

Selected Sociodemographic Variables and the Quality of Life of Patients with Degenerative Changes in the Cervical Spine

Wybrane zmienne socjodemograficzne a jakość życia pacjentów ze zmianami zwyrodnieniowymi kręgosłupa odcinka szyjnego

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Abstract

Introduction. Degenerative diseases of the spine are a problem that threatens the modern population around the world.

Aim. Thus the main aim of the study was to assess the impact of socio-demographic variables such as: gender, age, education, place of residence, type of work, marital status on the assessment of the quality of life by patients with degenerative lesions of the cervical spine.

Material and Methods. The study was conducted at the non-public nursing care facility in Lipno on a group of 103 patients diagnosed with degenerative disease of the cervical spine. The study was conducted using the method of diagnostic survey. It consisted in the assessment of patients within a period of at least 6 months from the diagnosis, using an own-made questionnaire and a standardized tool, the WHOQOL-BREF questionnaire.

Results. It was found that the quality of life of men is better in the psychological field than that of women. Furthermore younger people function better in the somatic and psychological fields compared to older people. Mentally working people assess their quality of life better than physical workers. The higher and better the education, the better the quality of life in the somatic, social and environmental field. Moreover people in relationships show a better quality of life in the social field compared to single people. The place of residence of the respondents does not affect their quality of life.

Conclusions. Back pain is a significant clinical, social and economic problem. What's more, they significantly reduce the quality of life of patients. (JNPN 2021;10(1):18–25)

Key Words: degenerative change of the spine, quality of life, socio-demographic variable

Streszczenie

Wstęp. Choroby zwyrodnieniowe kręgosłupa stanowią problem, który zagraża współczesnej populacji na całym świecie.

Cel. Głównym celem pracy była ocena wpływu zmiennych socjodemograficznych takich jak: płeć, wiek, wykształcenie, miejsce zamieszkania, rodzaj wykonywanej pracy, stan cywilny na ocenę jakości życia przez pacjentów ze zmianą zwyrodnieniową odcinka szyjnego kręgosłupa.

Materiał i metody. Badanie zostało przeprowadzone w Niepublicznym Zakładzie Pielęgnacyjno-Opiekuńczym w Lipnie na grupie 103 pacjentów z rozpoznaną chorobą zwyrodnieniową kręgosłupa odcinka szyjnego. Badanie przeprowadzono za pomocą metody sondażu diagnostycznego. Polegało ono na ocenie pacjentów w okresie minimum 6 miesięcy od postawienia diagnozy, za pomocą kwestionariusza ankiety własnego autorstwa oraz wystandaryzowanego narzędzia — Kwestionariusza WHOQOL-BREF.

Wyniki. Stwierdzono, że jakość życia mężczyzn jest lepsza w dziedzinie psychologicznej w porównaniu z kobietami. Ponadto osoby młodsze lepiej funkcjonują w dziedzinach somatycznej i psychologicznej w porównaniu z osobami starszymi. Osoby wykonujące pracę umysłową lepiej oceniają swoją jakość życia w porównaniu z osobami wykonującymi pracę fizyczną. Im wyższe i lepsze wykształcenia tym lepsza jakość życia w dziedzinie somatycznej,

socjalnej i środowiskowej. Co więcej osoby będące w związkach wykazują lepszą jakość życia w dziedzinie socjalnej w porównaniu z osobami samotnymi. Miejsce zamieszkania badanych nie ma wpływu na ich jakość życia.

Wnioski. Dolegliwości bólowe kręgosłupa stanowią istotny problem kliniczny, społeczny a także ekonomiczny. Co więcej w sposób znaczący obniżają jakość życia pacjentów. (PNN 2021;10(1):18–25)

Słowa kluczowe: zmiana zwyrodnieniowa kręgosłupa, jakość życia, zmienna socjodemograficzna

Introduction

Degenerative diseases of the spine are a problem that threatens the modern population worldwide. The most difficult part of the treatment is the cervical spine, which is very sensitive to injuries and pain. It requires specialized treatment due to the most delicate structure. It has a static, dynamic and protective function for the spinal cord, vessels, spinal nerve roots and vertebral arteries.

