Damage to the health of vaccination room nursing workers

Danos à saúde dos trabalhadores de enfermagem de salas de vacinação

Daños a la salud de los trabajadores de enfermería de salas de vacunación

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Abstract

Objective: To analyze work-related health damage of vaccination room nursing professionals.

Methods: Analytical cross-sectional study conducted in 39 vaccination rooms in a Primary Health Care Unit in the city of Rio de Janeiro. The study included 171 nursing workers who answered questions for sociodemographic and labor characterization and the Work-Related Damage Assessment Scale. Descriptive statistical analyzes were performed and the chi-square test associated the illness and the researched variables.

Results: Psychological and social damage received bearable assessment, while physical received critical assessment. The items back and leg pain received the highest means and were considered severe, suggesting the presence of occupational damage. A significant association between psychological damage and the in-service training variable was evidenced. Illness prevailed for physical damage, followed by psychological damage.

Conclusion: The work performed by the nursing teams working in the vaccination rooms surveyed can cause damage to the health of this worker.

Resumo

Objetivo: Analisar os danos à saúde relacionados ao trabalho de profissionais de enfermagem de salas de vacinação.

Métodos: Estudo transversal analítico realizado em 39 salas de vacinação em Unidade de Atenção Primária à Saúde no Município do Rio de Janeiro. Participaram do estudo 171 trabalhadores de enfermagem que responderam questões para caracterização sociodemográfica e laboral e a Escala de Avaliação de Danos Relacionados ao Trabalho. Processaram-se análises estatísticas descritivas e por meio do teste qui-quadrado associou-se o adoecimento e as variáveis pesquisadas.

Resultados: Os Danos Psicológicos e Sociais receberam avaliação suportável, enquanto os Físicos, avaliação crítica. Os itens dores nas costas e nas pernas receberam as maiores médias e foram considerados graves, sugerindo presença de danos ocupacionais. Evidenciou-se associação significativa entre os Danos Psicológicos e a variável capacitação em serviço. Prevaleceu o adoecimento para os Danos Físicos, seguido por Danos Psicológicos.

Conclusão: O trabalho realizado pelas equipes de enfermagem atuantes nas salas de vacinação pesquisadas pode trazer danos à saúde desse trabalhador.

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Resumen

Objetivo: Analizar los daños a la salud relacionados con el trabajo de profesionales de enfermería de salas de vacunación.

Métodos: Estudio transversal analítico realizado en 39 salas de vacunación en Unidad de Atención Primaria de Salud en el municipio de Rio de Janeiro. Participaron en el estudio 171 trabajadores de enfermería que respondieron preguntas para caracterización sociodemográfica y laboral y la Escala de Evaluación de Daños Relacionados al Trabajo. Se realizaron análisis estadísticos descriptivos y, a través de la prueba χ^2 de Pearson, se relacionó la enfermedad y las variables estudiadas.

Resultados: Los daños psicológicos y sociales recibieron una evaluación tolerable, mientras que los físicos obtuvieron evaluación crítica. Los ítems dolores de espalda y de piernas recibieron los mayores promedios y fueron considerados graves, lo que sugiere la presencia de daños laborales. Se observó relación significativa entre los daños psicológicos y la variable capacitación en servicio. Hubo una prevalencia de la enfermedad para daños físicos, seguido de daños psicológicos.

Conclusión: El trabajo realizado por los equipos de enfermería en las salas de vacunación estudiadas puede traer daños a la salud de ese trabajador.

