



Relationship between patients' subjective involvement in postoperative rehabilitation and quality of life after arthroscopic treatment for osteoarthritic knee – cross-sectional study

Związek pomiędzy subiektywnym zaangażowaniem pacjentów w rehabilitację pooperacyjną a jakością ich życia po artroskopowym leczeniu choroby zwyrodnieniowej stawu kolanowego – badanie przekrojowe

Natalia Dominika Pawlak^{1,2,A-D,F}, Lena Serafin^{1,A-F}, Bożena Czarkowska-Pączek^{1,C,E-F}

¹ Department of Clinical Nursing, Faculty of Health Sciences, Medical University of Warsaw, Warsaw, Poland

² Doctoral School, Medical University of Warsaw, Warsaw, Poland

A – Research concept and design, B – Collection and/or assembly of data, C – Data analysis and interpretation, D – Writing the article, E – Critical revision of the article, F – Final approval of the article.

Pawlak ND, Serafin L, Czarkowska-Pączek B. Relationship between patients' subjective involvement in postoperative rehabilitation and quality of life after arthroscopic treatment for osteoarthritic knee – cross-sectional study. *Med Og Nauk Zdr.* 2022; 28(1): 63–69. doi: 10.26444/monz/143835

■ Abstract

Introduction and objective. Quality of life associated with health is regarded as an essential rating of health in many illnesses. In patients with chronic diseases, including arthritis, regular quality of life measurements should be made because the disease leads to functional deficits and pain as it progresses. The aim of this study is to evaluate the relationship between patients' subjective involvement in postoperative rehabilitation and their quality of life after arthroscopic treatment for osteoarthritic knee.

Materials and method. The study included 95 patients after knee arthroscopy surgery in the course of osteoarthritis. The research tool consisted of 3 parts: the Mini-OAKHQoL, the authors' questionnaire for assessing patients' involvement in rehabilitation, and a questionnaire for collecting socio-demographic characteristics.

Results. Analysis showed that the respondents had the best function in the area of social support and the worst regarding physical activity. Higher patient involvement in postoperative rehabilitation increased the quality of life in the physical activity and social support domains, but decreased their professional activity. Using supportive devices decreased respondents' quality of life in terms of social support, long-term planning, and going outside.

Conclusions. To improve long-term treatment results and quality of life in many aspects, patients' involvement in rehabilitation, understanding supportive activities in rehabilitation, and using supporting devices are necessary. Professional educational activity should be continually implemented as an important aspect of the therapeutic process and for the improvement of treatment outcomes.

■ Key words

orthopaedics, quality of life, quality of care, rehabilitation

■ Streszczenie

Wprowadzenie i cel pracy. Jakość życia związana ze stanem zdrowia jest uważana za istotną dla oceny stanu zdrowia w przypadku wielu chorób. U pacjentów z chorobami przewlekłymi, w tym z chorobą zwyrodnieniową stawów, należy stosować regularne pomiary jakości życia, ponieważ choroba w miarę postępu prowadzi do deficytów funkcjonalnych i bólu. Celem pracy była ocena zależności pomiędzy subiektywnym zaangażowaniem pacjentów w rehabilitację pooperacyjną a jakością ich życia po artroskopowym leczeniu choroby zwyrodnieniowej stawu kolanowego.

Materiał i metody. Badaniem objęto 95 pacjentów po zabiegu artroskopii stawu kolanowego w przebiegu choroby zwyrodnieniowej stawów. Narzędzie badawcze składało się z 3 części: Mini-OAKHQoL, autorskiego kwestionariusza do oceny zaangażowania pacjentów w rehabilitację oraz kwestionariusza przeznaczonego do zebrania cech socjodemograficznych.

Wyniki. Analiza wykazała, że respondenci najlepiej pełnili funkcję w obszarze wsparcia społecznego, a najgorzej w zakresie aktywności fizycznej. Większe zaangażowanie pacjentów w rehabilitację pooperacyjną podniosło ich jakość życia w sferze aktywności fizycznej i wsparcia społecznego, ale zmniejszyło ich aktywność zawodową. Korzystanie z urządzeń wspomagających obniżało jakość życia respondentów w zakresie wsparcia społecznego, planowania długoterminowego i wychodzenia na zewnątrz.

Wnioski. Aby poprawić długoterminowe wyniki leczenia i jakość życia w wielu aspektach, konieczne jest zaangażowanie pacjentów w rehabilitację, zrozumienie przez nich działań wspomagających w rehabilitacji oraz stosowanie urządzeń wspomagających. Profesjonalna edukacja pacjentów powinna

Address for correspondence: Natalia Dominika Pawlak, Department of Clinical Nursing, Medical University, Warsaw, Poland
E-mail: natalia.pawlakk@gmail.com

Received: 28.09.2021; accepted: 09.11.2021; first published: 22.11.2021

być stale prowadzona jako ważny aspekt procesu terapeutycznego i dla poprawy wyników leczenia.

