HEALTH AND SAFETY IN CIVIL CONSTRUCTION: NURSING CONTRIBUTIONS

SAÚDE E SEGURANÇA NA CONSTRUÇÃO CIVIL: RELATO SOBRE AS CONTRIBUIÇÕES DA ENFERMAGEM

SALUD Y SEGURIDAD EN LA CONSTRUCCIÓN CIVIL: RELATOS SOBRE LAS CONTRIBUCIONES DE LA ENFERMERÍA

ABSTRACT

Objectives: to report on the experience when applying the Regulatory Norm 18 (NR-18) in a construction work and to list the main Nursing Diagnoses (DE) and Nursing Interventions (IE). Method: this is a descriptive study with a qualitative approach of the experience report type, resulting from practical activities of the Nursing and Worker Health subjects of the Federal University of Piauí/UFPI. Results: it was observed that nursing diagnoses and interventions should be guided by the identification of factors that determine or contribute to such diagnoses, being biological or psychosocial, so the worker can be included in the planning of care. Conclusion: the nurse reveals and contributes in a significant way in maintaining the health of the worker, so he exercises his work activity with freedom and security. Descriptors: Occupational Health Nursing; Occupational Health; Construction Industry.

RESUMO

Objetivos: relatar sobre a experiência na aplicação da Norma Regulamentadora 18 (NR-18) em uma obra da construção civil e elencar os principais Diagnósticos de Enfermagem (DE) e Intervenções de Enfermagem (IE). Método: estudo descritivo, de abordagem qualitativa, do tipo relato de experiência, resultante de atividades práticas da disciplina Enfermagem e a Saúde do Trabalhador da Universidade Federal do Piauí/UFPI. Resultados: observou-se que os diagnósticos e as intervenções de enfermagem devem nortear-se pela identificação de fatores que determinem ou contribuam para tais diagnósticos, sejam estes biológicos ou psicossociais, para que se possa inserir o trabalhador no planejamento dos cuidados. Conclusão: o enfermeiro desvela e contribui de forma significativa na manutenção da saúde do operário, de modo que este exerça sua atividade laboral com liberdade e segurança. Descritores: Enfermagem do Trabalho; Saúde do Trabalhador; Indústria da Construção.

RESUMEN

Objetivos: relatar sobre la experiencia en la aplicación de la Norma Regulamentadora 18 (NR-18) en una obra de construcción civil y listar los principales Diagnósticos de Enfermería (DE) e Intervenciones de Enfermería (IE). Método: estudio descritivo, de enfoque cualitativo, del tipo relato de experiencia, resultante de actividades prácticas de la disciplina Enfermería y la Salud del Trabajador de la Universidad Federal de Piauí/UFPI. Resultados: se observó que los diagnósticos y las intervenciones de enfermería deben guiarse por la identificación de factores que determinen o contribuyan para tales diagnósticos, sean estos biológicos o psicosociales, para que se pueda insertar al trabajador en el planeamiento de los cuidados. Conclusión: el enfermero desvela y contribuye de forma significativa en el mantenimiento de la salud del operario, de modo que este ejerza su actividad laboral con libertad y seguridad. Descriptores: Enfermería del Trabajo; Salud del Trabajador; Industria de la Construcción.
INTRODUCTION

The object of study and intervention of the worker’s health is the relationships between work and health, as well as purposes for the promotion and protection of the health of the worker, through the development of surveillance actions of the risks in the environments and conditions of work, health problems and the organization and delivery of assistance to workers, including diagnostic procedures, treatment and rehabilitation in an integrated manner.¹

In this conception, workers are all men and women who carry out activities for their sustenance and/or their dependents, regardless of their insertion in the labor market, in the formal or informal sectors of the economy.²

The Civil Construction Industry (ICC) is one of the countries with the highest rates of occupational accidents and worst safety conditions worldwide. These factors lead to expensive expenditures of public coffer, with insurance payments and indemnities, as well as high levels of disability, fatal injuries and psychological repercussions for workers and families.³

The construction activity faces the contrast between primitive conditions of work alongside increasingly modern technologies, which requires the workers’ high specialization. Such a requirement is often unfeasible, due to the accelerated growth of this sector, together with the workers recruited from areas of the country that do not have specific training or qualification.⁴

It is mandatory for all Brazilian companies governed by the Consolidation of Labor Laws (CLT) to comply with the Regulatory Norms (NRs), which regulate and provide guidelines on mandatory procedures related to occupational health and safety in Brazil.⁵

The NR that establishes the working conditions in the ICC is NR 18, establishing administrative, planning and organization guidelines, which aim at the implementation of control measures and preventive safety systems in construction work processes.⁶

According to NR 18, activities of the Construction Industry are considered the activities and services of demolition, repair, painting, cleaning and maintenance of buildings in general, among others, of any number of floors or type of construction, including maintenance of works of urbanization and landscaping.⁷ Being one of the most dynamic sectors of the Brazilian economy, ICC employs a considerable amount

OBJECTIVES

- To report on the experience in the application of Regulatory Standard 18 (NR-18) in a construction work.
- To list the main Nursing Diagnoses (DE) and Nursing Interventions (IE).

