

The Influence of Age and Work Experience on Lumbar Spine Pain among the Nursing Staff

Wpływ wieku i stażu pracy na dolegliwości bólowe lędźwiowego odcinka kręgosłupa wśród personelu pielęgniarskiego

Anna Antczak-Komoterska¹, Lilla Nowakowska¹, Beata Haor², Dorota Kochman¹

¹ Faculty of Health Sciences, The State Academy of Applied Sciences in Wrocławek, Poland

² Neurological and Neurosurgical Nursing Department, Faculty of Health Science, Collegium Medicum, Nicolaus Copernicus University, Toruń, Poland

Abstract

Introduction. Currently, back pain syndromes are considered to be widely known problems in the medical, but above all, social and economic aspects. The specific nature of the profession performed by nurses puts them among the people most at risk of spine dysfunction.

Aim. The aim of this study is to assess the occurrence of pain in the lumbar spine pain among nurses working at the Provincial Specialist Hospital in Wrocławek.

Material and Methods. The research was conducted among 120 nurses working in hospital wards of the Provincial Specialist Hospital in Wrocławek. The research used an own survey questionnaire and the Revised Oswestry Low Back Pain Disability Scale (ODI) — the Polish version. Consent to conduct the research was obtained from the Management of the Provincial Specialist Hospital in Wrocławek and the Bioethics Committee of the State Academy of Applied Sciences in Wrocławek.

Results. The majority of respondents indicated that they connect back pain with work — 104 people (86.7%) and received the results of slight limitations — 60 people (50.0%). Most respondents indicated that they had experienced pain for 1–5 years — 42 people (35.0%). Respondents aged up to 45 years indicated that they had been experiencing pain for 1–5 years — 15 people (48.4%). In the group with 30–40 years of experience, the most respondents indicated that they had more than 10 years of experience — 19 people (34.5%). In the group with 30–40 years of experience, the majority indicated that often several times a month — 21 people (38.2%). The highest degree of disability was recorded at the age of 56–62, serious disruptions — 8 people (33.3%), and at the age of 51–55, serious disruptions — 6 people (14.03%).

Conclusions. The work performed affects the occurrence of pain in the lumbar spine. Age groups up to 45 years and 46–50 years have been experiencing pain for 5–10 years. Pain is most often experienced by respondents with 30–40 years of work experience. The vast majority of respondents experience slight limitations. The highest rate of disability is experienced by nurses aged 51–55. (JNNN 2023;12(4):164–169)

Key Words: age, lumbar pain, nursing staff, work experience

Streszczenie

Wstęp. Obecnie zespoły bólowe kręgosłupa zaliczane są do powszechnie znanych problemów w aspekcie medycznym, ale przede wszystkim społecznym i ekonomicznym. Specyfika zawodu wykonywanego przez pielęgniarki stawia je w czołówce osób najbardziej narażonych na dysfunkcję kręgosłupa.

Cel. Celem niniejszej pracy jest dokonanie oceny występowania dolegliwości bólowych odcinka lędźwiowego kręgosłupa wśród pielęgniarek pracujących w Wojewódzkim Szpitalu Specjalistycznym we Wrocławku.

Materiał i metody. Badania przeprowadzono wśród 120. pielęgniarek pracujących w oddziałach szpitalnych Wojewódzkiego Szpitala Specjalistycznego we Wrocławku. W badaniach posłużono się kwestionariuszem ankiety własnej i Kwestionariuszem Revised Oswestry Low Back Pain Disability Scale (ODI) — wersja polska. Zgodę

na przeprowadzenie badań uzyskano od Dyrekcji Wojewódzkiego Szpitala Specjalistycznego we Włocławku oraz Komisji Bioetycznej Państwowej Akademii Nauk Stosowanych we Włocławku.

