain to the illness of nursing process in a teaching hospital. Data collection was conducted between 2008 and 2009, through occurrence records in Working Nurses' Health Monitory System. This software was developed with the intention of collecting data from the Occupational Health nursing-related work and its determinants, which are potential generators of wear, exemplified by work accidents and occupational diseases, analyzed using descriptive statistics. It was verified that exposures of workloads that affected workers the most during this period were mechanical, biological and psychological. Trauma from external causes, contact with diseases' exposure and mental disorders were some of the evident forms of wearing. The results demonstrate the need to implement actions on accident prevention and maintenance of health at work, with support and presence of continuing education services and the proper environmental management of nursing jobs.

Keywords: Nursing. Occupational Health. Workloads. Absenteeism.

INTRODUCTION

A process of change related to customs and forms of work organization occurred in the industrial age. However, in spite of workers benefiting from technological advances, the industrialization brought competitiveness and incessant search for profitability as consequences, which inevitably results in pressure on subjects to the achieve goals and increase productivity⁽¹⁾, interfering in the health and quality of life of these workers.

These changes perceived and experienced by the society in the world of work have provoked questions and adoptions of new attitudes that led to the understanding that workers experience every day experiences in the workplace that interfere in their private and social lives determining the quality of their interrelations⁽¹⁾.

In the current context, it turns out that among health workers, especially nurses, the duplicity of labor is a common practice. However, this

choice can bring occupational hazards, damage to the quality of care offered to customers, and to their own quality of life, self-care, and absenteeism at work⁽²⁾.

The diversity of activities performed by nursing workers and interruptions due to lack of materials or administrative matters, incidentals to which they are exposed in the care of patients, and the direct contact with suffering and death are aggravating factors in this labor, which can lead to physical and mental wear⁽³⁾.

In the performance of their duties, they are faced with conditions where there is exposure to overloads and under loads generating a dynamic interaction with the body of the worker, resulting in wearing processes, which have workloads as participating elements, named and classified into physical, chemical, biological, mechanical, physiological, and psychic⁽⁴⁾.

Workloads cause a series of harms to health, and accidents, therefore, the surveillance on Workers' Health (ST) has as an essential objective to early prevent and identify causes

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enabling the development of intervention health strategies and improvement in the quality of life at work.

In this regard, the SIMOSTE software was created and developed by the research group at the Worker's Health from the Nursing School at the University of São Paulo (EEUSP)⁽⁵⁾. This is a project under development in the national scene prepared with the intention of capturing the harms to ST in nursing and related to work and its determinants, which are potential generators of wears exemplified by work-related accidents and diseases of occupational origin.

It consists in a technological tool, whose structure is divided into topics containing data from the institution identification, registered worker, workloads, and wears to which the individual was exposed, time of absence, and medical leaves granted to these workers⁽⁵⁾. Thus, the database is powered and allows health-disease profile tracking, verification of indicators for monitoring the health of these workers, and consolidating strategies for the organization of the work process with a view to promote ST in a way that the national coordinator of the project has access to this data and can also forwards suggestions to the institution for the adoption of preventive measures.

Therefore, the objective of this study was to relate workloads and processes of weariness to illnesses in nursing workers.

METHOD

This is a descriptive, exploratory, and transversal study, with a quantitative approach, carried out in a teaching hospital in Curitiba-PR after the implementation of the SIMOSTE software assisted by technical support and EEUSP.

This hospital has 635 beds and provides 57,833.3 ambulatory assistance/month; 5,463.8 emergency consultations; and 28,361.3 medical and 3,151.3 nursing consultations. The monthly bed occupancy rate is 53.5%. The hospital has two services in charge of the health and safety of employees: the Specialized Service of Occupational Health and Safety (SEESMT) for staff employees and the Specialized

Occupational Health Service (SESAO) for public servants.

The study population consisted of 1,360 nursing workers from this institution. The data were collected from notification records and registered medical certificates and logged in the SIMOSTE software. The used variables included: gender, age, workload, professional category, employment type, and types of occurrence and identified workloads.