Słowa kluczowe

ortopedia, jakość życia, jakość opieki, rehabilitacja

INTRODUCTION

The concept of quality of life (QoL) focuses on measuring 'goodness' in many aspects of life, including emotional response to life situations, disposition, sense of accomplishment, life satisfaction, job satisfaction, and personal relationships [1, 2, 3]. QoL associated with health is regarded as an essential rating of health in many illnesses [2].

The measurement of QoL among adults with chronic diseases can support a formal, normalized, important, and reliable way of managing patient interventions for health care evaluation [4]. Some of the most important factors affecting the QoL are symptoms including pain, functional impairment, and disability [5]. These symptoms often accompany osteoarthritis which is an increasingly important problem for health care systems worldwide. Osteoarthritis is a common, slowly progressive, and incurable disease of the joints that involves the cartilage breaking down and worsening condition of bone joints [6]. Most people with osteoarthritis have chronic pain in a degenerated knee joint that affects their QoL in many aspects [3, 7].

Knee arthroscopic debridement is a significant advance in the treatment of severe pathological osteoarthritis, but it does not provide a full guarantee of improving the QoL of patients; therefore, rehabilitation is integrated with arthroscopy. This is mainly focused on the possibility of gaining painless movements after surgery, improving the range of motion, and striving for independence in everyday activities [3, 7, 8]. Patients who follow recommendations have a higher overall QoL [9]; hence, health care professionals who provide education for patients, conduct treatment, and support the treatment process, should constantly monitor and recognize variables affecting patients' QoL.

In patients with chronic diseases, including arthritis, regular QoL measurements should be made because the disease leads to functional deficits and pain as it progresses [10]. There are many instruments for measuring QoL. They are usually used to measure the effect of the disease on pain and symptoms, as well as assess physical health, psychological functioning, and social functioning [2]. One of the tools used to measure QoL among patients suffering from osteoarthritis is the 'Mini-Osteoarthritis Knee and Hip Quality of Life' (Mini-OAKHQoL) questionnaire. This questionnaire is short, and easy to understand and administer [11, 12, 13]. A few studies have been conducted on the QoL using the Mini-OAKHQoL questionnaire [13, 14, 15, 16], but there is still insufficient knowledge about the relation of the QoL after knee arthroscopic debridement, patients' subjective assessment of involvement in rehabilitation process after surgery, and outcomes of the surgery.

OBJECTIVE

The aim of this study was to assess the relationship between patients' subjective involvement in postoperative rehabilitation and their QoL after arthroscopic debridement for the osteoarthritic knee. The rehabilitation in this study

was intended to restore the desired range of motion in the joint and muscle strength using kinesiotherapy. The specific research questions were:

1. What is the level of QoL among patients after arthroscopic debridement for osteoarthritic knee?
2. What is the self-assessment of patients' involvement in postoperative rehabilitation, after when they have started rehabilitation surgery, self-assessment of their involvement, self-assessment of the impact of rehabilitation on the scope of knee movement, and using supporting devices such as crutches or a walker?
3. To what extent do socio-demographic variables (age, education, marital status, and socio-professional status) affect the overall QoL?

MATERIALS AND METHODS

Study design and participants. The study used a cross-sectional survey design. The STROBE reporting guidelines were used in both the framing and reporting of this study. A convenience sample was used for the purpose of this study. An anonymous questionnaire survey was conducted at the Orthopaedic and Traumatic Outpatient Clinic among patients after knee arthroscopic debridement surgery in the course of osteoarthritis in the second and third quarters of 2019. Approval was obtained from the hospital director. Criteria for inclusion in the study were age of 20–85 years, osteoarthritis, and 2 months (+/- one week) having passed after the arthroscopic debridement for osteoarthritis of the knee. Data collection was performed during the second follow-up visit for orthopaedic consultation.

Respondents were informed of the aim of the research and that it only for scientific purposes. Returning the completed questionnaire was synonymous with consent to participate in the study.

The sample size was determined based on rule of thumb according to Green's procedures used to testing multiple correlation sample sizes [17, 18]. An N value that was adequate for the purposes of the study was used, $N > 114$. There were 120 patients who had undergone knee arthroscopic debridement on the basis of degenerative changes detected in the knee joint during the study period who qualified for the study. There were 25 patients who did not enter the anonymous study but did not provide a reason. All the questionnaires completed by 95 respondents were analysed. The response rate was 79.1%. A few of the patients received a questionnaire to complete at home and returned it on their next visit to the orthopaedic clinic.