Wyniki. Większość respondentów wskazała, że łączy bóle kręgosłupa z pracą — 104 osoby (86,7%) oraz uzyskało wynik lekkich ograniczeń — 60 osób (50,0%). Najwięcej badanych wskazało, że dolegliwości bólowe odczuwa 1–5 lat — 42 osoby (35,0%). Respondenci w wieku do 45 lat najczęściej wskazali, że dolegliwości bólowe odczuwają 1–5 lat — 15 osób (48,4%). W grupie o stażu 30–40 lat najczęściej wskazało, że powyżej 10 lat — 19 osób (34,5%). W grupie o stażu 30–40 lat najczęściej wskazało, że często kilka razy w miesiącu — 21 osób (38,2%). Najwyższy stopień niepełnosprawności odnotowano w wieku 56–62 lata, poważne zakłócenia — 8 osób (33,3%), oraz w wieku 51–55 lat, poważne zakłócenia — 6 osób (14,03%).

Wnioski. Wykonywana praca wpływa na występowanie dolegliwości bólowych odcinka lędźwiowego kręgosłupa. Grupy wiekowe do 45 lat oraz w przedziale 46–50 lat odczuwają dolegliwości bólowe od 5–10 lat. Najczęściej dolegliwości bólowe odczuwają respondenci ze stażem pracy 30–40 lat. Badanie odczuwają w znacznej większości lekkie ograniczenia. Najwyższy wskaźnik niepełnosprawności odczuwają pielęgniarki w wieku 51–55 lat. (PNN 2023;12(4): 164–169)

Słowa kluczowe: wiek, dolegliwości bólowe odcinka lędźwiowego, personel pielęgniarski, staż pracy

Introduction

Nowadays, spine pain syndromes are a widely known problem not only because of their medical aspect, but above all because of their social and economic dimension [1]. Furthermore, when we spend more and more time on work and chasing money, we forget that health is the most important thing. It is estimated that chronic pain, depending on age, nature of work or nationality, affects 60–80% of the population, most often between 40–60 years of age. It is estimated that 75–85% of people worldwide experience at least one episode of lumbar-sacral spine pain during their entire life [2]. This disease also affects a large percentage of relatively young people — under 30 years of age [3].

The work of nurses, apart from the satisfaction resulting from the basic goal of saving human health and life, is undoubtedly exposed to harmful chemical and biological factors, overload of the musculoskeletal system and stress, which negatively affects their health. The specific nature of the profession performed by nurses puts them among the people most at risk of spine dysfunction. Most of them suffer from back pain and indicate the relationship between their work and their physical and mental health [4].

The aim of this study is to assess the occurrence of pain in the lumbar spine among nurses working at the Provincial Specialist Hospital in Włocławek.

Material and Methods

The research was conducted among nurses working in hospital wards of the Provincial Specialist Hospital in Włocławek. 120 nurses took part in the study. All people who participated in the study completed the self-report questionnaire and the Revised Oswestry Low

Back Pain Disability Scale (ODI) questionnaire — the Polish version.

Consent to conduct the research was obtained from the Management Board of the Provincial Specialist Hospital in Włocławek. Then, consent to conduct the research was obtained from the Bioethics Committee of the State Academy of Applied Sciences in Włocławek of November 9, 2020, Resolution no. 25/20.

Results

The average age of the respondents was 50 years. The standard deviation was over 13% of the mean value, which indicates a slight difference in age. Minimum age was 29, maximum age was 62. More than half of the respondents had higher education — 61 people (50.8%). The largest group were married women — 70 people (58.3%), the least numerous were widows — 18 people (15.0%). The average BMI was — 26.25 points, which is an overweight indicator. The standard deviation was over 15% of the average value, which indicates a slight variation in the results. Minimum score — 17.37 points, maximum — 44.62 points.

Based on the literature of the subject and our own research, the main task of this work is to demonstrate the relationship between spine diseases and the basic work performed as a nurse. The nursing profession is a profession of public trust, so important in care, hospitalization, or even everyday hospital work, but it is still not considered a profession performed in particularly difficult conditions. It was decided to analyse, using a survey, whether the problem of lumbar spine pain applies to the professional group of nurses and to what extent. Table 1 shows the combination of pain and work.