Introduction

Work has a central role in human life in the contemporary world, exerting a strong influence on the health/disease process. Thus, it cannot be excluded when assessing the individual's health conditions. It is sometimes presented as a source of pleasure, because it can be a source of innovation, socialization, fulfillment, definition of professional identity, recognition and freedom, sometimes illness due to unfavorable working conditions.[1]

A work context where there are no adequate working conditions, flexibility in productivity demands, workers participation in decisions, appreciation and professional recognition can generate tensions, wear and illness. In this sense, working can bring physical or psychosocial damage or harm to workers, reinforcing what the Brazilian National Worker Health Policy (PNSTT - *Política Nacional de Saúde do Trabalhador e da Trabalhadora*) states, when it puts work as a determinant of the health/disease process.[2]

Damage is defined as any harmth or injury conceived as a result of the demands and working experience, referred to as physical, psychological and social. Physical damage refers to the reported perception of pain and biological disorders, while psychological damage is negative feelings about oneself and life in general, and social damage is defined as isolation and difficulties in family and social relationships.[3]

Even with technological advances and the increase in labor laws, working conditions and their organization have specificities, such as work overload, intense work pace, productivity recovery, achievement of goals and professional versatility, which can damage the health of the worker. Moreover, in the process of work organization, precarious working conditions and conflicting socio-professional relationships may be associated with worker illness.[4]

Within this reality, nursing is an admittedly painful profession, since it deals directly with suffering, requiring the worker to redouble physical and emotional effort. Reduced numbers of workers, long shifts, inadequate working conditions, limited autonomy, lack of social recognition, limited decision-making power and inadequate working conditions add to these effects.[5,6] Among all the specifications of the work context, working conditions are the factor that most contributed to the illness of the nursing worker, according to research with nursing professionals in northeast Brazil.[4]

In Brazil, among the different fields of nursing practice, Vaccination Room (VR) work stands out. This sector is understood as a semi-critical area intended exclusively for the administration of immunobiological agents within the context of Primary Health Care (PHC).[7] It is noteworthy that few countries have a public vaccination model with VR similar to the Brazilian one.

The Brazilian immunization policy, through the National Immunization Program (NIP), is one of the most complete among developing countries and allows the target population - children, pregnant women, adolescents, adults, the elderly and Indigenous - access to vaccines under the Program.[7]

For work in VR, the Brazilian Ministry of Health (MoH) recommends a team consisting

of a nurse and two technicians or nursing assistants. They are properly trained and qualified for the procedures of handling, conservation, preparation and administration of immunobiological agents and for the registration and disposal of residues resulting from vaccination actions. Ideally the presence of two vaccinators for each work shift.[7]

Concerning VR, present in the PHC modality, it also encompasses risk factors of various natures that may compromise the physical and mental well-being of the worker. However, there are very few studies about the risks in this context, a scarcity that can be justified by the absence of VR or similar modality in other countries, in contrast to the Brazilian reality.

VR work demands, above all, the professional's energy, in face of the most varied activities to be performed. Among them are clientele reception, status verification, immunobiological preparation, administration and registration, return schedule, maintenance of the immunobiological conservation cold chain, among others. By expressively and successively administering vaccines, nursing workers are daily exposed to chemical and biological hazards, as immunobiological agents are composed of live attenuated antibiotics, bacilli or viruses.

In addition, VR professionals have to deal directly with audiences from different sociodemographic realities and age groups. The variety of clients demands from the worker adequate care to each situation. These professionals provide psychological support to tense, anxious, and fearful mothers who are vaccinating their babies for the first time; have to deal with children who are restless and reluctant to vaccination; they experience infant crying throughout the workday; are exposed to physical and mental aggression by users dissatisfied with the service or the need to wait for their turn.

VR workers simultaneously perform these various tasks, which require keen technical mastery and incessant alertness and attention. The work process at VR has a very intense pace and is uninterrupted during the shift, including lunchtime. It is noteworthy that the concentration of activities is higher in the morning, when there is usually a high demand from customers.

After observing the exposure of the nursing professional to health risks and damages that are typical of that sector, the researchers' concern intensified. In addition to the work overload and the reduced number of employees, which make the work routine heavier, most VR have inadequate physical structure. VRs are poorly designed and preventative maintenance and ambient temperature and furniture are improper. Some rooms do not have computer technology, and those that do, do not have programs suitable to the work need.