Questionnaire design. The questionnaire consisted of 3 parts. Part one involved the Mini-OAKHQoL developed by Rat et al. (2005) for the measurement of the QoL of people with osteoarthritis of the lower limbs [19]. The Mini-OAKHQoL can be used specifically to assess health-related QoL [11, 12, 13]. The original questionnaire was developed in French and later in English [13, 19]. The Mini-OAKHQoL is used to assess QoL in 5 domains: physical activities (AP), mental health

(SM), pain (D), social support (SS), social functioning (AS), and independent items, such as personal activities, fear of being dependent, and sexual activity. Each item is measured on a numerical scale from 0–10, with various possible answers ranging between 'not at all' and 'a great deal' to 'never' and 'all the time', and between 'not at all' and 'unbearable'.

The mean item score is the corresponding dimension score, with lower scores representing a better QoL. The interpretation of 2 domains (social support and social functioning) needed to be reversed because lower scores meant worse QoL in these items. Internal consistency was measured using Cronbach's alpha for the original version and individual domains. Cronbach's alpha was 0.95 for physical activities, 0.86 for mental health), 0.90 for pain, 0.78 for social support, and 0.82 for social functioning [19].

Part 2 consists of 4 questions. Questions 1, 3, and 4 were presented on a scale of 1–10, and question 2 involved a single choice from a-do. The questions were developed based on the literature [8, 13, 14, 19]. This part was created to supplement the questions on postoperative rehabilitation (respondents' subjective assessment of using postoperative rehabilitation, the scope of knee movements, and the use of supporting devices). Part 3 consisted of 8 questions concerning the socio-demographic data of the respondents (gender, age, height, weight, education, marital status, place of residence, social status, and professional status).

This study is the first application of the Polish version of the Mini-OAKHQoL. Translation and validation of the instrument were performed. According to Maneesriwongul et al. [16], the translation method used was double-forward translation. A pilot study was conducted in April 2019 with 30 patients after knee arthroscopy for face validation. Analysis of the results did not show a need for major changes in the development of the tool. Only minor changes in wording were made in the versions based on responses provided in the pilot test. The time for completing the whole questionnaire was 8–12 minutes.

Cronbach's α value was also assessed for the Mini-OAKHQoL's internal consistency in the main study. Cronbach's α was 0.94 for physical activities, 0.93 for mental health, 0.93 for pain, 0.88 for social support, and 0.26 for social functioning. The low reliability for this subscale was confirmed in the correlation analysis – the questions were unrelated ($p=0.151$). Therefore, in further analysis, 2 items included in this subscale were considered as separate items: 'long-term planning' and 'going outside'. Cronbach's α values reflected 'good' levels of internal consistency, except for one subscale [19], which was excluded and in further analysis considered as 2 separate questions.

Data analysis. Data analysis was performed using SPSS Statistics version 25 (IBM Corp.) and Microsoft Office. Descriptive statistics were used to assess sample characteristics. Categorical data were summarised using counts and percentages. For continuous variables, the following descriptive statistics were used: the mean, standard deviation, and range (min-max). The normality of the data distribution was evaluated using the Kolmogorov-Smirnov test. After determining that the distribution was not normal, a non-parametric *U* Mann-Whitney test was used to compare 2 groups, while the Kruskal-Wallis test was used for 3 or more groups. Spearman's rank correlation analysis was used to measure the strength and direction of association between

2 ranked variables. The classical threshold of $p \leq 0.05$ was considered as the level of significance.

Ethical consideration. The data collection was conducted according to ethical principles. All respondents were informed about and included informed consent, confidentiality, and the right to withdraw from participation at any time without presenting a reason. Permission was obtained from the Ethical Committee (AKBE/236/2019). The responders' names were not recorded on the questionnaire, thus rendering the data anonymous. Informed consent was indicated by voluntary participation in the survey.

RESULTS

Sample characteristics. The study involved 95 patients who underwent knee arthroscopy for osteoarthritis. Table 1 shows the socio-demographic characteristics of the study group (gender, age, education, marital status, place of residence, and socio-professional status). The mean age of the participants was 53.1 ($SD=10.9$) years. The youngest patient was 25, and the oldest 81-years-old.

Involvement in rehabilitation and subjective evaluation of its outcomes. The majority of participants of the study started rehabilitation on the first day after surgery (63.7%, $n=58$), 28.6% started between the second and sixth days ($n=26$), 4.4% started in the week after surgery ($n=4$), and 3.3% started later ($n=3$). The average subjective assessment of the respondents' involvement in rehabilitation was 9.22 ($SD=1.3$) on a scale of 1–10 (where 1 means, 'I do not use',

Table 1. Characteristics of patients ($n=95$) after knee arthroscopy

Characteristics of respondents		n	%
Gender	Women	63	66.3
	Men	32	33.7
Age	≤40 yrs	13	13.7
	41-50 yrs	20	21.1
	51-60 yrs	40	42.1
	61-70 yrs	15	15.8
	>70 yrs	7	7.4
Education	primary	0	0.0
	lower secondary	0	0.0
	vocational	16	16.8
	secondary	48	50.5
	higher	31	32.6
Marital status	single	4	4.2
	married	68	71.6
	widower/widow	14	14.7
	divorced	9	9.5
Place of residence	city	82	86.3
	village	13	13.7
Socio-professional status	student	0	0.0
	professionally active	70	73.7
	retired pensioner	18	18.9
	unemployed	7	7.4
		95	100.0

and 10 means, 'I use all the time'). This means that almost everyone had great involvement.