METHOD

This is a descriptive, qualitative, experience-type study, resulting from the practical activities of Nursing and Worker Health, offered at the Nursing Department of the Federal University of Piauí. A construction site located in the municipality of Teresina-PI, in the period of November 2011, was used as a data collection scenario.

The qualitative method applies to the study that humans make of their relationships with themselves and with others. Because of this, it is a methodological approach that is adequate to the objectives of the study, considering the human being is not a neutral variable, being subject to their actions. The collection and identification of possible risks were possible through a form containing topics pre-established by the research advisor.⁸

of labor in the metropolitan regions of the country, posing major challenges for public health, specifically in the worker health area. It is reaffirmed that it is responsible for the high rates of fatal, non-fatal work accidents and years of life lost, whether due to accidents or work-related illness. Most construction workers are contained in one of the most dangerous branches in the world.¹,²

Among other high-risk diseases in these workers, there are the musculoskeletal symptoms (repetitive stress injury - RSI and Osteo-muscular Disorder Related to Work - DORT), dermatitis (exposure to biological, chemical and physical agents), noise-induced hearing loss (dust inhalation of materials such as thread, rubber, etc.) and Pneumoconiosis (inhalation of chemical dust from silica and asbestos). The reasons given for the occurrence of these health problems in civil construction are the great number of occupational risks, such as work at great heights, handling of machines, cutting tools, electrical installations, use of motor vehicles, antiergonomic positions such as the elevation of heavy objects, as well as stress due to transience and high turnover.⁴,⁵

It is believed that studies such as these may contribute to improving worker health and alert nursing and other categories of health to the insertion in this important area of public health.

English/Portuguese

J Nurs UFPE on line., Recife, 11(Suppl. 3):1536-41, Mar, 2017 1537
The operationalization of the research followed the following steps: a technical visit and observation of the adequacy to NR18, concomitant with the evaluation of health risks; survey of the theoretical reference for research; elaboration of DE according to NANDA nomenclature and establishment of the main IE.

The ergonomic and professional conditions of the field, supply of necessary equipment, reception of the workers to the orientations, hygienic conditions, psychosocial risks and personal factors of the workers that could leave them susceptible to the occurrence of accidents were analyzed.

The preference for the work area visited was due to the access to the place and the people that made the management, that allowed, without obstacles, the development of the study. This area of work proved to be a convenient field for the preparation of the study, since it added many workers to its staff, as well as a well-functioning internal accident prevention committee.

RESULTS

• Comparison between NR and construction site under study

It is essential the knowledge of construction workers about NR 18, as well as of the inspection agencies and employers. This knowledge aims to establish administrative, planning and organizational guidelines that aim to implement control measures and preventive safety systems in the processes, conditions and working environment in the construction industry.4

Regarding the living areas, it was verified that the construction site has sanitary facilities, changing rooms, accommodation, dining place, kitchen. Each room has a natural ventilation area and the minimum conditions of comfort and hygiene foreseen in NR 18.4

According to NR 24, dealing with sanitary conditions and comfort in workplaces, especially regarding bathrooms, changing rooms, dining rooms, kitchens, lodgings and drinking water, aiming at the hygiene of health protection sites for workers. These areas for toilets must meet the minimum essential dimensions.7

Given local expertise, the competent regional body in Occupational Safety and Medicine may require changes rooms sizes that meet the minimum required comfort. It is considered satisfactory 1 square meter for each sanitary, by 20 workers in activity. The sanitary facilities shall be separated by sex.