Vaccinating the population to protect them from immuno-preventable diseases is a worldwide demand. In this perspective, similar to other modalities of health care, that is, secondary and tertiary, in PHC are also present the classic occupational health risks, namely, biological, physical, chemical, ergonomic, psychosocial and mechanical. However, it is noted that the questions about the health damage of workers who work in VR are still little explored in national and international studies. In this sense, researching the damage to the health of VR workers proved to be relevant.

In this context, this study aims to analyze the health-related harm to work of VR nursing professionals.

Methods

This is an analytical cross-sectional study conducted in VR of Primary Health Care Units (PHCU), in the city of Rio de Janeiro, RJ, Brazil. This municipality is divided into ten program areas (PA) composed of several neighborhoods. The study had as setting the PHCU VR of PA 1.0, 2.1 and 2.2 formed by neighborhoods of the south and central-north zones, considering the ease of access of the main researcher to the managers of the units. These PAs total 41 PHCU, two of which do not yet have VR, the choice of PHCU considered the ones with longer implementation

time, which could reflect in greater stability of the teams.

The target population was 196 workers, two participated in the pretest, and the data were excluded from the analyzes. A non-probabilistic convenience sampling process was used. It was considered eligible every worker member of the nursing team that worked in the researched VR. Fifteen were excluded because they were on special leave, sick leave or on vacation at the time of data collection. Losses refer to eight workers who refused to participate. One hundred seventy-one workers participated, being 23 nurses, 115 nursing technicians and 33 nursing assistants, representing 89% of the population.

Data collection took place between June and July 2017. Professionals were individually approached in the workplace, and presented with the study objectives, detailed research guidelines and the ethical issues surrounding research with human beings, such as ensuring anonymity and the voluntary nature of participation.

Data collection tool consisted of a self-administered multidimensional questionnaire, coded by sequential cardinal numbers, according to the data collection order. In cases where workers were off duty or on home visits, the tools were left with the VR manager and, subsequently, the researchers made a second contact and scheduled a new date for delivery. Thus, there was no loss of participants due to the non-return of the tool.

In order to meet the objectives proposed in the study, we used a sociodemographic and labor questionnaire with closed questions regarding age, gender, children, marital status, education, professional category in the institution, other job, PHCU where you work, working time in the unit, training to work in the VR and involvement with work accident. To assess work-related harm, the Work-Related Damage Assessment Scale (EADRT - *Escala de Avaliação dos Danos Relacionados ao Trabalho*) was used.[3] It consists of one of four subscales that are part of the Work and Risk Disease Inventory (ITRA – *Inventário sobre Trabalho e Riscos de Adoecimento*) developed and validated in Brazil.

It is a self-applicable tool that assesses dimensions of the interrelationship between work and risk of illness, which is in its second version. The EADRT consists of 29 items distributed in physical (twelve items), psychological (ten items) and social (seven items) damage. Its objective is to assess the damage caused by the work in the last six months, whose response options assess the frequency of involvement and range from 0 (none) to 6 (six times or more).[3]

The reliability of the EADRT results was assessed by performing the internal consistency analysis using Cronbach's alpha coefficient.

Data were entered, organized, processed and statistically analyzed using the Statistical Package for Social Sciences (SPSS), version 21.0, by descriptive analyzes of arithmetic mean and standard deviation of items and, subsequently, factors/damage. In the EADRT analysis, the results were classified into four levels, as follows: above 4.0 (negative assessment, presence of occupational diseases); between 4.0 and 3.1 (moderate to frequent assessment, severe risk of illness); between 3.0 and 2.0 (moderate assessment, critical risk of illness); below 1.99 (positive rating, bearable).[3]

In order to maximize associations, in this study, we chose to regroup the assessment of EADRT items in non-illness (bearable assessment/more positive assessment) and illness (critical/severe assessment/disease presence/moderate, moderate to frequent assessment and negative). This stratification was already used in another study.[8]

Associations between sociodemographic and occupational variables, EADRT factors, and illness were analyzed using the Chi-Square Test. The association between the age variables and the EADRT factors was made by the Mann-Whitney U Test, because it does not adhere to normality standards. Significance level of 5% was adopted in all analyzes.