On a similar scale of 1–10, respondents assessed their subjective feelings regarding the impact of rehabilitation on the scope of knee movement. The results showed that participants positively assessed the impact with a mean of 9.05 ($SD=1.6$). An evaluation of using supporting devices in everyday functioning was conducted using the same scale of 1–10. The participants used supporting devices, including crutches, and a walking frame to a small extent with a mean of 2.04 ($SD=2.4$).

QoL. The results are presented for all respondents together and according to the variables in the form of descriptive analyses for the domains and separate items. Better QoL of the respondents corresponds with higher values in the categories of social support, long-term planning, and going outside, as well as lower values in the other categories (indicating higher the frequency of difficulties and limitations). Analysis showed that the respondents had the best function in the area of social support (86.47 scores) and the worst regarding physical activity (23.65 scores). Detailed information regarding the assessment of the QoL of the respondents is provided in Table 2.

Table 2. QoL of all subjects ($n = 95$) after knee arthroscopy in the course of osteoarthritis (descriptive analysis)

OAKHQoL	M	SD	Min	Max
QoL domains				
physical activity (AP)	23.65	19.1	10.0	85.0
mental health (SM)	20.84	19.4	10.0	96.7
pain (D)	18.70	17.3	10.0	90.0
social support (SS)	86.47	22.4	10.0	100.0
Separate items				
Long-term planning (LT)	78.32	28.7	10.0	100.0
going outside (GO)	77.63	25.7	10.0	100.0
professional activity (PA)	21.68	18.5	10.0	90.0
fear of being dependent (F)	20.95	22.1	10.0	100.0
sexual activity (S)	21.37	23.3	10.0	100.0

*M – mean; SD – standard deviation; Min-Max – minimum-maximum

Table 3. Correlation between age, education and QoL domains and separate items

OAKHQoL	Rho Spearman	
	Age	Education
QoL domains		
Physical activities (AP)	0.43**	-0.50**
Mental health (SM)	0.26*	-0.33**
Pain (D)	0.28*	-0.28*
Social support (SS)	-0.31*	0.36**
Separate items		
Long-term planning (LTP)	-0.38**	0.27*
Going outside (GO)	-0.40**	0.28*
Professional activity (PA)	0.27*	-0.33**
Fear of being dependent (F)	0.36**	-0.32*
Sexual activity (S)	0.36**	-0.26*

* $p \leq 0.05$; ** $p \leq 0.01$

Among socio-demographic variables, age was statistically related to all domains of QoL, and separate items. This means that as the age increases, the QoL decreases in the assessed domains and in the separate items examined. The strongest correlation was revealed between age and physical activity domain ($\rho=0.43$; $p<0.001$) (Tab. 3.).

The higher the subjects' education level, the higher the QoL they had in the assessed domains and separated items, which means that the frequency of difficulties and limitations was domains of education and physical activity ($\rho=-0.50$; $p<0.001$). The specific correlations are presented in Table 3.

The marital status of the subjects was correlated with the majority of QoL aspects analysed. Widowed and divorced people presented significantly lower QoL with regards to physical activity, mental health, pain, and sexual activity, than married and single respondents. Significantly better functioning in terms of social support and going outside was achieved by married and single respondents, which means that they presented better functioning in this aspect than others (Tab. 4).

The QoL of respondents in all assessed domains and their functioning in measured separate items was significantly associated with their socio-professional status. Pensioners and retirees presented significantly lower QoL in measured domains, and the majority of separate items than unemployed and professionally active respondents. Significantly better QoL in terms of social support, going outside, and professional activity was presented by professionally active respondents (Tab. 4).

[Insert Table 4 here]

The analysis revealed that higher patient involvement in postoperative rehabilitation increased QoL in the physical activity and social support domains, but decreased their professional activity. Increased range of movements after rehabilitation was correlated with all measured domains and separate items. The sooner patients started rehabilitation after surgery, the better the QoL in all analysed domains, as well as in the separate items, such as long-term planning, professional activity, fear of being dependent, and sexual activity. Using supportive devices decreased respondents' QoL in terms of social support, long-term planning, and going outside. Table 5 shows all correlations between QoL domains and additional questions regarding patients' subjective assessment of rehabilitation and its outcomes.