The degenerative changes most often begin within the intervertebral disc. They often affect the entire segment of the spine, causing functional disorders and deformation with irreversible changes [1]. As a result, the height of the discs is lowered, causing their bulges, microdestabilization and the appearance of osteophytes on their surface, which penetrate deep into the spinal canal. This condition causes compression of the spine and nerve roots of the segment [2]. However, destabilization causes narrowing of the spinal canal and intervertebral foramen [1,2]. In the course of degenerative changes, local mechanical disorders related to pressure on the nerve structures dominate.

Chronic back pain of varying severity is a factor that helps to find the cause of these ailments [2,3]. Overloading and lack of exercise cause adverse effects on the articular cartilage, causing damage and secondary degenerative changes. It is estimated that 60% to 90% of the general population of people between 25 and 65 complain of pain ailments [3]. Degenerative spine pain in the cervical section may refer to degenerative changes and mobility disturbances in the shoulder joints [1], muscle and ligament strains [2]. The articular surfaces of the disc are richly innervated and therefore can cause significant pain for the patient [2].

Back pain is a significant clinical, social and economic problem. What's more, they significantly reduce the quality of life of patients. Degenerative diseases of the spine and the accompanying pain have a negative impact on the quality of life. This is mainly due to the limitation of human functioning in various spheres, which in turn leads to lowering self-esteem and limiting social activity [3,4]. The studies conducted by Khavanskaya et al. [5] showed that with age the pain in the spine becomes worse, which in turn reduces the quality of life by 9%. Professionally inactive people with lower education and low economic status also face more intense pains, limitations and a reduced quality of life. Furthermore, it has been shown that socio-economic factors significantly

reduce the perceived quality of life in the psychological sphere by 17%. Factors such as disease duration, exacerbation phases, everyday life limitations, and pain levels correlate with each other and reduce the quality of life. In general, the average quality of life according to the WHOQOL-BREF questionnaire was 3.35 and was assessed more favorably than the state of health — 3.04. The respondents assessed the psychological aspect of their life most favorably (the average answer was 3.53) and the social aspect (3.50). In turn, the somatic aspect (3.10) was rated the worst. On the other hand, studies by Godil et al. [6] assessed the quality of life in patients with diseases of the cervical spine. Mean preoperative SF-12 MCS and SF-12 PCS scores were 46.2 ± 12.6 and 32.7 ± 10.1 respectively. Furthermore EQ-5D perceived health state was 0.59 ± 0.22 quality-adjusted life years.

The main aim of the study was to assess the impact of sociodemographic variables such as: gender, age, education, place of residence, type of work, marital status on the assessment of quality of life by patients with degenerative lesions of the cervical spine.

Material and Methods

The study was conducted at the non-public nursing care facility in Lipno on a group of 103 patients diagnosed with degenerative disease of the cervical spine. The clinical diagnosis was established by a physician and then confirmed during the completion of the questionnaire by the respondents. The characteristics of the study group are presented in Table 1.

Table 1. Characteristics of the study group (N=103)

Variable	N	%
1	2	3
Gender		
Women	62	60.2
Men	41	39.8
Age		
25–35 years	5	4.9
36–45 years	10	9.7
46–55 years	13	12.6

Table 1. Continued

	1	2	3
56–65 years		38	36.9
66 years and more		37	35.9
Professional situation			
White collar worker		29	28.2
Handworker		29	28.2
Farmer		2	1.9
Pensioner		42	40.8
Others		1	1.0
Education			
Primary		17	16.5
Junior high school		1	1.0
Vocational		33	32.0
Secondary		24	23.3
Bachelor's degree		7	6.8
Master's degree		20	19.4
Doctorate		1	1.0
Marital status			
Single		6	5.8
Married		63	61.2
In partnership		14	13.6
In separation		1	1.0
Divorced		2	1.9
Widow/Widower		17	16.5
Place of residence			
Village		21	20.4
City		82	79.6

The study was conducted using the method of diagnostic survey. It consisted in the assessment of patients within a period of at least 6 months from the diagnosis, using an own-made questionnaire and a standardized tool, the WHOQOL-BREF questionnaire [7]. The survey questionnaire contained questions about socio-demographic data such as: gender, age, education, place of residence, type of work, marital status, and concomitant diseases. The WHOQOL-BREF questionnaire contained 26 questions on the perceived quality of life, health and other areas of life in the last two weeks.