This research met the ethical precepts of research involving human beings, in accordance with Resolution 466/2012 of the Brazilian National Health Board (*Conselho Nacional de Saúde*). It was approved by the Research Ethics Committee under Opinion 1.988.482/2017.

Results

Among the respondents, the majority were female (90.1%, n=154), lived with a partner (52.0%, n=89), had children (67.3%, n=115), education until high school (71.3%, n=122), with a mean age of 41.77 (±12.228) years. More than half of the participants (51.5%, n=88) had less than three years of experience in the area, had an employment relationship (79.5%, n=136), had training to work in VR (69.6%, n=119) and more than one fifth (21.6%, n=37) suffered some type of occupational accident.

Table 1 shows the distribution of health-related harm to nursing staff in VRs. In the distribution of work-related injuries, the physical damage factor presented the highest mean, obtaining critical assessment. In the meantime, the factors psychological damage and social harm obtained bearable classification. The values described showed good internal consistency of the scale for the factors, showing that the items truly measure what was proposed.

Table 1. Distribution of health-related harm to nursing staff in the VRs of Rio de Janeiro according to the mean of EADRT factors assessment

Factor	Mean	SD	Assessment	α
Social damage	0.79	0.866	Bearable	0.702
Psychological damage	1.28	1.364	Bearable	0.902
Physical damage	2.06	1.320	Critical	0.852

SD – standard deviation. α – Cronbach's alpha

Table 2 shows the statistical distribution of the items that make up the factors that assess health damage related to nursing work in Rio de Janeiro.

In the physical damage factor, the items "leg pain" and "backache" presented the highest means and were considered as severe health risks by workers. The worst rated items in the psychological damage factor were "bad mood" and "willingness to give up everything", respectively, critical and bearable rating. In social damage, all items were assessed as bearable, not characterizing workers' health. This factor presented the lowest mean among the factors surveyed.

Table 2. Distribution of health-related damage to nursing staff in the VRs of Rio de Janeiro city according to the mean classification of the EADRT factor items

Item	Mean	SD	Assessment
Physical damage			
Hearing disorders	0.70	1.66	Bearable
Appetite changes	1.22	1.93	Bearable
Digestive disorders	1.24	1.85	Bearable
Vision disorders	1.24	2.01	Bearable
Breathing disorders	1.41	1.96	Bearable
Circulatory disorders	1.56	2.25	Bearable
Sleep changes	2.02	2.29	Critical
Pains in the arms	2.41	2.31	Critical
Headache	3.09	2.72	Severe
Body pain	3.10	2.28	Severe
Leg pain	3.22	2.37	Severe
Backache	3.44	2.26	Severe
Psychological damage			
Loneliness	0.61	1.390	Bearable
Doubt about ability to do tasks	0.87	1.406	Bearable
Feeling of emptiness	0.88	1.753	Bearable
Bitterness	1.08	2.892	Bearable
Feeling of helplessness	1.12	1.937	Bearable
Feeling of abandonment	1.14	1.950	Bearable
Sadness	1.50	1.980	Bearable
Irritation with everything	1.79	2.006	Bearable
Willingness to give up everything	1.79	2.276	Bearable
Bad mood	2.00	1.933	Critical
Social damage			
Difficulty with friends	0.43	1.000	Bearable
Aggressiveness towards others	0.44	0.983	Bearable
Difficulties in off-work relationships	0.56	1.210	Bearable
Callousness towards colleagues	0.68	1.470	Bearable
Conflicts in family relationships	1.00	1.522	Bearable
Impatience with people in general	1.15	1.804	Bearable
Willingness to be alone	1.33	1.860	Bearable

SD – standard deviation

Disease was observed for physical damage (24.6%, n=42), followed by psychological damage (22.8%, n = 39), and non-illness prevailed for social damage (9.4%, n=16).