DISCUSSION

This study aimed to assess QoL after knee arthroscopy for osteoarthritis, and its relationship with patients' subjective involvement in postoperative rehabilitation. Respondents had the lowest overall QoL in the area of physical activities. This was also indicated in an earlier study as a serious issue in a group of patients with knee osteoarthritis [20]. Moreover, there is evidence that knee arthroscopy improved physical performance and QoL in patients aged 65 years or less at more than 2 years after surgery [21]. Considering the fact that the respondents included in the current study were examined within about 2 months after surgery, difficulties in physical activity could have been a significant factor that reduced their QoL. Importantly, the later they started rehabilitation after surgery, the worse they assessed their QoL in most of the analysed domains. This is why

Table 4. Correlation between marital status, socio-professional status, QoL domains and separate items (n=95)

	Marital Status								Socio-professional status							
	single		married		widower/ widow		divorced		H	professionally active		retired pensioner		unemployed		H
	N	Mean Range	N	Mean Range	N	Mean Range	N	Mean Range		N	Mean Range	N	Mean Range	N	Mean Range	
QoL domains																
Physical activities (AP)		26.88		44.87		59.43		63.28	8.58**		40.64		73.94		54.86	21.76**
Mental health (SM)	4	29.38	68	44.73	14	56.14	9	68.33	9.87*	70	42.31	18	68.31	7	52.71	14.37**
Pain (D)		44.75		44.46		53.43		67.78	8.37*		42.72		65.97		54.57	13.97**
Social support (SS)		52.13		53.46		30.18		32.61	13.86**		53.17		30.69		40.79	12.19**
Separate items																
Long term planning (LTP)		71.38		49.43		34.64		47.56	6.82		51.60		31.78		53.71	8.30**
Going outside (GO)		79.50		51.79		37.50		21.67	17.69**		54.68		27.56		33.79	16.76**
Professional activity (PA)	4	40.63	68	46.29	14	52.25	9	57.56	2.37	7	43.32	18	65.14	7	50.71	10.92**
Fear of being dependent (F)		33.00		46.82		48.18		63.28	6.01		42.70		65.61		55.71	15.46**
Sexual activity (S)		30.00		44.62		58.21		65.67	11.16**		42.44		62.44		66.43	14.59**

*p ≤ 0.05; **p ≤ 0.01; H – Result of Kruskal-Wallis test.

Table 5. Correlation of relationships that combine the QoL domains with the use of postoperative rehabilitation and devices facilitating everyday movement (n = 95)

OAKHQoL	rho Spearman			
	Subjective assessment of patient involvement in post-operative rehabilitation	Use of sup-portive devices	Subjective assessment of the patient to increase the range of movements after rehabilitation	Beginning of post-operative rehabilitation
QoL domains				
Physical activities (AP)	-0.35**	0.14	-0.60**	0.31**
Mental health (SM)	-0.20	0.16	-0.42**	0.39**
Pain (D)	-0.06	0.17	-0.33**	0.43**
Social support (SS)	0.40**	-0.21*	0.43**	-0.21*
Separate items				
Long term planning (LTP)	-0.05	-0.396**	-0.42**	-0.40**
Going outside (GO)	-0.09	-0.403**	-0.42**	-0.12
Professional activity (PA)	-0.27**	0.05	-0.41**	0.35**
Fear of being dependent (F)	-0.18	0.04	-0.43**	0.28**
Sexual activity (S)	-0.16	0.10	-0.37**	0.27**

*p ≤ 0.05; **p ≤ 0.01

patients' education, recommending rehabilitation, and the presentation of short- and long-term treatment goals are very important [22]. It could be helpful in acceptance of the experience of temporary difficulties and inconvenience associated with the recovery process. Moreover, the study showed that the patients' subjective assessment of their involvement in rehabilitation was high, and its effects had a significant impact on the assessment of QoL in the analysed domains [23]. Therefore, their attitudes and beliefs that can be supported by professional education are important factors that increased their QoL in most of the analysed aspects.

Analysis also showed that the QoL of patients improved with decreasing age. Moreover, the study revealed that QoL

domains were statistically significantly associated with socio-professional status. Pensioners and retirees, whose socio-professional status is most often associated with age, showed a lower QoL in the assessed domains. Socio-demographic data were also revealed to be useful for interpreting the QoL scales in earlier studies. The risk of osteoarthritis increases with age [24]. The vast majority of respondents participating in this study were over 50 years of age. The obtained results additionally showed that QoL decreases with age, and special attention in improving their QoL should be given for older patients who are pensioners or retirees.

In the current study, marital status also turned out to be an important factor in patients' QoL. Widowed and divorced people showed a lower QoL in the analysed domains. Other studies showed no relationship between marital status and QoL in patients with osteoarthritis [25, 26]. This result could be supported by evidence that married adults have a lower prevalence of illness and are more likely to recover faster than unmarried adults [27]. Therefore, when considering improving the QoL of patients after arthroscopic treatment for osteoarthritic knee, widowed and divorced people should be closely watched.