Statistical analysis was performed using the EXCEL spreadsheet and the SPSS Statistics package. In the research, the analysis of variance (ANOVA) was used to determine the effect of one classifying factor on the values of the measured measurable feature. The results were considered significant at the significance level of $p < 0.05$. The research was approved by the Bioethics Committee at the State Vocational University in Włocławek.

Results

Statistical analysis showed a significant relationship between the respondents' sex and their quality of life in the field of psychology ($F=4.7$, $p=0.032$) (Table 2). It was found that the mean of the points obtained by men was greater (21.3171) compared to the mean obtained by women (20.0968).

Analyzing the influence of age on the quality of life of patients (Table 3), a statistically significant correlation was found between age and quality of life in the somatic ($F=2.8$, $p=0.018$) and psychological ($F=2.7$, $p=0.021$) domains. This means that younger people function better in these areas than older people.

Table 2. Gender and quality of life

	Gender	Satisfaction with the quality of life	Satisfaction with your health	Physical field	Psychological field	Social relationship field	Environmental field
Men	Average	3.8537	3.6585	25.0976	21.3171	10.9756	29.2195
	N	41	41	41	41	41	41
	SD	.52730	.57488	3.29245	2.90206	1.29398	3.07012
Women	Average	3.6290	3.5323	23.9677	20.0968	10.9516	28.1129
	N	62	62	62	62	62	62
	SD	.57926	.64574	4.03659	2.70827	1.47579	3.29980
Total	Average	3.7184	3.5825	24.4175	20.5825	10.9612	28.5534
	N	103	103	103	103	103	103
	SD	.56737	.61873	3.78212	2.83716	1.39974	3.24106
	F	3.981	1.028	2.229	4.733	.007	2.932
	p	.049	.313	.139	.032	.933	.090

p — p-value ANOVA test; F— results of the ANOVA; SD — standard deviation

Table 3. Age and quality of life

Age		Satisfaction with the quality of life	Satisfaction with your health	Physical field	Psychological field	Social relationship field	Environmental field
25–35 years	Average	4.0000	3.8000	26.6000	23.8000	12.0000	29.8000
	N	5	5	5	5	5	5
	SD	0.00000	.44721	3.20936	2.04939	1.73205	3.03315
36–45 years	Average	3.8000	3.7000	25.0000	19.9000	11.1000	28.8000
	N	10	10	10	10	10	10
	SD	.63246	.82327	3.46410	2.55821	1.28668	3.01109
46–55 years	Average	3.6154	3.5385	25.5385	19.3846	11.2308	27.3846
	N	13	13	13	13	13	13
	SD	.50637	.51887	2.66506	2.78503	1.16575	3.09673
55–65 years	Average	3.8158	3.7105	25.0526	21.2632	11.2105	29.2895
	N	38	38	38	38	38	38
	SD	.56258	.61106	3.36072	2.64763	1.35881	3.13574
66–75 years	Average	3.6154	3.5000	23.6538	20.0000	10.4615	27.8077
	N	26	26	26	26	26	26
	SD	.57110	.58310	3.83606	2.93939	1.55514	3.53292
76 years and more	Average	3.5455	3.1818	21.1818	20.1818	10.3636	28.3636
	N	11	11	11	11	11	11
	SD	.68755	.60302	4.99636	2.71360	.92442	3.17089
Total	Average	3.7184	3.5825	24.4175	20.5825	10.9612	28.5534
	N	103	103	103	103	103	103
	SD	.56737	.61873	3.78212	2.83716	1.39974	3.24106
	F	.972	1.594	2.891	2.791	2.076	1.183
	p	.439	.169	.018	.021	.075	.323