Table 1. Combining pain with work

Answer	N	%
Yes	104	86.7
No	16	13.3
Total	120	100.0

N — number of observations; % — percent

The majority of women indicated that they connected back pain with work — 104 people (86.7%). Only 16 people gave a negative answer.

Table 2 presents the time of feeling pain.

Table 2. Time of feeling pain

Time	N	%
Less than 6 months	5	4.2
Under one year	20	16.7
1–5 years	42	35.0
5–10 years	30	25.0
Over 10 years	23	19.2
Total	120	100.0

N — number of observations; % — percent

Most respondents indicated that they had been experiencing pain for 1–5 years — 42 people (35.0%), the least indicated that they had been experiencing pain for less than 6 months — 5 people (4.2%).

Table 3 presents correlations between age groups and the results of the author's questionnaire.

Respondents aged up to 45 years indicated that they had been experiencing pain for 1–5 years — 15 people (48.4%), the least — less than 6 months and over 10 years — 1 person each (3.2% each). At the age of 46–50, the majority indicated 1–5 years — 7 people (31.8%), the least — less than 6 months — 2 people (9.1%). At the age of 51–55, the majority indicated 1–5 years — 16 people (37.2%), the least — less than 6 months — 1 person (2.3%). At the age of 56–62, the most respondents indicated 5–10 years — 9 people (37.5%), the least — less than 6 months — 1 person (4.2%).

Table 4 presents the time of feeling pain in work experience groups.

In the group with 0–10 years of experience, the most respondents indicated that they had been experiencing pain for less than a year — 3 people (50.0%), the least — less than 5–10 years — 1 person (16.7%). In the group with 10–20 years of experience, the most respondents indicated 1–5 years — 6 people (46.2%), the least —

Table 3. Correlations of age groups and author's questionnaire item scores

Time	Age							
	Up to 45 years		46–50 years		51–55 years		56–62 years	
	N	%	N	%	N	%	N	%
Less than 6 months	1	3.2	2	9.1	1	2.3	1	4.2
Less than a year	8	25.8	5	22.7	5	11.6	2	8.4
1–5 years	15	48.4	7	31.8	16	37.2	4	16.6
5–10 years	6	19.4	5	22.7	10	23.3	9	37.5
Over 10 years	1	3.2	3	13.6	11	25.6	8	33.3
Total	31	100.0	22	100.0	43	100.0	24	100.0

N — number of observations; % — percent

Table 4. Time of feeling pain in work experience groups

Time	Experience							
	0–10 years		10–20 years		20–30 years		30–40 years	
	N	%	N	%	N	%	N	%
Less than 6 months	0	0.0	0	0.0	3	6.5	2	3.6
Less than a year	3	50.0	3	23.1	11	23.9	3	5.5
1–5 years	2	33.3	6	46.2	18	39.1	16	29.1
5–10 years	1	16.7	3	23.1	11	23.9	15	27.3
Over 10 years	0	0.0	1	7.7	3	6.5	19	34.5
Total	6	100.0	13	100.0	46	100.0	55	100.0

N — number of observations; % — percent

Table 5. Frequency of spine pain in work experience groups

Frequency	Experience	0–10 years		10–20 years		20–30 years		30–40 years	
		N	%	N	%	N	%	N	%
Occasionally 3–4 times a year		4	66.7	5	38.5	20	43.5	12	21.8
Often several times a month		2	33.3	4	30.8	12	26.1	21	38.2
Very often several times a week		0	0.0	3	23.1	11	23.9	13	23.6
Every day		0	0.0	1	7.7	3	6.5	9	16.4
Total		6	100.0	13	100.0	46	100.0	55	100.0

N — number of observations; % — percent

over 10 years — 1 person (7.7%). In the group with 20–30 years of experience, the most respondents indicated 1–5 years — 18 people (39.1%), the least — less than 6 months and more than 10 years — 3 people each (6.5% each). In the group with 30–40 years of experience, the most respondents indicated over 10 years — 19 people (34.5%), the least — less than 6 months — 2 people (3.6%).