Analysis of the current study showed a correlation between the education of the subjects and their QoL after knee arthroscopic debridement in the course of osteoarthritis. Respondents with higher education indicated better QoL in the analysed domains. This result has been confirmed in other studies [5, 28], and the same impact of low socio-economic status on decreasing patients' QoL was also observed [28]. At the same time, it is worth to emphasizing that higher education is the most important predictor of patients' employment after surgery [29], which can be crucial in both the rehabilitation process and in improving the QoL after arthroscopy. These results highlight a clear need to focus on actions aimed at improving the QoL for people with a lower education level.

Interestingly, respondents in this study did not use supportive devices too often, and the analysis revealed that their social functioning is decreased by using devices that support mobility. However, Nozica-Radulovic et al. revealed that using assistive devices significantly increased the value of social functioning. Both before and after surgery,

osteoarthritis causes mobility problems or creates difficulties in everyday activities [8]. Using assistive devices or walking aids, such as a cane or crutch, can reduce pain in patients with knee osteoarthritis [30]. Tereso et al. revealed that different assistive devices should be prescribed depending on the state of recovery of the patient [31]. In the current study, respondents declared that their QoL in social support and social functioning decreased with the use of supporting devices, which may confirm that there is insufficient education in post-surgery management. This may be caused by the short period of time (around 2 months) after surgery when this study was conducted. However, encouraging patients to use supporting devices and providing training in the proper use of equipment is thus an important aspect of education provided by health care professionals in both hospital wards and orthopaedic clinics, as this practice improves the QoL of patients.

Limitation of the study. The study has some limitations. Firstly, the size of the study group was small, thus limiting the generalization of results. Future studies should consider increasing the scope to increase the generalization of the results. Secondly, despite the earlier validation, the chosen tool in Polish could not respect all the subscales of the Mini-OAKHQoL questionnaire. Due to low reliability and lack of correlations between variables in the social functioning subscale, this domain had 2 items that were considered as separate items in the study. Before undertaking future research, a full validation of the Polish version of the scale should be carried out, along with a factor analysis. Thirdly, the study should be repeated at a greater time interval after the operation using an extended multi-stage study of the variability of the studied characteristics, because 2 months seems too short a time for assessment of the analysed variables to be based on discussion and analysis of the topic.

CONCLUSIONS

The study can be used as a guide to developing targeted interventions to improve the QoL of patients after arthroscopic debridement for osteoarthritic knee. Analysis showed that respondents functioned best in the area of social support, and worst regarding the physical activity domain of QoL. Thus, the activities of professional healthcare should mainly focus on this aspect of functioning.

Improved QoL is most necessary for the older group of patients (pensioners/retires) with a lower education level, and divorced/widowed people. Furthermore, in order to improve long-term treatment results and QoL in many aspects, patients' involvement in rehabilitation, understanding supportive activities in rehabilitation, and using supporting devices are necessary. Therefore, professional educational activity should be continually implemented as an important aspect of the therapeutic process, and for the improvement of treatment outcomes.

Relevance for clinical practice and nursing education. The results of the analyses were aimed at examining the relationship between the subjective involvement of patients in postoperative rehabilitation and quality of life after arthroscopic treatment of knee osteoarthritis. Nurses are the first healthcare professionals to care for the patient in the 24 hours after surgery. They are an indispensable

link in the therapeutic team, taking an active part in the process of qualification and rehabilitation. Nurses can also have a significant impact on improving the quality of life of patients after surgery through educational activities that will significantly affect the recovery of elderly patients (retirees/pensioners), with a lower level of education and those who are divorced or widowed. The results obtained confirm that postoperative rehabilitation has a positive effect on the QoL of patients after knee arthroscopic debridement with osteoarthritis. The development of standards would make it possible to improve the QoL of patients treated with surgery, as well as allow experts to create an 'ideal learning process'.