p — p-value ANOVA test

The influence of the type of work performed by the respondents on their quality of life was also analyzed (Table 4). There was a significant correlation between the work performed and all areas of the quality of life as well as the general quality of life and satisfaction with one's health. This means that people who perform mental

work better assess their quality of life ($F=4.5$, $p=0.002$), their health ($F=9.5$, $p=0.00$), and functioning in the somatic field ($F=9.0$, $p=0.00$), in the psychological field ($F=3.08$, $p=0.019$), in the social field ($F=8.8$, $p=0.00$) and in the environmental field ($F=6.2$, $p=0.00$) than people doing physical work.

Table 4. Professional situation and quality of life

Professional situation		Satisfaction with the quality of life	Satisfaction with your health	Physical field	Psychological field	Social relationship field	Environmental field
1	2	3	4	5	6	7	8
White collar worker	Average	4.0345	4.0345	27.1379	21.9310	12.1034	30.7241
	N	29	29	29	29	29	29
	SD	.42112	.42112	2.43082	2.77657	1.20549	1.92533
Handworker	Average	3.6897	3.5172	24.3793	20.0345	10.5862	27.2069
	N	29	29	29	29	29	29
	SD	.54139	.57450	2.87121	2.67906	1.23974	3.39516

Table 4. Continued

1	2	3	4	5	6	7	8
Farmer	Average	4.0000	3.0000	25.0000	21.0000	10.5000	30.5000
	N	2	2	2	2	2	2
	SD	0.00000	0.00000	1.41421	1.41421	.70711	.70711
Pensioner	Average	3.5238	3.3810	22.7143	20.1190	10.4524	27.9524
	N	42	42	42	42	42	42
	SD	.59420	.58236	4.03815	2.75152	1.23372	3.22303
Others	Average	3.0000	2.0000	17.0000	16.0000	11.0000	26.0000
	N	1	1	1	1	1	1
	SD						
Total	Average	3.7184	3.5825	24.4175	20.5825	10.9612	28.5534
	N	103	103	103	103	103	103
	SD	.56737	.61873	3.78212	2.83716	1.39974	3.24106
	F	4.596	9.532	9.007	3.085	8.892	6.276
	p	.002	.000	.000	.019	.000	.000

p — p-value ANOVA test

The assessment of the influence of the education of the respondents on their quality of life is presented in Table 5. Statistical analysis showed a significant relationship between the education of the respondents

and their quality of life in the somatic field ($F=3.1$, $p=0.008$), in the social field ($F=5.2$, $p=0.00$) and in the environmental domain ($F=2.4$, $p=0.029$). The higher and better the education, the better the quality of life.

Table 5. Education and the quality of life

Education		Satisfaction with the quality of life	Satisfaction with your health	Physical field	Psychological field	Social relationship field	Environmental field
1	2	3	4	5	6	7	8
Primary	Average	3.5294	3.2941	21.7059	19.8235	10.0000	27.5882
	N	17	17	17	17	17	17
	SD	.71743	.58787	4.31226	2.42990	.86603	3.44708
Junior high school	Average	4.0000	4.0000	28.0000	24.0000	11.0000	31.0000
	N	1	1	1	1	1	1
	SD						
Vocational	Average	3.6667	3.4545	23.7273	20.0303	10.6364	27.3636
	N	33	33	33	33	33	33
	SD	.54006	.61699	3.63381	2.75550	1.27029	3.28651
Secondary	Average	3.7917	3.7500	25.5000	20.7917	10.9583	29.1667
	N	24	24	24	24	24	24
	SD	.58823	.60792	3.13466	2.66995	1.33447	3.08808
Bachelor's degree	Average	3.8571	3.8571	26.0000	21.5714	12.0000	29.4286
	N	7	7	7	7	7	7
	SD	.37796	.37796	1.41421	1.98806	1.00000	2.76026
Master's degree	Average	3.8500	3.7500	25.8000	21.4500	12.0000	30.2500
	N	20	20	20	20	20	20
	SD	.48936	.63867	3.72191	3.54631	1.45095	2.59301