Table 3 presents the prevalence among workers surveyed of work-related illness and its associations with sociodemographic and labor variables. Statistical significance was observed only for the training variable when associated with illness by Psychological damage. Although almost the entire sample trained, it was found that this is not a mitigating factor for workers' exposure to psychological risks.

Table 3. Association between illness and sociodemographic and labor variables for work-related injuries among nursing workers in the VRs of Rio de Janeiro

Variable	Total n	Physical n(%)	P value	Pschological n(%)	P value	Social n(%)	P value
Gender			0.196		0.593		0.604
Male	17	02(11.8)		03(17.6)		01(5.9)	
Female	154	40(26.0)		36(23.4)		15(9.7)	
Living with a partner			0.170		0.229		0.221
Yes	89	18(20.2)		17(19.1)		06(6.7)	
No	82	24(29.3)		22(26.8)		10(12.2)	
Children			0.775		0.210		0.893
Yes	115	29(25.2)		23(20.0)		11(9.6)	
No	56	13(23.2)		16(28.6)		05(8.9)	
Schooling			0.856		0.909		0.723
High school	124	30(24.2)		28(22.6)		11(8.9)	
Higher education	47	12(25.5)		11(23.4)		05(10.6)	
Professional category			0.391		0.896		0.907
Nurses	23	04(17.4)		05(21.7)		02(8.7)	
Assistants/Technicians	148	38(25.7)		34(23.0)		14(9.5)	
Field of performance			0.723		0.913		0.980
PA 1.0	84	19(22.6)		20(23.8)		08(9.5)	
PA 2.1	57	14(24.6)		13(22.8)		05(8.8)	
PA 2.2	30	09(30.0)		06(20.0)		03(10.0)	
Working length			0.891		0.138		0.517
≤ 03 years	88	22(25.0)		16(18.2)		07(80)	
> 03 years	83	20(24.1)		23(27.7)		09(10.8)	
Employment bond			0.053		0.646		0.637
One bond	136	29(21.3)		30(22.1)		12(8.8)	
Two or more bonds	35	13(37.1)		09(25.7)		04(11.4)	
Training			0.103		0.001		0.223
Yes	119	25(21.0)		19(16.0)		09(7.6)	
No	52	17(32.7)		20(38.5)		07(13.5)	
Work accident			0.100		0.115		0.768
Yes	37	13(35.1)		12(32.4)		03(8.1)	
No	134	29(21.6)		27(20.1)		13(9.7)	

PA – programmatic area. p – P value

Discussion

As an inherent activity for PHC staff, VR work exposes workers to risks similar to those suffered by general care workers. It is worth mentioning that health workers point to inadequate work conditions and organization. Burnout is the main indicator of suffering in this setting and may be associated with client conflicts, stress, working hours and insecurity.[9]

In this research, according to the distribution of health-related damages, according to the classification of the EADRT factors, a bearable assessment was found for two thirds of the damages, a result that converges with the findings of research with hemodialysis nursing workers that identified all the damage as bearable.[10] Regarding health-related physical damage, the critical assessment predominated. Psychological and social damage had bearable ratings. Similar results were found in another study of nursing workers.[8]

In the physical damage factor, the items leg pain and backache were considered severe by workers, a result similar to other investigations.[8,10] From the perspective of workers' health, such issues should be considered, as critical/severe classification in this study characterizes illness and/or occupational disease. This requires immediate short- and medium-term action to manage biomechanical and physiological requirements in order to promote quality of life, reduce remoteness and maintain work ability.[8,11]

Corroborating these analyzes, a study[12] conducted in the state of Bahia showed that musculoskeletal disorders are more frequent among PHC workers. Most of the sample showed moderate work ability regarding physical demands. The high-

er prevalence of musculoskeletal disorders, particularly in the nursing staff, is due to the fact that the work is uncomfortable and repetitive, most of the time, favoring the appearance of injuries and disorders, thus classified.

