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Opinion of nurses of surgical departments on musculoskeletal pain

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Abstract

Introduction

Musculoskeletal pains have been around for a long time but in recent years the frequency of their occurrence has increased significantly. It is a problem that occurs in an increasingly larger and younger part of society. The aim of the study was to find out the opinions of nurses of surgical departments on the occurrence of musculoskeletal pains.

Data and process

The research was conducted in a group of 100 people in surgical departments, in 4 hospitals in Lublin in 2016. The study involved both the author's questionnaire, which included questions

allowing to determine the specificity of the work, and the Nordic questionnaire, which allowed to determine the place and frequency of pain, and the scale of Vas.

Findings

Nurses working in surgical departments are a group exposed to musculoskeletal pain. The specificity of work related to the necessity to perform specific tasks: care, transport, instrumental, and external load are most often the cause of pain. Demographic variables have a significant impact on the ailments experienced.

Conclusions

Age, work experience , number of worksites and BMI are the variables that determine pain incidence in 91% of respondents. The most common pain conditions are chronic and the average pain is determined at the level of 4.64 on a 10-point scale.

Key words: nurses, workload, low back

Introduction

Musculoskeletal disorders are an increasingly common problem affecting the majority of the population. They cause pain, which consists of proper functioning in all areas of human life. This is mainly due to changes in lifestyles of contemporary people, who often spend most of their time at work, thus reducing physical activity, resulting in increasing obesity and muscle weakness. In the group of people over 55 years of age, about 98% of the population complains of back pain, of which 11% suffer so much that it makes it impossible to perform their professional work until now.

The specificity of nurses' work related to alternating static and dynamic loads and very high periodic external loads make them particularly prone to musculoskeletal disorders. Patient care as well as care-hygienic and care-medical activities are usually performed at an anteversion, and their duration varies greatly, and may range from 30 seconds to as much as 15 minutes. Often, activities such as going to the toilet, feeding or administering medication require nurses to work in combined planes. This position has a major impact on the ease with which the spinal column is overloaded due to asymmetric isometric tension in the back muscles.

The specificity of surgical departments includes pre and post-operative patient care. It requires nurses to do a lot of things that more or less affect the development of musculoskeletal

disorders. Activities such as: assumption of vascular access, preparation and supply of intravenous fluids and drugs, hygiene of the patient's body, preparation of the surgical field, insertion of a probe, carrying out a cleaning ingot, and others, force the nurses to stand, walk and sit while documenting the care process for a long time.

Post-operative procedures are also associated with a high risk of developing musculoskeletal disorders. Activities such as: transport from the operating theatre to the ward, laying in position, patching and rubbing the back, checking and changing the wound dressing, helping the patient when taking food, taking care of the patient's hygienic condition and many other tasks requires taking complex, often strange body positions. Therefore, it is inevitable that the tilting position will be long forwards and standing, and that walking distances will be long, very often by pushing or pulling heavy medical equipment. Musculoskeletal overloads resulting from work in the surgical ward, which later resulted in painful ailments, are not only the result of care activities performed among surgical patients. The problem is much more complex. This is the result of a lack of knowledge and skills in the proper performance of the duties entrusted to nurses and a lack of equipment in hospital units. As an employer, the hospital is obliged to provide its employees with equipment that will enable them to eliminate or limit manual transport operations. It is also obliged to monitor on an ongoing basis the occupational risks associated with the transport of patients and to comply with the permissible standards of the burden that may be transferred by employees.

On the basis of the literature analysis, the authors of the paper stated that there is a lack of systematic research on pain problems occurring in the group of nurses in hospital wards.

