THE PROBLEM OF LOWER BACK PAIN IN NURSING STAFF AND ITS EFFECT ON HUMAN ACTIVITY.

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Abstract

Summary

The physical and technical difficulties involved in the work of nursing staff often lead to the occurrence of problems, the reasons for which are not easy to identify and clarify, and even more difficult to articulate.

Purpose: The purpose of the present study was to examine the relation between lower back pain and manifestations of human activity and behavior.

Material and Method: The sample consisted of nurses working in two hospitals of Central Greece. Collection of the sample commenced in April of 2006 and was completed within three months. Before respondents agreed to participate, they were informed about the purpose of the study. Data were collected during their working hours by completing the questionnaires of the American Pain Society Scale, according to which pain levels are measured in individuals. The questionnaires were anonymus . The questionnaire consisted of three parts. The first part included questions aiming at collecting demographic data, the second part included 15 questions focusing at investigating the existence and the attitude towards the problem, technics about weight lifting, moving ant transferring load and the third part included the American Pain Society Scale.

Results: 120 questionnaires were collected in total, of approximately 150 distributed to nursing staff at two hospitals in Central Greece. 40% of the sample replied that they have experienced lower back pain. The values of the Mann-Whitney p-value test showed that the influence of pain on human relations and sleep is systematically higher than on other activities. The values of the Kruskall-Wallis p-value test showed that the activities of nursing staff under the influence of pain following injury to the lumbar spine, do not differ according to gender and are independent of the level of education of the population under study. Subjects' emotional disposition would seem to be influenced by pain and it is the only parameter which varies according to age. Human activity is influenced by pain to the same degree regardless of the rank of the nurses who made up the population examined in this study. All tests are significant when p-value is less than 0,005. The overwhelming majority of the individuals involved were 30-41 years of age and employed as hospital ward nurses. With respect to their level of education, it should be pointed out that a mere 2.5% of the sample had completed only basic training.

Conclusions: Efforts to improve the problem of the relation of pain to activity in nursing staff can be focused in two main directions, including intervention on an individual level and changes on an organizational level on the part of the employer. Coordinating these two principal directions can lead to a progressive reduction of the problem. However, there is a plethora of obstacles to be overcomed due mainly to the nature of the work of the population under study.

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Introduction

Today, musculoskeletal disorders are one of the most frequent health problems related directly to working conditions. Intensification of work, changes in scheduling and organization of the workplace, rising demands on employees as well as new technologies lead to situations characterized by additional pressure and stress. As a result, more and more occupational or work-related diseases have appeared, as are musculoskeletal problems, stress, occupational burnout, chronic exhaustion and depression[1]

According to studies carried out by the European Foundation for the Improvement of Living and Working Conditions, poor working conditions, rising demands and strict timetables and deadlines lead to significant changes in the daily lives of members of the workforce, e.g.: sleeping disorders, increased exhaustion, backaches, muscle pain, fractures and cramps.[1]

The European Foundation for the Improvement of Living and Working Conditions (in its European Occupational Diseases Statistics-EOSD) states that the most significant health problems faced today by the workforce are musculoskeletal disorders, with a percentage of 35%, stress with a percentage of 28% and general exhaustion with a percentage of 23%.[2]

Lately, the scientific community has been using the concept of occupational exhaustion syndrome or burnout more and more frequently in order to denote fatigue and depression among members of the workforce. Particularly vulnerable professional groups are deemed to be physicians, especially oncologists, heart surgeons, neurosurgeons and general surgeons, as well as other health professionals such as nursing staff, social workers, psychologists, etc.[3]

Injuries to the lumbar spine are painful, chronic and in most cases non-reversible conditions, and the individuals suffering from them are unable to attend to their social, occupational and other activities. Pain in the lumbar spine and systematic drug intake become a part of the daily routine of these persons, and usually they will accompany them from the third decade of their lives onwards.[4,5]

According to the results of studies carried out in the United States, lower back pain is the most frequent reason for temporary disability among the population at large in the age group under 45, and in persons aged 45-56, it is the third most frequent reason leading to the restriction of physical activity of individuals having suffered heart trouble and rheumatic diseases.

It is generally accepted that nursing staff belong to the group of high-risk professions with regard to the occurrence of musculoskeletal injuries, especially in the area of the lumbar spine. [6,7, 8]

In 1976 in Sweden, Dehlin et al, in a study carried out at a geriatric hospital, found that the prevalence of lower back pain in assistant nursing staff came close to 47%. In 1983, Stubbs et al in the UK were able to prove that over the course of a year, lower back pain afflicted 43.1% of all nursing staff. In 1986, Arad et al, in a study carried out at the Royal North Hospital of Australia amongst 1033 nurses, found an 87% incidence and a 42% prevalence for lower

back pain.[5,9] The prevalence of musculoskeletal conditions among nursing staff, according to Smith et al, reached 70% in 2004, while the percentage for lumbar spine pain was 56.7%. In Greece, in a study carried out by A. Vassiliadou et al in 1995 with 407 female nurses at a major Athens hospital, the researchers showed that prevalence was 63% and 67% for time periods of two weeks and six months respectively. [9,10].