These results may also be associated with the peculiarities of work in VR. This work usually presents an environment with inadequate accommodation, equipment and physical arrangement, intense work rhythm, constant displacements to meet individual users' needs, repetitive movements and standing work throughout the shift, and the adoption of improper body posture. in the administration of immunobiological agents. Regarding the peculiarities mentioned, similar data were presented in a study[13] about the perception of nursing technicians regarding occupational risks in VR in the state of Rio Grande do Sul, Brazil.

This work process can provide musculoskeletal symptoms, which occur in any region of the body and are mainly associated with organizational factors. Musculoskeletal injuries are among the most frequent work-related disorders, most common among female workers.[14]

Corroborating the data presented here, we highlight the study conducted in a Japanese hospital about accidents, musculoskeletal and psychological disorders among nurses, finding that backache represented more than 60% of the cause of work-related injuries.[15]

The results show that the demands and working experiences present in VR can compromise the workers' health and, consequently, the services provided to users. Although willingness to quit and irritation with everything being within bearable assessment, in some cases, these feelings, alone or together, can trigger worker illness.[10]

In short, the demands and working experiences present in VR lead to the physical illness of these workers and may even compromise work performance.

These results point to the need for an assessment of work conditions and organization, in order to list what may be affecting the health of this worker. From this, the workers should demand the discussion of preventive measures to such diseases and the accomplishment of better working life conditions.

Despite the bearable rating on psychological damage, the bad mood item scored critical risk. Authors infer that psychological problems in relation to work are difficult to determine as they occur insidiously.[8,16] One of the factors that can contribute to this result is the psychic burnout resulting from the intense work rhythm, the direct relationship with the public of different sociodemographic realities, the dissatisfied users with the service and the conflicting relations between co-workers and boss.

The small number of studies on this subject in VR does not allow comparisons of results. However, similar data were found at the tertiary level of health care, in a study carried out among nurses who work in the surgical clinic of university hospitals.[8] These comparisons with hospital contexts should be used with caution, given that different settings generate different wear.

Regarding the association of illness and the sociodemographic and labor variables for psychological damage, a statistically significant difference was observed for the training variable. Thus, it is understood that training contributes to the perception of occupational risks, however, are not enough to minimize and/or prevent illness, because the work process in the health/disease context has high potential to generate health problems.[17]

The capacities in the researched PAs are aligned with the changes in the NIP, that is, it follows the changes in the vaccination calendar. They also occur when new PHCUs are inaugurated and professionals who work for Social Organizations (SO) change. It is noteworthy that there is a persistent change of OS, which generate new hires leading to high turnover of PHC nursing workers. Training is provided for the administration of immunobiological agents, including BCG vaccine, cold chain, vaccine schedule change, and good immunization practices.

Training is for all nursing professionals, when there is no possibility of the nurse and the technician attending, only the nurse is trained to be a multiplier in his unit. It is noteworthy that every time vaccination campaigns are carried out, nursing professionals are summoned to meet, in view of orientations on the demands of the campaign in question.

Although training may reduce the number of work-related accidents, it may not be the only element to guide accident prevention. Training alone does not contribute to accident prevention and risk perception.[18]

From this perspective, intervention should focus not only on individual worker attitudes and behaviors, but also on investing in supervising the performance of tasks for acquiring safe practice skills, supporting employers and improving working conditions and organizational structure.