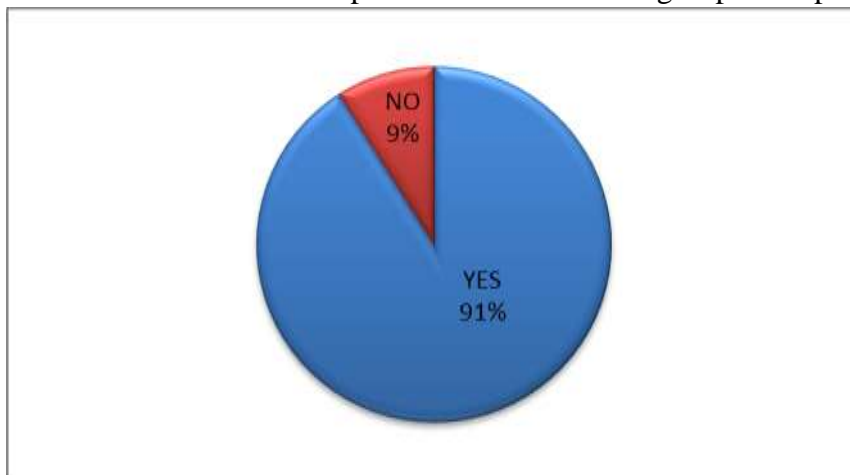
Data and process

Working conditions in surgical departments and the resulting workload were analysed on the basis of anonymous questionnaires filled in by 100 active respondents. The tests were carried out with the consent of authorised persons - hospital directors - in surgical wards from March to June 2016. The self-reported questionnaire used in the study consisted of 27 closed-ended questions, the Nordic Musculoskeletal Questionnaire (NMQ) and a VAS scale. The statistical program Statistica was used for the analysis. Calculations were made to study the relationship between the data using non-parametric tests such as Chi², Spearman correlation, Kruskal-Wallis and U Mann-Whitney tests. The existence of statistically significant relationships was assumed when the value of $p < 0.05$.

Nursing is a very female-dominated profession, which is confirmed by data obtained during the study (96% of women and 4% of men). The mean age of the respondents was 40.3 years (SD: 10.3). Only 24% of respondents were under 30 years of age, and as many as 52% of them were over 40. The mean BMI value for the studied group was 25.6 (SD: 4.2). 45% of the respondents achieved a BMI value above the normal value. The structure taking into account the seniority indicates that the largest group were people with employment experience over 25 years - 31% of the total, and 1/5 of the respondents have employment experience up to 5 years. The education level in the analysed group is as follows: bachelor's degree 37%, master's degree 43%. The remaining 20% were graduates of vocational studies - 12% and medical high schools - 8%.

Results

Common musculoskeletal pain was observed in a group of respondents as shown in Graph 1.



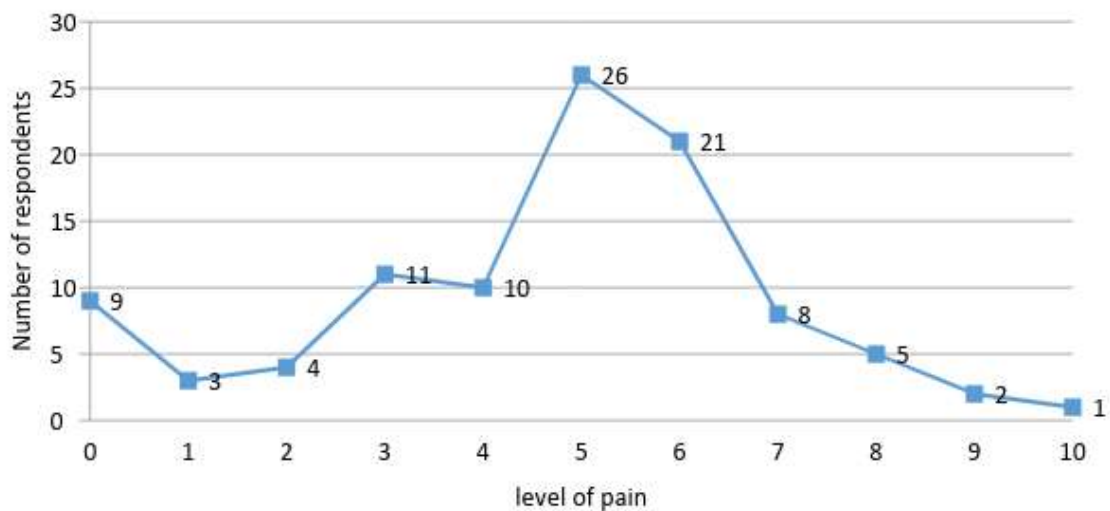
Graph 1: Musculoskeletal symptoms at work.