The following definitions were used to identify workloads: *biological loads* are those characterized by microorganisms present in the workplace, whether in the air or objects, which are capable of producing some damage to occupational health; the *physical loads* can be detected and measured without involving the human body and are characterized by noise, vibration, heat, moisture, ventilation, and changes in illumination/electricity; the *chemicals loads* include all chemicals in the form of powder, smoke, fumes, liquids, or past e present in the work process. The *mechanical loads* are present in the workplace and can arise from poor conditions of installation and maintenance of machines and equipment that may cause breakage of continuity of the body represented by bruises, fractures, and others. The *physiological loads* include physical efforts and uncomfortable positions assumed by the worker's body as a result of any activity during the work process among others, and the *psychics loads* are characterized by elements in the work process that are sources of stress causing psychosomatic changes^(5,6).

The inclusion criteria were events in which workers suffered accidents at work and had notified the SEESMT and SESA0 or those who were on medical leave between November of 2008 and October of 2009.

Meetings were held with nurses and the study researchers to raise awareness and promote the integration and training for data collection during the development of the project. Training on the SIMOSTE software addressed concepts related to the system, instructions for use, data input, and System update. The software installed on the computer section of the Institution in Curitiba allowed the registration of information about workers' exposure to charges and wear and tear suffered and notifications of work-related

health problems in the nursing activities. The planning and structuring of the flowchart of records of notifications in the SEESMET and SESA0 were also conducted in these meetings. Finally, the nurses were responsible for capturing records and sending information to the project's head quarters at EEUSP from the data input in the software database.

The research project was approved by the Research Ethics Committee from the School of Nursing from the University of São Paulo under the protocol n° 718/2008.

RESULTS AND DISCUSSION

Females predominated in the events recorded in SIMOSTE (88.7%); this result is reinforced by the historical aspect of nursing as a profession for women⁽⁷⁾. The ages of workers ranged from 21 to 60 years; most workers had ages between 41 and 50 years (57.6%), followed by those between 51 and 60 years old (23.3%), and 31 and 40 years old (11.5%). The nursing staff at this institution concentrates the highest number of workers over the age of 40 years who have already experienced the stresses generated by the work and by the physiological aging.

The characterization of the labor force showed that the nursing category was composed by 747 (54.9%) nursing assistants, 415 (30.5%) nursing technicians, and 198 (14.6%) nurses, totaling 1,360 workers.

The majority of recorded events (64%) involved nursing assistants; 24% among nursing technicians, and 12% among nurses. The highest proportion among nursing assistants translates the roles played by each category and their greater or lesser exposure to workloads^(2,6,7).

The types of employment was distributed as: 517 (38%) were statutory workers and, most of the events occurred within this group (92.3%). This result is similar to that of another study⁽²⁾ about absenteeism in health care workers, according to which, statutory workers are more absent from work due to job stability, which does not occur in workers in the private sector.

It should be noted that hospital nursing workers are subjected to work shifts, to cover 24 hours on call duty, during weekends and holidays, which are factors that undermine social conviviality and contribute to the emergence of psychosomatic disorders^(2,7).

The distribution of events according to workplaces showed that 547 (40.3%) acted in the ambulatory, 286 (21%) in the surgical center, 286 (21%) in the intensive care unit (ICU), 132 (9.7%) in the exams sector, 22 (1.6%) in the emergency unit, 22 (1.6%) in the infectious diseases unit, and 65 (4.8%) in other non-specified sectors. No events were recorded involving workers from the medical clinic, gynecology and obstetrics, pediatrics and nursery, and hygiene sectors.

A scientific study⁽⁸⁾ points out the critical sectors in hospitals as the units with the highest removal/absenteeism rates due to accidents or occupational diseases among nursing workers, which are opposed to those in our study in which the highest incidence was observed among workers in ambulatory health care services that may have been facilitated by its location close to SEESMET. However, it should be noted that the hospital that served as the backdrop for this study is a reference for the treatment of various pathologies, in the national scope, and thus, it represents a space with significant flow and turnover of patients causing physical and psychological wear in its workers.

Exposure to mechanical loads was the cause of 61% of the recorded events. Of these, those associated with biological loads accounted for 43.5% through accidents with cuts, which corroborates the results from another study⁽⁹⁾ that reports that these are easily perceived and related to accidents at work and usually arise from accidents with sharp and pointy materials, falls, bruises, fractures, and pressure over body parts. Based on the above health problems presented, workers are frequently absent from work for not bearing the loads to which they are exposed, for becoming ill, or for being involved in an accident. These leaves are evidences that workers suffer several wearing

processes that generate long term damages compromising their quality of life.