Table 5 shows the frequency of spine pain in the work experience groups.

Table 6. Disability assessment results

Rating	N	%
No limitations	7	5.8
Slight limitations	60	50.0
Moderate limitations	34	28.3
Serious limitations	16	13.3
Disability	3	2.5
Total	120	100.0

N — number of observations; % — percent

Table 7. Mean results of the Oswestry scale

N	\bar{x}	SD	Me
120	30.03	17.111	27.0

N — number of observations; \bar{x} — mean; SD — standard deviation; Me — median

Table 8. Disability assessment results by age groups

Disability assessment	Age	Up to 45 years		46–50 years		51–55 years		56–62 years	
		N	%	N	%	N	%	N	%
No limitations		5	16.1	1	4.5	1	2.3	0	0.0
Slight limitations		20	64.5	12	54.5	19	44.2	9	37.5
Moderate limitations		5	16.1	8	36.4	16	37.2	5	20.9
Serious disruptions		1	3.2	1	4.5	6	14.0	8	33.3
Disability		0	0.0	0	0.0	1	2.3	2	8.3
Total		31	100.0	22	100.0	43	100.0	24	100.0

N — number of observations; % — percent

In the group with 0–10 years of experience, the most respondents indicated that back pain occurs occasionally, 3–4 times a year — 4 people (66.7%), the least frequently — several times a month — 2 people (33.3%). In the group with 10–20 years of experience, the most respondents indicated that occasionally, 3–4 times a year — 5 people (38.5%), the least every day — 1 person (7.7%). In the group with 20–30 years of experience, the most respondents indicated that occasionally, 3–4 times a year — 20 people (43.5%), the least — every day — 3 people (6.5%). In the group with 30–40 years of experience, the most respondents indicated that often several times a month — 21 people (38.2%), the least often — every day — 9 people (16.4%).

Table 6 presents the results of the disability assessment.

The largest number of surveyed women obtained the result of slight limitations — 60 people (50.0%), the least achieved the result of disability — 3 people (2.5%).

Table 7 shows the results of the disability assessment in the mean % analysis of the Oswestry scale.

The average Oswestry scale score was 30.03%. The standard deviation was over 56% of the mean value, which indicates a large diversity of results. The minimum result was 2% and was obtained by 4 people, the maximum result was 74.0% and it was obtained by 1 person.

Table 8 presents the results of disability assessment in age groups.

The highest degree of disability was recorded at the age of 56–62, serious disruptions — 8 people (33.3%), disability — 2 people (8.3%) and at the age of 51–55, serious disruptions — 6 people (14.03%), disability — 1 person (2.3%). The lowest degree of disability was recorded at the age of up to 45 years, serious disruptions — 1 person (3.2%).

Table 9 shows the average disability scores in age groups based on the conducted research.

Table 9. Correlations of age groups and disability assessment scores

N	r_s	t(N-2)	p-level
120	0.400	4.735	0.000

N — number of observations; r_s — Spearman's rank correlation coefficient

The age of the respondents had a statistically significant, average correlation with the disability assessment results ($p < 0.05$).

Discussion

The occurrence of back pain is currently a common health problem. Nurses belong to a professional group that is largely exposed to both static and dynamic loads of the spine. This is related to the need to life patients during procedures and care activities. This problem has become the subject of research by many researchers.

In this study, when asked whether they connect pain with their work, over 86% of the respondents answered yes. It is also important that the respondents (56.8%) indicated that they most often experienced pain during work. Similar results were also obtained by Wolska et al. [5], where all study participants unanimously stated that professional work may increase the severity of spine pain. In a study conducted by Dąbek et al. [6] in a group of 114 employees, including 66 nurses and 48 doctors, all respondents had spine pain as a result of overload related to the performance of professional duties, also Przychodzka et al. [4] showed that 80% of respondents struggle with back pain and it should be classified as an occupational disease.