The places where sanitary facilities are located must be submitted to a permanent hygiene process, and they must be kept clean and free from any odors during the entire working day. These facilities are not as desirable as they are located near the kitchen.4,7

The washbasins, toilets, urinals, showers, dressing room, accommodation, dining room, kitchen meet the established by the NR 18. It was noticed that the structures of access to the work, such as stairs, ramps and catwalks take well the recommended. The installation of the height-limiting system, such as safety net, support or lashing ropes, support, anchoring system and hammock accessories (gibbet, clamps and anchoring hooks of the hammock).4,7

Regarding the movement and transport of materials and people, the work area was well equipped and with the workers attending the indicated in the NR. For example, in the vertical and horizontal transport of concrete, mortars or other materials, the movement or permanence of people under the cargo handling area is prohibited and it is isolated and signaled.4,7

About the storage of materials, it was found that they were stocked in a way that would not hinder the traffic of people and workers, access to fire-fighting equipment, obstruct emergency doors and exits, and overloads on the walls, slabs and support structures, in addition to what is foreseen in its design.4,7

It is important to point out that the workers, as well as the professionals in charge of the construction site, are verifying the conditions of use and conservation of the materials used in the construction site, such as steel and/or synthetic fiber cables, electrical installations, protective equipment and several tools.2,4

NR6 regulates the use of Personal Protective Equipment (PPE) by workers, who will protect them from the risks in the work environment. This equipment must be regulated and present the registration number of the Certificate of Approval (CA). It was observed that the workers used PPE and collective protection equipment (EPC), as well as being guided by the legally qualified professional, which was in the work two techniques in work safety.1,8

The NR4 establishes the professionals that should compose such service: occupational safety technician, work safety engineer, nursing assistant, work nurse and occupational physician. They comprise the Specialized Services in Safety Engineering and
Occupational Medicine (SESMT). SESMT aims to promote health and protect the integrity of the worker in their work environment, so it is a work to prevent accidents of both occupational diseases. It is a preventive and professional work of the professionals mentioned above, applying safety engineering and medical knowledge in the work environment to reduce or eliminate the health risks of workers.²,³

It is up to the SESMT to advise workers on the use of EPIs and to make them aware of the importance of preventing accidents and ways of preserving health at work. It is also the responsibility of SESMT to record the accidents. The need of these professionals by type and quantity is also linked to the degree of risk and the number of employees, and the presence of the nursing professional in the work was not verified.⁴,⁸

Signaling is important in places that offer risks and construction is no different. Inside the construction site, it was verified that the place is well signposted, with warnings and safety recommendations. All this guides and warns workers about duties and risks. Ensuring that at the time of carrying out the activity is an easy or difficult procedure, the worker must be aware of the risks to which he is exposed.⁴,⁹

Also, regarding the safety risks of workers, NR 18 recommends that they should receive training on an admission and periodic basis to guarantee the execution of their activities with safety. If possible, they should carry out the training whenever a new phase of execution of the work begins. This training is most often done by the occupational safety technician, and consists of information about working conditions and environment, risks inherent to their function, adequate use of personal protective equipment (EPI) and information on safety equipment protection (EPC), existing at the construction site.³⁴

The Internal Commission for the Prevention of Accidents (CIPA) aims to prevent accidents and diseases resulting from work to make work compatible with the preservation of life composed of representatives of the employer and employees. It was analyzed that the CIPA is on this construction site, as well as guiding to NR 18.³

Recently, there were elections at this construction site for the vacancies at CIPA, a sort of rotation among officials. For each function performed by the worker, his specialization is notorious. In view of this, it is expected that these workers will be qualified so they follow the established standard for the purposes of applying NR 18, considering skilled workers, so their functions are governed by the regulatory standard.⁷

- **Survey of Nursing Diagnoses and Interventions in Civil Construction**

The work of the nurse within the health of the worker, especially the ICC, should be guided both by the primary prevention of health problems, reducing the exposure of workers to risk factors, adopting techniques of protection and promotion to health, as well as secondary prevention, allowing an early diagnosis and immediate treatment, subsidizing the technical-scientific knowledge of the profession, through the nursing process.⁹

This process can be understood as the essence of nursing practice, and demands cognitive, psychomotor and affective skills and abilities to allow observation, judgment and intervention in the phenomenon, so the specific human needs are met and the desired results are achieved.¹⁰

Undoubtedly, one of the most prevalent in the context of the ICC are the falls. Work at high altitudes, together with poor conditions of support structures or poor use of EPIs are factors that determine the occurrence of accidents.¹¹ Based on this problem, it is worth mentioning the Fall Risk as an important DE, mainly due to factors related to the environment, physiological factors (problems in the balance) and advanced age, since in the very site of work visited there were workers over 60 years old.¹²

In this reality, the nurse must act by investigating the presence of causative factors or contributing to the risk of falls (such as orthostatic hypotension, pain, improper use of safety equipment, side effects of medications that the worker is using). Reinforcing the importance of using EPIs and EPCs and encourage workers to seek help when they feel need.¹³