The biological loads category represents one of the major occupational health concerns because of the possibility of acquiring infectious-contagious diseases through contact with biological fluids. The worker's contact with secretions, small insects, or accidents with contaminated materials are related to these charges that are responsible for the occurrence of various pathologies among health professionals such as hepatitis, toxoplasmosis, respiratory problems, urinary tract infections, skin infections, and acquired immune deficiency syndrome among others^(4,10). In this study, 32% were related to these charges, among these, 23.2% were due to handling patients with transmissible and infectious-contagious diseases.

Despite the severity, not all professionals adopt the biosecurity measures that are necessary for their protection, which may bring serious consequences to their health and the health of patients under their care⁽¹¹⁾.

In the daily life of nursing workers, biosafety must be in the preparation, administration, and disposal of injectable antineoplastic agents, vaccination coverage among professionals, and commitment with safe care. The lack of use of personal protective equipment (PPE) among workers, under ventilated environment, lack of training for cleaning of contaminated materials, disinfection and sterilization of materials, and the non-compliance with standard precautions are factors of concern⁽¹⁰⁾.

The constant worker exposure to workloads generate weariness processes, which manifest themselves in their biopsychic body interfering with the health-disease process⁽⁴⁾. In turn, the exposure to physiological loads presented potential lethality through changes in biological rhythms^(2,7); in this study; they occurred in 3.5% of the events including osteo articular diseases with physical limitations that accounted for 11.6%.

The chemical loads represented only 0.8% and arose from the exposure to drugs, smoke, fumes, gases, and liquids⁽⁴⁾ used in treatments of patients or in cleaning and disinfection; the

contact with chemotherapy and sterilizing agents accounted for 29.9% of these events in the study.

Out of the 2.1% of events related to psychic loads, 17.4% were due to depression and suffering caused by excess of activities at work, standing out from other wears with less representation such as alcoholism, humiliation, and verbal aggression among others. Authors state that these loads are caused by the monotony, repeatability, discontinuous work, exhausting pace, demanding supervision, lack of autonomy, interaction with aggressive patients and escorts, stress, caring for critical patients, and long periods of performance in critical areas^(3,4,6,7). Alienation, impossibility to act creatively in the everyday working relationship, low wages, and neglect towards the profession are also factors that cause weariness and distress^(2,6).

Only 0.8% of the events were related to exposure of workers to physical loads. However, environmental characteristics such as lighting, moisture, heat, poor ventilation, vibration of machines⁽³⁾, and the risk of electric shock by electric equipment without constant maintenance showed that there were 1.4% records of events due to electric shock in this study. In some units there is constant exposure to noises from monitors and compressed air to high temperatures from autoclaves and risk of radiation exposure (x-rays) during diagnostic tests.

The notifications at SIMOSTE pertaining to the wear resulting from exposure of nursing workers to workloads totaled 62 (4.6%). Graph 1 shows the main types of notifications. Among them, traumas by external causes stood out characterized by accidents during commuting to work (transit accidents or falls in general)⁽¹²⁾; mental disorders and diseases due to contact with biological material.

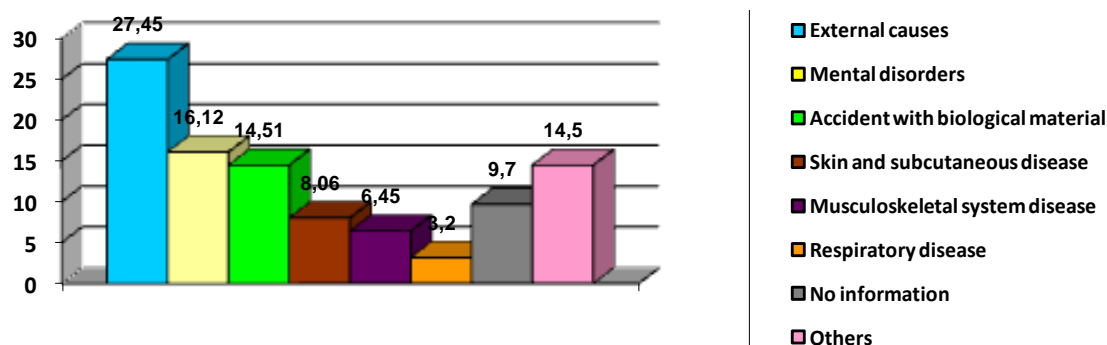
Nursing professionals, within the area of health, are the most susceptible to accidents in the workplace due to activities undertaken to assist patients^(11,13). Moisture, wet floors, and staying on their feet for very long periods are factors that may be associated with these events, which are related to trauma by external causes. Similarly, the increase in number of