The vast majority, i.e. 91%, gave answers confirming the occurrence of unpleasant musculoskeletal disorders in them.

It was also determined whether the ailments of the respondents were chronic or acute. The NMQ Nordic Questionnaire was used for this purpose. All the responses confirming the occurrence of musculoskeletal disorders for a period of 12 months (chronic condition) were summed up, as appropriate, and 7 days (acute). The results are shown in Graph 2.

Graph 2. Nature of the ailment

For questions about chronic musculoskeletal disorders(12 months) an affirmative reply was received 446 times. Acute ailments (7 days) were reported almost twice as rarely, only 267 times. In the question on the average level of musculoskeletal disorders resulting from work in the surgical department, respondents usually placed their answers at the limit of 5 points of the scale. The exact distribution of data is shown in Graph 3.



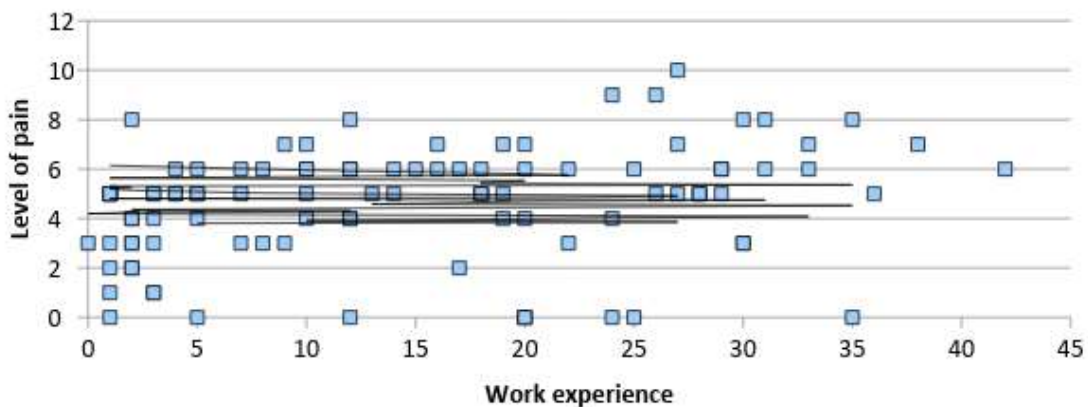
Graph 3. The most common level of afflictions

The average level of musculoskeletal disorders in the whole group was 4.64, with SD = 2.26 standard deviation. Knowing the average and accurate percentage distribution of the level of musculoskeletal disorders, it is worth to examine what this variable correlates with. The Rho-Spearman test was used for this purpose. The obtained results are presented in Table 1.

Table 1. Correlation of the level of ailment with age and work experience of respondents