REFERENCES

- Theofilou P. Quality of Life: Definition and Measurement. *Eur J Psychol.* 2013; 9(1): 150–62. doi: 10.5964/ejop.v9i1.337
- Goetz C, Ecosse E, Rat AC, Pouchot J, Coste J, Guillemin F. Measurement properties of the osteoarthritis of knee and hip quality of life OAKHQoL questionnaire: an item response theory analysis. *Rheumatol. (Oxford).* 2011; 50(3): 500–5. doi: 10.1093/rheumatology/keq357. Epub 2010
- Briani RV, Ferreira AS, Pazzinatto MF, Pappas E, De Oliveira Silva D, Azevedo FM. What interventions can improve quality of life or psychosocial factors of individuals with knee osteoarthritis? A systematic review with meta-analysis of primary outcomes from randomised controlled trials. *Br J Sports Med.* 2018; 52(16): 1031–1038. doi: 10.1136/bjsports-2017-098099
- Moshki M, Hashemizadeh H, Khajavi A, Minaee S, Vakilian F. Content Comparison of Health-Related Quality of Life Measures in Heart Failure Based on the International Classification of Functioning, Disability, and Health: A Systematic Review Protocol. *J Tehran Heart Cent.* 2018; 13(3): 144–152. PMID: 30745929; PMCID: PMC6368918
- Kawano MM, Araújo IL, Castro MC, Matos MA. Assessment of quality of life in patients with knee osteoarthritis. *Acta Ortop Bras.* 2015; 23(6): 307–10. doi: 10.1590/1413-785220152306150596. PMID: 27057143.
- Trăistaru MR, Kamal D, Maria DT, Zorilă MV, Alexandru DO, Rogoveanu OC, Radu M, Kamal KC. Complex evaluation in patients with knee osteoarthritis. *Rom J Morphol Embryol.* 2019; 60(1): 167–174. PMID: 31263841
- Abbott JH, Usiskin IM, Wilson R, Hansen P, Losina E. The quality-of-life burden of knee osteoarthritis in New Zealand adults: A model-based evaluation. *PLoS One.* 2017; 12(10): e0185676. doi: 10.1371/journal.pone.0185676. PMID: 29065119; PMCID: PMC5655469
- Radulovic TN, Lazovic M, Jandric S, Bucma T, Cvjetkovic DD, Manojlovic S. The Effects of Continued Rehabilitation After Primary Knee Replacement. *Med Arch.* 2016; 70(2): 131–4. doi: 10.5455/medarch.2016.70.131–134. Epub 2016 Apr 1. PMID: 27147789; PMCID: PMC4851500
- Basedow M, Hibbert P, Hooper T, Runciman W, Esterman A. Australians with osteoarthritis: satisfaction with health care providers and the perceived helpfulness of treatments and information sources. *J Multidiscip Healthc.* 2016; 9: 387–94. doi: 10.2147/JMDH.S110751. PMID: 27578982; PMCID: PMC5001666
- Pellisé F, Vila-Casademunt A, Ferrer M, Domingo-Sàbat M, Bagó J, Pérez-Grueso FJ, Alanay A, Mannion AF, Acaroglu E. European Spine Study Group, ESSG. Impact on health related quality of life of adult spinal deformity (ASD) compared with other chronic conditions. *Eur Spine J.* 2015; 24(1): 3–11. doi: 10.1007/s00586-014-3542-1. Epub 2014 Sep 14. PMID: 25218732
- Epstein J, Osborne RH, Elsworth GR, Beaton DE, Guillemin F. Cross-cultural adaptation of the Health Education Impact Questionnaire: experimental study showed expert committee, not back-translation, added value. *J Clin Epidemiol.* 2015; 68(4): 360–9. doi: 10.1016/j.jclinepi.2013.07.013. Epub 2013 Sep 29. PMID: 24084448
- Epstein J, Santo RM, Guillemin F. A review of guidelines for cross-cultural adaptation of questionnaires could not bring out a consensus. *J Clin Epidemiol.* 2015; 68(4): 435–41. doi: 10.1016/j.jclinepi.2014.11.021. Epub 2014 Dec 17. PMID: 25698408
- Abdul Kadir A, Mohd Arif MF, Ishak A, Hassan II, Mohd Noor N. Adaptation and Validation of the Malay Version of the Osteoarthritis Knee and Hip Quality of Life Questionnaire among Knee Osteoarthritis Patients. *Biomed Res Int.* 2018; 2018: 4329751. doi: 10.1155/2018/4329751. PMID: 29955601; PMCID: PMC6000845