In addition to adequate working conditions, it is necessary to redefine training beyond the transmission of knowledge to vaccine room workers. VR's work context should be continuous and permanent education, so that professionals can discuss, discuss, update their knowledge and intervene in the work process, minimizing the risk factors pertinent to the sector.[19]

A study with VR professionals from the Midwest region of the state of Minas Gerais revealed that continuing education for this public is a necessity, however, most of the time, from the professional himself. This is due to the fact that this is a complex and constantly changing field, such as changes in the vaccination schedule due to changes in the age range and/or incorporation of new vaccines, constant surveillance of immunobiological quality and turnover of human resources.[20]

Thus, the results exposed regarding psychological damage reveal that the demands and working experiences present in VR can compromise workers' health and, consequently, the services provided to users.

Regarding social damage, it was noticed that non-illness predominated, and the items with the highest mean were willingness to be alone and impatience with people in general. All items were classified as bearable, similar to that identified in a study with surgical clinic nurses.[8]

The associations between illness and sociodemographic and labor variables for social damage were not statistically significant. It is suggested that, so far, efficient mediation strategies are being used in view of the suffering arising from the demands and the work context. It is noteworthy that studies addressing the influence of professional practice on worker social damage in VR are scarce and use different tools for this assessment, which limits the comparison.

The non-illness, found in this investigation, does not exempt the attention that should be given to the worker. In workers' health, any illness is worrying. Therefore, even if it has no statistical significance, the issue deserves caution and discussion.

In VR, workers are expected to be healthy. In order to identify what may be affecting workers' health, measures such as monitoring health professionals, assessing working conditions and work organization should be implemented. They must be constantly reviewed and rethought in order to minimize the risk of health problems to workers in this work context and to promote their well-being.

A study[21] states that it is not possible to change the nature of the work object of nursing and health institutions that are typically unhealthy, with limitations to instituting new forms of work organization. It is possible to control the unhealthiness, the dangerousness, the hardness, the wear and the burnout of workers, providing the restoration of the workforce and the distance from exposure to risk factors. Thus, it is necessary to create strategies, such as reducing work hours, discussing occupational burnout and making workers aware of these risks.

The fact that all items of the social damage factor were assessed as bearable demonstrates that social support, i.e., interpersonal and interprofessional relationships, family support, among other indicators, is a factor that can protect workers from illness. It is necessary to consider that relationships at work, when effective and valued, contribute to the promotion of a healthy and welcoming work environment capable of favoring the quality of life and well-being at work, positively impacting the lives of workers. In this case, work should be considered a source of pleasure and job satisfaction.

Among the limitations of the study, there is the cross-sectional design, which makes the causal inference of the results impossible. In addition, the fact that ITRA assesses subjective issues may cause participants' responses to be influenced by mood, tiredness, and episodes that have occurred in recent days. Likewise, ITRA does not allow the assessment of the mediation strategies used by professionals, it

only assesses the risks of illness. Also, because convenience sampling was adopted, it may not be representative of the reality.

Despite being characterized as limitations, such questions may contribute and instigate new studies on workers' health and risks of illness in nursing work in VR, which are necessary to advance, complement and confront the findings of this research.

Conclusion

Given the above, it can be inferred that the work performed on RV in the researched PHCU, can bring damage of various natures to workers' health, being more prevalent back and leg pain and mood changes. The study found higher illness for physical damage, followed by psychological damage, prevailing non-illness for social damage. In addition, the results suggest that only the training provided in the PAs surveyed are not sufficient to reduce the damage to workers' health, requiring investments in continuing education. It is understood that efforts in this regard will reflect on the effectiveness of immunization programs and the health of workers who will be better able to cope with the constant changes in practice settings. These data add new knowledge relevant to the health of nursing workers and present subsidies for the implementation of actions that prevent damage and promote working conditions favorable to the health of VR workers.

Collaborations

Fonseca EC, Zeitoune RCG, Sousa KHJF, Portela LF and Soares MRC contributed to the study design, data analysis and interpretation, article writing, relevant critical review of intellectual content and approval of the final version to be published.

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