Quite a few studies seem to point to the relation between lower back pain and changes in human behavior. Psychological disposition, interpersonal relations, as well as simple daily activities and habits such as walking, sleeping and sexual relations would seem to change significantly when this problem occurs. Many researchers, among them Yip et al in 2001, and Smedley J. et al in 2003 and 2004 found that stress in the workplace is one of the most significant factors leading to the occurrence of lower back pain.[11,12]

Method

The nurses where approached during their working hours, they where informed about the purpose of our research project and asked if they were willing to participate in the study by filling out a questionnaire. Furthermore, the selection and wording of the questions involved was conducted in such a way as to protect subjects' anonymity. The questionnaire included the American Pain Society Scale, by means of which we can measure the level of pain of each individual.

A box plot was used for the purpose of better describing the relation of pain to how it is expressed in terms of human behavior. For the analysis, the parametric Kruskall-Wallis test was used for the comparison of the mean values of more than two groups, and the non-parametric Mann-Whitney test was also used in order to compare the mean values of two groups. All of the tests have a significance level of α=0.05. Statistical analysis was carried out on the basis of the statistical package SPSS 14.

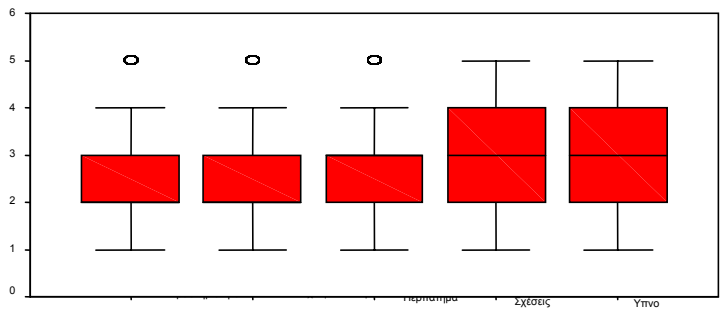
Description of the Sample

Our sample is a convenience sample and it was collected over three months, from April until June 2005. The sample comprises nursing staff from two major national hospitals in Central Greece. Women made up 84.2% of the sample, corresponding to a total of 101 individuals, while the men accounted for 15.8% and 19 individuals respectively. Only 2.5% of our sample would seem to have had mere basic training, while the largest proportion, 43.3%, is situated in the age group of 30–41years of age and 60% are employed as hospital ward nurses. (Table 1)

Results

The influence of pain on human relations and sleep is systematically higher than on other activities. (Diagram 1)

Diagram 1. Influence of pain on various expressions of human behavior



P-value figures from the Mann-Whitney test cross-checking the hypothesis that pain influences both sexes equally. It would seem that the activities of nursing staff which are

influenced by pain as a result of injury to the lumbar spine do not differ according to gender. (Table 2)
As far as the hypothesis that pain influences all levels of education equally is concerned, it seems that irrespective of the level of education of the population examined, pain seems to influence human activity and behavior in the same way. (Table 3)
According to the hypothesis that pain affects all age groups equally, our results showed that emotional disposition would seem to be affected by pain, and that it is the only parameter which varies according to age (p=0,017). (Table 4)
From our results it is shown that human activity is affected equally by pain, no matter what the rank of the members of our population of nursing staff may be. (Table 5)

Discussion – Conclusions - Proposals

The present study examines the relation of lower back pain in nursing staff to expressions of human activity and behavior, in the light of the fact that injuries to the lumbar spine are painful, chronic and in most cases irreversible conditions and that the individuals suffering from these injuries cannot cope with their social, occupational and other activities. The European Occupational Diseases Statistics - EOSD – have shown the most significant health problems currently faced by the workforce to be musculoskeletal disorders (35%), stress (28%) and general exhaustion (23%).[2] All of the above, along with the fact that there is a lack of research in Greece with respect to this specific topic, led us to choose this particular subject.
The population of our study consisted of 84.2% female nursing staff and 15.8% male nursing staff.

According to the initial plan for this study, the effect of pain caused by lower back disorders on nursing staff was examined with respect to various kinds of human pursuits and expressions of behavior, such as activity, emotional disposition, walking, interpersonal relations and sleep.
As shown in diagram 1, the effect of pain on human relations and sleep is systematically higher than for other activities. This finding would seem to be directly linked to lower back pain in nursing staff. In a related study published by Carron and Leavitt in 1983, it was found that the higher the levels of pain, the more intense are the reactions expressed through behavior on the part of the individuals involved. One interpretation of this could be that pain acts as a repressive factor, thus restricting rest and sleep in nursing staff, as well as their capacity to communicate and develop their interpersonal relationships.
[13]