Table 5. Continued

	1	2	3	4	5	6	7	8
Doctorate	Average		3.0000	3.0000	25.0000	19.0000	10.0000	27.0000
	N		1	1	1	1	1	1
	SD							
Total	Average		3.7184	3.5825	24.4175	20.5825	10.9612	28.5534
	N		103	103	103	103	103	103
	SD		.56737	.61873	3.78212	2.83716	1.39974	3.24106
	F		.983	1.944	3.115	1.193	5.233	2.462
	p		.441	.081	.008	.316	.000	.029

p — p-value ANOVA test

In the case of the variable which is the marital status of the respondents, only a relationship in the social field was shown ($F=3.9$, $p=0.003$). People who are in relationships show a better quality of life compared to single people (Table 6).

Statistical analysis did not show any significant relationship between the place of residence of the respondents and their quality of life (Table 7).

Table 6. Marital status and quality of life

Marital status		Satisfaction with the quality of life	Satisfaction with your health	Physical field	Psychological field	Social relationship field	Environmental field	
Single	Average	3.6667	3.6667	25.6667	22.0000	11.1667	28.6667	
	N	6	6	6	6	6	6	
	SD	.51640	.51640	2.65832	3.28634	2.22860	3.82971	
Married	Average	3.7619	3.6508	24.6825	20.6508	11.1746	28.7778	
	N	63	63	63	63	63	63	
	SD	.53019	.57245	3.50035	2.65888	1.30186	3.11316	
In partnership	Average	3.9286	3.6429	25.5000	21.6429	11.4286	29.2143	
	N	14	14	14	14	14	14	
	SD	.61573	.84190	4.43327	2.95107	.93761	3.37818	
In separation	Average	4.0000	4.0000	23.0000	20.0000	11.0000	29.0000	
	N	1	1	1	1	1	1	
	SD							
Divorcee	Average	3.0000	2.5000	22.0000	18.0000	8.5000	25.5000	
	N	2	2	2	2	2	2	
	SD	0.00000	.70711	0.00000	0.00000	.70711	.70711	
Widow/ Widower	Average	3.4706	3.3529	22.4706	19.2941	10.0000	27.4706	
	N	17	17	17	17	17	17	
	SD	.62426	.49259	4.33182	3.01589	1.22474	3.53761	
Total	Average		3.7184	3.5825	24.4175	20.5825	10.9612	28.5534
	N		103	103	103	103	103	103
	SD		.56737	.61873	3.78212	2.83716	1.39974	3.24106
	F		1.886	2.092	1.556	1.808	3.978	.913
	p		.104	.073	.180	.118	.003	.476

p — p-value ANOVA test

Table 7. Place of residence and quality of life

Place of residence		Satisfaction with the quality of life	Satisfaction with your health	Physical field	Psychological field	Social relationship field	Environmental field
Village	Average	3.5714	3.3810	23.3810	19.6667	10.6667	27.6190
	N	21	21	21	21	21	21
	SD	.74642	.66904	4.35289	3.13581	1.19722	3.80100
City	Average	3.7561	3.6341	24.6829	20.8171	11.0366	28.7927
	N	82	82	82	82	82	82
	SD	.51065	.59860	3.60342	2.72677	1.44398	3.06207
Total	Average	3.7184	3.5825	24.4175	20.5825	10.9612	28.5534
	N	103	103	103	103	103	103
	SD	.56737	.61873	3.78212	2.83716	1.39974	3.24106
	F	1.785	2.850	2.001	2.797	1.170	2.218
	p	.185	.094	.160	.098	.282	.139

p — p-value ANOVA test

Discussion

The quality of life is an integral element of every human being, regardless of age, gender or health condition. Moreover, the quality of life depends on many factors, including gender, place of residence, family conditions, life skills, acquired experience and health condition. Chronic diseases of the osteoarticular system, which cause pain, limitation of mobility, a sense of loneliness, uselessness, helplessness and fear of the course of the disease, to a large extent affect the quality of life of these people understood in a multi-faceted manner, according to the terms of this process [8–10].