The large number of machines and substances that construction workers encounter and daily work need special attention from health and safety professionals. Trauma risk is a reasonable diagnosis, together with factors related to contact with fast-moving machines; exposure to harmful machinery; contact with corrosive substances; unsafe entry conditions; lack of heat source protection; lose electrical wiring; improper use of safety belts.¹²

Strategies such as turning off machines that are not being used, teaching workers to read and following instructions for using equipment, reviewing unsafe practices, coloring eaves of steps, investigating...
contributing physiological factors (such as impaired vision and hearing), reassessment of skills (including sunglasses and hats), water replenishment after excessive losses and avoidance of intense heat sources (such as machines or direct sunlight) greatly contribute to the reduction in the occurrence of trauma.13

Concerning the risk of trauma, it is important to pay attention to internal factors of the worker, such as balance difficulties (whether due to the use of medications or pathologies such as labyrinthitis), lack of education for safety, lack of safety precautions, weakness or even sensory deficits such as hearing or visual loss. Precautions such as the use of night light, excessive light reduction, identification of organic and metabolic disorders, as well as frequent meals to prevent the occurrence of the accident are important.12

The Risk of Injury also appears as a potential injury to the health of workers in this productive field, mainly related to the presence of stairs, defective electrical installation or defective lighting. Interventions in this sense are in line with those already explained.12 However, it is not only a question of risk diagnoses. The lived reality explained the conflict of the decision by the workers, mainly by obscure personal beliefs, identified using their focus. The presence of workers with old age, together with a long period of experience in the field, leading to an erroneous conception by the worker that he should not follow other people's directions, and the way in which he is accustomed to exercising his activity is arguably the most correct, safe and effective.12

The nurse can intervene in this case by investigating the factors that lead to this conflict (conflict of values, insufficient information) and encouraging the participation of workers in decision-making, respecting and supporting their insertion.13

The diagnosis is corroborated by deficient knowledge, related to lack of familiarity with information resources, lack of interest in learning and misinterpretation of information, leading to improper behavior and inadequate follow-up on instructions. Faced with this situation, we must seek an increase in effective communication, so that all processes, rules and possibilities are explained to the worker, providing time for information to be apprehended, anticipating questions and interests.12

The diagnoses Decision Conflict and Poor Knowledge end up triggering a dangerous posture by the worker, the Disobedience, predominantly related to the personal capacities and value system of the individual, evidenced by irritating behavior of lack of adherence, failure to maintain scheduled behaviors and failure to progress. These workers have a rooted and empirical knowledge, but it can be flawed. This condition, if accompanied by difficulties in adhering to a new form or method of work, so common with the emergence of new technologies in the CCI, can result in both a failure of labor progress (slowness in executing processes and meeting deadlines), as in traumatic events.12

It is up to the person in charge of managing the workers’ group, as well as the employer, to provide a coherent team, seeking the integration of the worker as an active voice in the elaboration of plans and goals regarding their security, eliminating policies and routines that contribute to the emergence of feelings of impotence.13

**CONCLUSION**

Meeting all NR-18 requirements will certainly not lead to the total elimination of fatalities, but this has the potential to reduce them considerably. The promotion of training aimed at raising awareness among the workers concerned about safety would further improve the reduction of misfortunes. It can also be seen that many of the requirements of NR-18 are fulfilled due to the planning of the action and awareness of its importance. Another important finding concerns the standardization of safety in construction companies, showing that the degree of concern with safety issues is related to the individual posture of workers, as well as a well-established safety policy.

The nurse, holder of a technical-scientific baggage, directed to health promotion and prevention of diseases, faces the ICC with a fertile field for the development of health actions. Through the elaboration of diagnoses and interventions and the action of a multi-professional team, the nurse reveals and contributes in a significant way in the maintenance of the health of the worker, so that he exercises his work activity with freedom and security.

It is worth noting that studies on occupational risks or diseases in construction are rare, possibly due to the high turnover, the high degree of informality in the labor contracts and the sub numeration in the occupational registers that hinder to identify defined populations, or the use of secondary data, common in occupational epidemiology.
It is suggested that new studies and investments be carried out not only in the construction industry, but in the various areas that cover the Brazilian worker, enabling the valuation of these workers through better working conditions, contributions in the development of the market and expansion of Knowledge in the Worker’s Health area, being a rich field for nursing to develop actions to promote the quality of life at work, mediated by the nursing process.

REFERENCES


Submission: 2014/03/14
Accepted: 2017/05/23
Publishing: 2017/03/15
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