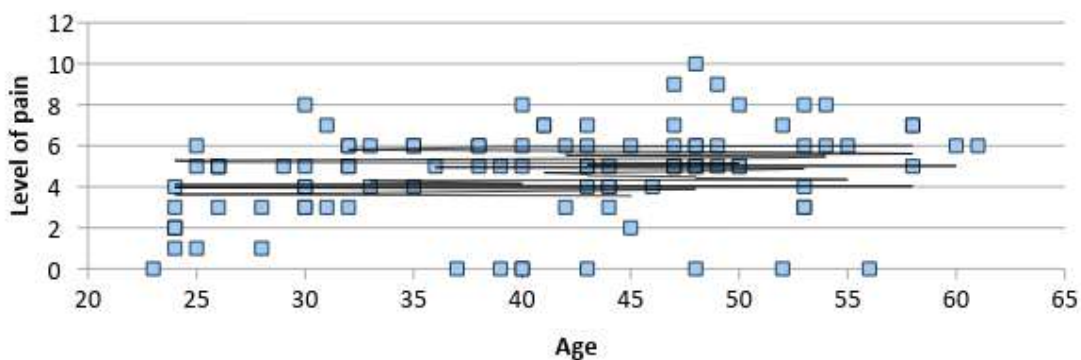
TIME	Level of discomfort (VAS)	
	Rho Spearmana	p
Work experience	0,338	0,001*
Age	0,351	<0,001*

As it results from the calculations, there is a statistically significant relationship between the level of ailments felt and the length of time worked ($p=0.001$) and the age of respondents ($p<0.001$). The results are presented in Graphs 4 and 5.



Graph 4. Length of service and a feeling of ailment.

The longer you have been working, the higher the level of your ailment.



Graph 5. Age of respondents and level of ailment.

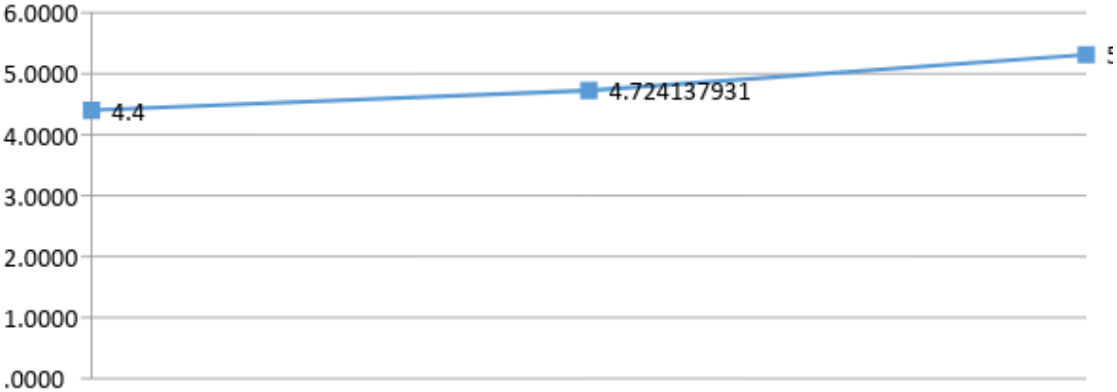
As in the case of the correlation between the length of service and the level of ailment, with the increase in the age of respondents, the declared value of ailment is higher.

The calculations also indicated a correlation between the level of ailments felt and anthropometric characteristics of respondents, which were characteristic of BMI. The results are presented in Table 2.

Table 2. Level of ailment according to BMI.

BMI	Level of ailment (VAS)		
	N	Level of ailment	SD
Normal	55	4,4000	2,15682
Overweight	29	4,7241	2,16954
Obesity	16	5,3125	2,72565
Chi-kwadrat (H Kruskala-Wallis)=5,752; p=0,049*			

The result of the Kruskal-Wallis test is a statistically significant correlation between the BMI index and the mean pain level experienced (Chi-square = 5. 752; p=0. 049). A higher BMI value results in a higher level of ailment, Graph 6.



Graph 6. Level of ailment and BMI of respondents.

Respondents with BMI within the range of normal value evaluated the pain at 4.4 on a VAS scale. Respondents with overweight and obesity reported higher levels of ailments (4.72 for overweight and 5.31 for obese). Getting to know the opinions of respondents concerning the occurrence of musculoskeletal pains and identifying risk factors will help to implement a preventive health program that will help to reduce the negative effects.