In the analyzed material, the results of the research showed a relationship between the respondents' sex and whether they are satisfied with the quality of their lives ($F=4.7$, $p=0.032$). Men show a slightly better quality of their lives. Men show a better quality of life in the psychological field with an average score of 21 points. Comparing the results of Gajewski [11], women were more critical in assessing the subjective assessment of the quality of life, only 50% stated that they were satisfied, and among men 57.7%, but no statistically significant differences were found. Rudzińska et al. [12] suggest that women have a weaker muscular corset, which makes them more prone to neck damage and the resulting discomfort. The studies conducted by Khavanskaya et al. [5] also showed that women experience the negative effects of osteoarthritis of the spine more than men (10% more). Furthermore, the meta-analysis by Nayak et al. [13] showed that preoperative EQ-5D utility ranged from .500 to .583 for degenerative cervical conditions. In turn, SF-6D utility ranged from .550 to .575 for degenerative cervical conditions. Furthermore,

preoperative SF-36 PCS scores ranged from 28.3 to 34.7 for degenerative cervical conditions.

The statistical analysis of the material showed a significant relationship between the work performed and their quality of life. Mentally working people show a better quality of life in each of the domains: somatic (27), ($p=0.000$), psychological (21), ($p=0.019$), social (12), ($p=0.000$), environmental (30), ($p=0.000$). On the other hand, in the study by Khavanskaya et al. [5], economically inactive people and those with lower education assess the quality of life lower. Referring to the research by Barczyk et al. [14], it can be stated that technological progress and a sedentary lifestyle have resulted in a number of cervical spine diseases. These causes are also mentioned by other authors as the main causative factor of pain in this part of the body [15,16].

The analyzed material shows that the largest group were respondents with vocational education 32%, then with secondary education 23.3%. A similar result was obtained when comparing own data with the results of Gajewski's [11] studies with higher education, the result was 19.4%. The smallest group were people with primary education — 16.5%.

In the analyzed material, the majority, 74.8% of patients were in formal relationships or not, the remaining 25.2% were single people by choice, divorced, widowed or widower. People in relationships show better quality of life in the social field ($F=3.9$, $p=0.003$). In the studied group of the population, the lowest percentage were inhabitants of rural areas, 20.4%, the remaining group, as much as 79.6% were city dwellers. Statistical analysis showed no correlation between the place of residence and the quality of life in the social field ($F=1.1$, $p=0.282$). Comparing my own results with the results of Gajewski

[11], where the study obtained similar results — the majority were women 69.2%, and 60% were married. Patients from large cities constituted 48.2%, and from a rural environment 51.8%. The differences in the assessment of quality of life were not statistically significant.

Conclusions

1. It was found that the quality of life of men is better in the psychological field than that of women.
2. Younger people function better in the somatic and psychological fields compared to older people.
3. Mentally working people assess their quality of life better than physical workers.
4. The higher and better the education, the better the quality of life in the somatic, social and environmental field.
5. People in relationships show a better quality of life in the social field compared to single people.
6. The place of residence of the respondents does not affect their quality of life.

Implications for Nursing Practice


The conducted research clearly showed the influence of sociodemographic variables on the quality of life of patients with degenerative lesions of the cervical spine. This means that in nursing practice it is important to implement education on the leading risk factors for a whole range of cervical spine diseases. Education about sedentary life and introducing daily gymnastics and exercise is essential to reducing the incidence of back disease.

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Conflict of Interest: None

Funding: None

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C — Analysis and interpretation of data, D — Statistical analysis, E — Writing
an article, F — Search of the literature, G — Critical article analysis, H — Approval
of the final version of the article

Received: 4.06.2020

Accepted: 25.06.2020