14. Guillemin F, Rat AC, Goetz C, Spitz E, Pouchot J, Coste J. The Mini-OAKHQOL for knee and hip osteoarthritis quality of life was obtained following recent shortening guidelines. *J Clin Epidemiol*. 2016; 69: 70–8. doi: 10.1016/j.jclinepi.2015.06.010. Epub 2015 Jun 22. Erratum in: *J Clin Epidemiol*. 2017 Sep; 89: 240–241. PMID: 26111768
15. Gonzalez Sáenz de Tejada M, Bilbao A, Herrera C, García L, Sarasqueta C, Escobar A. Validation of the Mini-OAKHQOL for use in patients with osteoarthritis in Spain. *Clin Rheumatol*. 2017; 36(8): 1855–1864. doi: 10.1007/s10067-017-3611-z. Epub 2017 Mar 28. PMID: 28353088
16. Maneesriwongul W, Dixon JK. Instrument translation process: a methods review. *J Adv Nurs*. 2004; 48(2):175–86. doi: 10.1111/j.1365-2648.2004.03185.x. PMID: 15369498
17. Green SB. How Many Subjects Does It Take To Do A Regression Analysis. *Multivariate Behav Res*. 1991; 26(3): 499–510. doi: 10.1207/s15327906mbr2603_7. PMID: 26776715
18. VanVoorhis, Carmen R Wilson, Betsy L Morgan. Understanding Power and Rules of Thumb for Determining Sample Size. *Tutorials in Quantitative Methods for Psychology* 2007; 3(2). doi: 10.20982/tqmp.03.2.p043
19. Rat AC, Coste J, Pouchot J, Baumann M, Spitz E, Retel-Rude N, Le Quintrec JS, Dumont-Fischer D, Guillemin F. OAKHQOL: a new instrument to measure quality of life in knee and hip osteoarthritis. *J Clin Epidemiol*. 2005; 58(1): 47–55. doi: 10.1016/j.jclinepi.2004.04.011. PMID: 15649670
20. Vitaloni M, Botto-van Bemden A, Sciortino Contreras RM, Scotton D, Bibas M, Quintero M, Monfort J, Carné X, de Abajo F, Oswald E, Cabot MR, Matucci M, du Souich P, Möller I, Eakin G, Verges J. Global management of patients with knee osteoarthritis begins with quality of life assessment: a systematic review. *BMC Musculoskelet Disord*. 2019; 20(1): 493. doi: 10.1186/s12891-019-2895-3. PMID: 31656197; PMCID: PMC6815415
21. Niemeläinen M, Moilanen T, Huhtala H, Eskelinen A. Outcome of knee arthroplasty in patients aged 65 years or less: a prospective study of 232 patients with 2-year follow-up. *Scand J Surg*. 2019; 108(4): 313–320. doi: 10.1177/1457496918816918. Epub 2018 Dec 6. PMID: 0522409
22. Dervin GF, Stiell IG, Rody K, Grabowski J. Effect of arthroscopic débridement for osteoarthritis of the knee on health-related quality of life. *J Bone Joint Surg Am*. 2003; 85(1): 10–9. doi: 10.2106/00004623-200301000-00003. PMID: 12533566
23. Ardern CL, Österberg A, Sonesson S, Gauffin H, Webster KE, Kvist J. Satisfaction With Knee Function After Primary Anterior Cruciate Ligament Reconstruction Is Associated With Self-Efficacy, Quality of Life, and Returning to the Preinjury Physical Activity. *Arthroscopy*. 2016; 32(8): 1631–1638.e3. doi: 10.1016/j.arthro.2016.01.035. Epub 2016 Mar 24. PMID: 27020461
24. Plotnikoff R, Karunamuni N, Lytvyak E, Penfold C, Schopflocher D, Imayama I, Johnson ST, Raine K. Osteoarthritis prevalence and modifiable factors: a population study. *BMC Public Health*. 2015; 15: 1195. doi: 10.1186/s12889-015-2529-0. PMID: 26619838; PMCID: PMC4666016
25. Zakaria ZF, Bakar AA, Hasmoni HM, Rani FA, Kadir SA. Health-related quality of life in patients with knee osteoarthritis attending two primary care clinics in Malaysia: a cross-sectional study. *Asia Pac Fam Med*. 2009; 8(1): 10. doi: 10.1186/1447-056X-8-10. PMID: 20084190; PMCID: PMC2807850
26. Shrestha, Rajani. “Quality of Life of Patients With Knee Osteoarthritis”. *J Patan Academy Health Sci*. 2018; 5(2): 81–84. doi: 10.2174/1874325001307010619
27. Kiecolt-Glaser JK, Newton TL. Marriage and health: his and hers. *Psychol Bull*. 2001; 127(4): 472–503. doi: 10.1037/0033-2909.127.4.472. PMID: 11439708
28. Vitaloni M, Botto-van Bemden A, Sciortino Contreras RM, Scotton D, Bibas M, Quintero M, Monfort J, Carné X, de Abajo F, Oswald E, Cabot MR, Matucci M, du Souich P, Möller I, Eakin G, Verges J. Global management of patients with knee osteoarthritis begins with quality of life assessment: a systematic review. *BMC Musculoskelet Disord*. 2019; 20(1): 493. doi: 10.1186/s12891-019-2895-3. PMID: 31656197; PMCID: PMC6815415
29. Wesolowska-Gorniak K, Wojtowicz M, Gierus J, et al. Multivariate analysis of biopsychosocial determinants of professional activity among patients after kidney or liver transplantation in Poland *BMJ Open* 2019;9:e029501. doi: 10.1136/bmjopen-2019-029501
30. Lespasio MJ, Piuze NS, Husni ME, Muschler GF, Guarino A, Mont MA. *Knee Osteoarthritis: A Primer*. *Perm J*. 2017; 21: 16–183. doi: 10.7812/TPP/16-183. PMID: 29035179; PMCID: PMC5638628
31. Tereso A, Martin MM, Santos CP. Evaluation of gait performance of knee osteoarthritis patients after total knee arthroplasty with different assistive devices. *Res Biomed Eng* 2015; 31: 208–217. doi: http://dx.doi.org/10.1590/2446-4740.072