vehicles in circulation and greater number of driving employees may also be associated with the number of traffic accidents on the way to the hospital⁽¹¹⁾.

The high level of leave due to mental disorders has been the subject of studies on occupational diseases in nursing workers^(3,6,7). Several factors are assigned by researchers and workers to work leave due to this type of

weariness such as wage dissatisfaction, dealing with suffering and death, and pressure from leadership among others^(3,4,7).

There is also weariness from exposure to biological materials, which constitutes a serious public health problem due to the risk of infection by disease-causing agents such as hepatitis, and Acquired Immune Deficiency Syndrome among others^(9,13).



Graph1. Main notifications, in percentages (%) related to the wear resulting from exposure of nursing workers to workloads according to data from SISMOTE (Nov/2008 – Oct/2009). Curitiba-PR, 2011

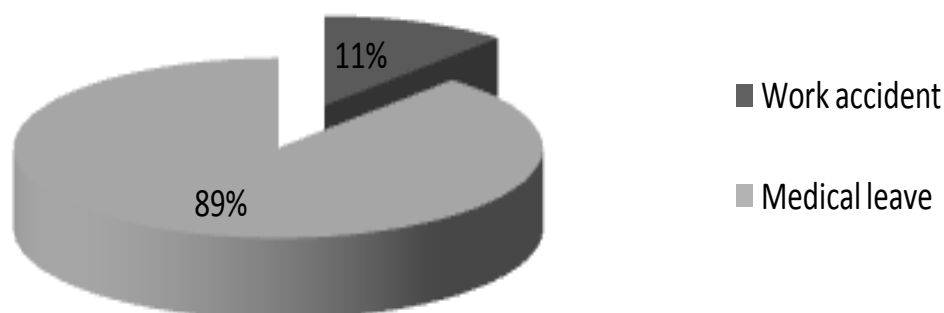
During the analyzed period (one year), the events resulted in 1,077 total days of absence at work due to medical leave and 61 days due to accidents at work. More than two years and nine months of work loss occurred in this scenario considering only medical leaves. These absent days converted in losses to the employing Institution because the worker on leave remains on staff making it impossible to hire their replacements.

The most frequent causes of medical leave from the survey that was conducted by the SIMOSTE software were stresses arising from exposure to mechanical loads (musculoskeletal aches, sprains, fractures, dislocations, contusions, and motor disability), psychic loads (stress, mood changes, anxiety, depression, and insomnia), and biological loads (infectious-contagious diseases). Biological loads are present in various health services, from primary to secondary and tertiary care services, however, greater concentration of patients with infectious/contagious diseases and a large number of health care professionals⁽¹³⁾ are observed in the hospital environment increasing the risk of exposure. Graph 2 shows

the occurrence of workplace accidents and medical leave in the notified events.

The evidence of work-related accidents events identified in this study reveals a reality that is worrisome because these events could be preventable. It demonstrates that the division of Services of Occupational Health and Safety, according to labor laws, brings the fragmentation of actions and different forms of interventions in solving problems as a consequence, demonstrating the absence of an institutional policy on Worker's Health.

The implementation and supervision of the Internal Accident Prevention Committee (NR 5), Medical Control Program and Occupational Health (NR-7), and Environmental Risk Prevention Program (NR-9) are obligatorily assigned to SEESMT. However, the services governed by the Single Legal Regime do not need to comply with this requirement, which contributes to the acceleration in illness incidents among workers who are not followed up and monitored for exposure to different workloads⁽¹⁴⁾.



Graph 2. Percentage of occurrence of accidents at work and medical leave of events notified in SIMOSTE among nursing workers (Nov/2008 – Oct/2009). Curitiba-PR, 2011.