The research tool used in this work was the Oswestry Low Back Pain Disability Scale questionnaire, which, in the opinion of many researchers, is considered the best means of measuring the degree of disability. Based on the conducted research, it was found that the respondents experience pain in the lumbar spine for 1–5 years (35.0%), and slightly less (25.0%) from 5 to 10 years, and for more than 10 years (9.2%). Similar results were also obtained by Adamaszek et al. [7]. Taking into account the age of the respondents and the duration of pain, the largest group were respondents aged 56–62

(37.5%), where the pain had been present for 5–10 years, and for over 10 years in (33.3%), up to 45 years of age, most respondents indicated that they had been experiencing pain for 5–10 years (19.4%) and over 10 years only (3.2%).

Taking into account the length of work, in the largest surveyed group with 30–40 years of experience, the duration of pain experienced was the highest for over 10 years and constituted a percentage of (34.5%). When it comes to the frequency of back pain, in the group with 30–40 years of experience, the majority of respondents indicated that it occurs, often several times a month (38.2%), and every day (16.4%). The frequency of these ailments significantly exceeded the sensations in groups with shorter work experience. Summarizing the above data, it can be concluded that age, work experience and body weight index influence the severity of back pain. In their work, Sienkiewicz et al. [8] also drew attention to the problem of pain in the lumbar spine, which significantly affects personnel with many years of experience and who are susceptible to discopathy.

In this study, when analysing the results of the ODI questionnaire in the studied group of nurses, 50.0% had slight limitations and 28.3% had moderate limitations. Baumgart et al. [9] and Depa et al. [10] also used the questionnaire for their research; they achieved similar results as in this study. In the age group, the analysis showed a significant relationship between the age of the respondents and the assessment of the impact of back pain on everyday life, where the highest degree of disability — serious disruptions, was recorded at the age of 56–62 (33.3%), and disability (8.3%). There is no doubt that the statistical analysis showed a significant relationship between the respondents' experience and the assessment of the impact of back pain on everyday life, where the highest degree of disability — serious disruptions — was recorded in the group of respondents with 30–40 years of experience (21.8%), and disability (3.6%). In their results, Gańczyk and Kułak [11] examining 345 nurses working at the Masovian Specialist Hospital in Ostrołęka, where the largest group were respondents aged 41–50 with 21–30 years of work experience, showed a statistically significant relationship between age, work experience and the ODI index. Tworek [12] also reached similar conclusions in her study, claiming that the longer the length of service, the higher the degree of disability.

Conclusions

The results of research on the assessment of the occurrence of pain in the lumbar spine among nurses working at the Provincial Specialist Hospital in

Włocławek and the literature analysis allowed the following conclusions to be drawn:

1. The work performed affects the occurrence of pain in the lumbar spine.
2. Age groups up to 45 years and 46–50 years have been experiencing pain for 5–10 years.
3. Pain is most often experienced by respondents with 30–40 years of work experience.
4. The vast majority of respondents experience slight limitations.
5. The highest rate of disability is experience by nurses aged 51–55.

Implications for Nursing Practice

The problem of lumbar spine pain in the professional group of nurses is very important. The cause of pain is related to the specific nature of work, and is intensified by factors related to the forced position of the body, its cyclicity while performing patient care activities, such as: carrying patients and medical equipment, lifting, carrying, bending, straightening, staying in a position for a long time sitting or standing.


The conducted study analyzing the impact of age and work experience on lumbar spine pain among nursing staff may constitute the basis for implementing activities aimed at developing ways of dealing with pain and conditions that aggravate it, possibilities of avoiding these threats and promoting a healthy lifestyle at work and everyday life.

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Corresponding Author:

Anna Antczak-Komoterska 

Faculty of Health Sciences,
State University of Applied Sciences in Włocławek
Obrońców Wisły 1920 r. 21/23 street, 87-800 Włocławek, Poland
e-mail: anna.antczak-komoterska@pans.wloclawek.pl

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Author Contributions: Anna Antczak-Komoterska^{A,C-I},
Lilla Nowakowska^{B-D,G,H}, Beata Haor^{E-I} ,
Dorota Kochman^{E-I} 

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