Table 1. Description of the sample

Level of Education	%
Basic Training	2.5%
Two-Year Training	43.3%
Technical Training	54.2%
Age	
20-30	36.7%
31-40	43.3%
41-50	16.7%
51-60	3.3%
Occupational Status	
Head Nurse	4.1%
Nurse	60%
Assistant Nurse	30.8%
Ward Assistant	2.5%
Paramedic	2.55

Table 1 shows that the activities of nursing staff affected by pain caused by injury to the lumbar spine do not differ with respect to gender, i.e. both men and women are affected to the same extent. This finding was not expected, since women's inferior muscle strength by comparison to men's usually works to their disadvantage. This statement is corroborated by the finding of Yip et al published in a similar study conducted in Hong Kong. In a study carried out in Southampton by Smedley et al, the level at which pain occurred in men and women was more or less the same. Emotional disposition, however, would seem to have a positive correlation to the occurrence of lower back pain. Women complaining of a poor disposition and headaches suffered from this problem more often. However, the activity of nursing staff is influenced indirectly, depending on gender and stress.[14,15] More specifically, in a study carried out in London on stress management in nursing staff, stress would seem to be greater in women, and in particular in single women.[16] The same study reports that men display a lower level of stress than women. As a result, according to Tyler & Cushway, 1998, subjects showed typical signs of stress such as muscoloskeletal pain, headaches, gastrointestinal trouble, sleeping disorders, tension, sexual disorders and eating disorders. [17] This data can be indirectly linked to diagram 1 of our study, in which nursing staff display disruptions of interpersonal relations and sleep. In another study by Pransky et al, women were found to experience long periods of disfunctionality due to lower back pain, and the problem is more marked, according to Eriksen, the older the subjects are.[18,19] In addition, the study by Yip et al points to the fact that women are also weighed down by a further stress-producing factor, which is childcare and housework.[14]

Table 2: P-value figures from the Mann-Whitney test cross-checking the hypothesis that pain influences both sexes equally:

	p-value
Activity	0.359
emotional disposition	0.964
Walking	0.929
relations to others	0.598
Sleep	0.431

Table 2 shows that, irrespective of the level of education of the population being studied, pain seems to have the same effect on human activity and behavior. This means that regardless of their degree of education, these persons are experiencing impairment with respect to their physical activity and psychosocial behavior. However, as shown in other studies such as Lalza U et al, subjects' level of education, income and rank are affected by the occurrence of lower back pain, i.e. nursing staff with a higher social status display less musculoskeletal pain, and hence are more physically active and enjoy more harmonious psychosocial behavior.

Table 3: P-value figures from the Mann-Whitney test cross-checking the hypothesis that pain influences all levels of education equally.

	p-value
Activity	0.401
emotional disposition	0.765
walking	0.262
Relations to others	0.553
Sleep	0.510

As shown in Table 3, emotional disposition seems to be affected by pain, and this is the only parameter which differs according to age.

It should be mentioned at this point that there are no related findings in the international literature. However, it is to be expected that the emotional disposition of older nursing staff is more strongly influenced by pain, as their responsibilities and commitments become greater with increasing age and thus these problems also become exacerbated.

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Table 4. P-value figures from the Mann-Whitney test cross-checking the hypothesis that pain affects all age groups equally.

	p-value
Activity	0.238
emotional disposition	0.017
Walking	0.230
relations to others	0.143
Sleep	0.899

Table 4 shows us that nursing staff's activity in their personal lives is affected to the same extent by pain, irrespective of their rank in the workplace. The findings of a study from the University of Canada show that the frequency of occurrence of lower back pain and hence personal functionality are influenced by the duties of the individual nurse, and in particular by the amount of loads he/she is called upon to lift on a daily basis.[21,22] Other studies, such as one from the University of Maryland School of Nursing show that the intensity of the problem of lower back pain depends on the rank and working hours of the individual nurse.[23] Nevertheless, Lavoro has found the incidence of lumbar spine injuries to be lower in those nurses who had been specially trained in how to prevent occupational lower back pain.[24]

In conclusion, efforts to alleviate the existing problem with the relation of pain to activity in nursing staff can be focussed in two main directions. The first has to do with interventions on a personal level and the second with changes on the level of hospital organization. On a personal level, physical fitness, exercise, relaxation and time management techniques, as well as methods for establishing social contacts can be very effective. On an organizational level, substantial ways of dealing with the problem at hand are prevention of professional burnout, improved and more ergonomic planning of hospital space, learning load lifting techniques, workload planning and clarification of roles, as well as the opportunity of further training and education, not to mention organizing advisory bodies for the special needs of staff experiencing these difficulties.

Table 5. P-value figures from the Mann-Whitney test cross-checking the hypothesis that pain affects all nursing staff equally, irrespective of their rank.

	p-value
Activity	0.232
emotional disposition	0.068
Walking	0.215
relations to others	0.101
Sleep	0.750

The fact remains that this is an issue requiring further exploration based on the coordinated efforts of the many parties involved in order to achieve a progressive attenuation of the problem at hand, which has become more and more marked over the past years, in particular in the nursing sector.

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