Therefore, the Integrated Health Care System from the Federal Public Servant-SIASS was established in 2009 with the aim of coordinating and integrating programs in the areas of "healthcare, official expertise, promotion, prevention, and monitoring the health of public servants from direct federal administration, autarchic and functional, according to policies on attention to occupational health and safety of federal public servants(sn)"⁽¹²⁾.

Periodic medical examinations became compulsory for civil servants with law 11,907/09 from Decree 6,856⁽¹⁵⁾. This measure represents a breakthrough for occupational health of statutory workers and brings the prospect of resolution and/or minimization of harms that are common to this working population, e.g. the weariness pointed out in this research.

Assessments of intervention programs or policies are necessary to protect the health and safety of workers, whether in public or private enterprises.

This study showed that these nursing workers are exposed to various types of loads that generate processes of weariness, from accidents at work to illnesses, evidenced by contact with infectious-contagious diseases, or even physical and psychological problems arising from activities performed.

The results showed the need for implementation of actions on accident prevention and health maintenance at work with the support and presence of continuing education services.

Independent of the institutional problems involved in the process of illness, the quest for the ideal in prevention of accidents at work and decrease in absent workers in the institutional environment are observed are possible initiatives.

The SIMOSTE software implementation represents a new and important tool for monitoring absenteeism and harms to health workers; it provides an early recognition of accidents and harms to ST allowing the planning of strategies targeting the needs identified in the institution.

CONCLUSIONS

CARGAS DE TRABALHO E DESGASTES DOS TRABALHADORES DE ENFERMAGEM DE UM HOSPITAL-ESCOLA

RESUMO

Estudo descritivo-exploratório, transversal, cujo objetivo foi relacionar as cargas de trabalho e o processo de desgaste ao adoecimento dos trabalhadores de enfermagem de um hospital escola. A coleta de dados foi realizada no ano de 2008 e 2009, por meio de registros das ocorrências no Sistema de Monitoramento da Saúde do Trabalhador de Enfermagem. Este software foi elaborado com a intenção da captação à Saúde do Trabalhador de enfermagem relacionado ao trabalho e de seus determinantes, que são geradores de potenciais de desgaste, exemplificados pelos acidentes de trabalho e doenças profissionais, que foram analisados segundo

estatística descritiva. Constatou-se que as cargas de trabalho que mais afetaram os trabalhadores naquele período foram as mecânicas, biológicas e psíquicas. Os traumas por causas externas, o contato com exposição a doenças e os transtornos mentais foram alguns dos desgastes em evidência. Os resultados demonstram a necessidade de implementação de ações sobre prevenção de acidentes e manutenção da saúde no trabalho, com apoio e presença de serviços de educação continuada e a adequada gestão ambiental dos postos de trabalho da enfermagem.

Palavras-chave: Enfermagem. Saúde do Trabalhador. Carga de Trabalho. Absenteísmo.

LAS CARGAS DE TRABAJO Y DESGASTES DE LOS TRABAJADORES DE ENFERMERIA DE UN HOSPITAL ESCOLA

RESUMEN

Estudio descriptivo-exploratorio, transversal, cuyo objetivo fue relacionar las cargas de trabajo y procesos de desgaste vivenciados por los trabajadores de enfermería en un hospital universitario. Los datos fueron recolectados en 2008 y 2009, a través de los registros de ocurrencias en el Sistema de Monitoria de la Salud del Trabajador de Enfermería. Este software fue desarrollado con la intención de recoger los datos de la salud relacionada con el trabajo de la enfermería profesional y sus determinantes, que son potenciales generadores de desgaste, ejemplificada por accidentes de trabajo y enfermedades profesionales, que fueron analizados según estadística descriptiva. Se constató que las exposiciones en las cargas de trabajo que más afectaron a los trabajadores fueron las mecánicas, biológicas y psíquicas. Los traumas por causa externa, o contacto con la exposición a enfermedades y trastornos mentales fueron algunos de los desgastes en evidencia. Los resultados demostraron la necesidad de implementación de acciones acerca de la prevención de accidentes y manutención de la salud en el trabajo, con apoyo y presencia de servicios de educación continuada y trabajos apropiados de gestión ambiental de enfermería.

Palabras clave: Enfermería. Salud Laboral. Cargas de Trabajo. Absentismo.

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