Discussion

Musculoskeletal disorders that reduce productivity at work are a problem that affects virtually all workers. The authors of the publication on musculoskeletal disorders or back pain among nurses draw attention to the huge scale and prevalence of this problem. In a study conducted in four hospitals in Poznań, Bilski points to the prevalence of ailments among nurses, which are close to 73%. Młynarski achieved a slightly lower result of 70% in his research. The highest incidence rate among nurses, as high as 95%, was recorded by Lorencowicz. A similar scale of the problem was observed by the authors of the study, according to research carried out in 4 Lublin hospitals, over 90% of people participating in the study suffer from musculoskeletal disorders. This problem does not only concern Poland. Similar frequency of musculoskeletal disorders is experienced by nurses in Turkey - 87.5% or China - 77.9%.

As numerous publications show, there are many reasons for this phenomenon. Occupational factors are one of many groups facilitating the occurrence of the disease. These include work methods, working environment factors, force values, repeatability of movements, lifting loads, etc. However, when analysing bibliographic sources, one can notice several regularities describing this phenomenon. Many authors are responsible for musculoskeletal pains and are responsible for individual parameters determined by the value of the BMI index. Trojan et al. indicate a much higher incidence of symptoms in patients with BMI above 25 (96.6%) than in those with normal index (80%). Baumgart et al. also came to similar conclusions by investigating back pain among nurses on the basis of ODI and NDI questionnaires. Commonly felt pain, as confirmed by the research, is more often chronic. This is a signal that should not be underestimated due to possible complications, which make it impossible to fully perform work during the entire period of professional activity. Variables such as age and length of service are important for feeling musculoskeletal disorders. The investigators in charge of observing the relationship agree on a linear increase in the level and incidence of the condition over the years.

The analysis of the level of declared ailments was also a surprising result, and the authors of the paper used the VAS scale, as in most publications it was used as a tool to assess this parameter. Respondents most often chose 5th and 6th scale levels, with an average score of 4.64. A significantly lower score, oscillating at the limit of 2 points of scale, is presented by Maciuk in his publication on nurses.

In surveys conducted on a younger group of respondents, consisting of students, Stefanowicz and Kloc also received the highest number of responses in the region of 5 points of scale, with an average result of 4.17 - on a 10-point VAS scale.

Pain is quite often a reaction of the body to periodic and excessive strain, it resolves after its cessation and occurs more frequently than overload syndromes. Aware of the huge scale of the problem and the limited opportunity for employers to change their attitude towards manual workers, it is important to consider how to determine critical exposure values when carrying out moderate risk activities.

There are no publications concerning the occurrence of dose-response relationships, e.g. determination of the value of force acting on which a muscle may cause its damage, or the frequency of repetition or working time causing the occurrence of ailments. The static and dynamic strain cannot be completely eliminated from the work of the nurses, but it should be remembered that even short-term stress with high force (jerks, slips, falls, transport of patients, etc.) can lead to musculoskeletal disorders. Spinal pain syndromes are diseases of the musculoskeletal system that most often affect the most mobile sections, i.e. sections that are highly exposed to degenerative changes and injuries.

Therefore, occupational risk assessment should be carried out using methods that accurately identify the occupational risk factors involved, such as the type of work position and the duration of work shift, the number of repetitions, the forces required to perform the activities, the appropriate temperature, the working space, etc. , and should be based on the following criteria: the number of working hours, the number of working hours per working day, the number of working hours per working day, the number of working hours per working day, etc. Nurses should be trained to develop and apply appropriate mobility habits and apply practical preventive recommendations to minimise the negative effects of the occupational risk factors involved.

Conclusions

1. Nurses working in surgical wards mostly (91%) experience musculoskeletal pain.
2. The most common pain conditions are chronic and the average pain value is determined at the level of 4.64 on a 10-point scale.
3. Age and length of service are variables that have a significant statistical impact on pain.
4. The increase in pain is due to an abnormal BMI value.

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