Research article

Assessment of the quality of life in patients with chronic degenerative osteoarticular diseases (gonarthrosis, coxarthrosis)

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ABSTRACT: Quality of life is a multidimensional concept that refers to the individual perception of one's own life and that includes aspects of individual health (cultural, social or psychological). Arthrosis is a progressive condition that involves damage to cartilage, damage to the subchondral bone and changes in the synovial and periarticular structures. **Material and method.** The study aims to provide information on the impact of degenerative osteoarticular diseases (gonarthrosis and coxarthrosis) while assessing the health of the population in Suceava county (one of the most affected counties in Romania due to the COVID-19 pandemic) by studying a sample of the study population. Based on the results obtained, an analysis can be made and then general ideas about the entire population. **Results and discussions.** The application of the SF-36 questionnaire helps to identify ways to improve the quality of life of patients diagnosed with degenerative osteoarticular disorders, gonarthrosis and coxarthrosis, and to prevent the negative aspects. In the health field, quality of life is an indicator used to assess the physical, mental and social effects of illness and the applied medical treatments, as well as to analyze the needs of a patient during the illness. **Conclusions.** The suffering caused by this type of disease has an impact on the quality of life of patients, both physically and emotionally. A special role in assessing the quality of life in these patients is their emotional condition and the acceptance of their functional status, trying to improve it. The quality of life of patients with chronic degenerative osteoarticular diseases is a public health issue, by the duration of the disease, by family, social, economic and medical implications.

Keywords: *quality of life, degenerative osteoarticular diseases, general health conditions*

INTRODUCTION

Quality of life is a multidimensional concept that refers to the individual perception of one's own life and that includes aspects of individual health (cultural, social or psychological) [1]. Quality of life is the result of assessing people's well-being, requirements, ideals, and needs [2,3]. In Romania, the quality of life is considered by assessing living conditions, but also by assessing the quality of activities, involving: person, family, professional activity, dwelling, opportunities for personal development, social environment, social services and economic resources [4]. According to Eurostat (2019) [5] the quality of life is assessed by taking into account the following indicators: health, education, material and living conditions, productive activities, material and living conditions, economic and physical security, natural and living environment and satisfaction in life. The WHO created the Index called World Health Organization Quality of Life (WHOQOL) that includes: the physical dimension, the psychological dimension, social relations, the environment, the independence level and the spiritual dimension. One of the most appreciated and documented ways to express quality of life in a multidimensional way and on the selection of indicators is the Canadian Index of Wellbeing [6] that takes into account the basic principles of the quality of life model by combining subjective and objective indicators.

Arthrosis is a progressive condition that involves damage to cartilage, damage to the subchondral bone and changes in the synovial and periarticular structures [7]. Coxarthrosis is a degenerative disease, with slow evolution, progressive at the level of the hip joint, obvious between 2-4% in people aged between 50-70 years [8], with consequences on stability, gait, by determining functional disability and having a negative effect on quality of life [9]. Genetic factors [10], heredity, sex, environmental factors [11], body weight, nutritional conditions [12,13], hormonal conditions, professional activity and muscular conditions are involved in triggering this condition. One of the most affected joints by osteoarthritis is the knee that is involved in orthostatic stability, gait and in keeping static and dynamic balance [14]. Gonarthrosis causes pain, decreased functional capacity with negative consequences on social integration, quality of life and psychic capacity. There are studies [15,16] which found that reduced physical activity, environmental factors, physical and mental health [17], obesity, female gender, stress, depression and social relationships can influence patients' quality of life [7]. The incidence of the knee osteoarthritis may increase significantly in the next decade due to the aging population [18]. Other studies [19,20] evaluated risk factors and quality of life in people diagnosed with osteoarthritis, and found higher prevalence of the disease in females and decrease in quality of life in the context of the disease. For patients diagnosed with this type of disease, it is important to have an adequate quality of life in order to delay cognitive degenerative phenomena [21]. In Suceava county, in 2020, in a population of 763,452 people, degenerative osteoarticular diseases reported by family medical practices represent 0.43%. In the urban area there were 1,269 cases of coxarthrosis (of which 947 female patients) and 2,017 cases of gonarthrosis (1,256 patients). In rural areas the family medical practices registered 605 cases of coxarthrosis (360 women) and 1,155 cases of gonarthrosis (725 women).

The hypothesis for this study is to prove whether a degenerative osteoarticular condition in the lower limbs can influence the patient's quality of life.

The purpose of the study is to evaluate the quality of life of patients diagnosed with chronic degenerative osteoarticular diseases in the lower limbs in Suceava county.

The objectives of the study were:
- Assessment of functional capacity in order to ensure autonomy
- Assessment of skills related to the reintegration into the social and family environment
- Assessment of the satisfaction degree of the study participants who benefited from medical rehabilitation services

Material and method

The study was cross-sectional, it was conducted from February to July 2021, on an outpatient basis for a period of 6 months. The study aims to provide information on the impact of degenerative osteoarticular diseases (gonarthrosis and coxarthrosis) while assessing the health of the population in Suceava county (one of the most affected counties in Romania due to the COVID-19 pandemic) by studying a sample of the study population. Based on the results obtained, an analysis can be made and then general ideas about the entire population.

The inclusion criteria in the study were: the age over 35, patients diagnosed with degenerative osteoarticular disorders in the lower limbs, patients undergoing outpatient / hospital rehabilitation treatment and patients who agreed to participate in the study

The exclusion criteria were: patients who did not consent to participate in the study, age below 35, patients with chronic conditions in decompensated stages, patients with neuropsychiatric disorders and uncooperative patients.

The SF-36 questionnaire was used as a working tool, easy to fill in and with questions for everyone to understand. This questionnaire was anonymous and it was filled in by patients whereas the obtained data were confidential and used only for this study. The Short Form 36 (SF-36) questionnaire is the abbreviated form of the MOS (Rands 'Medical Outcome Study) questionnaire that had 245 points, and is applicable in research studies and medical practice. With the help of this assessment tool, patients with different pathologies

can be monitored and later their status can be compared to the one of the general population. With the help of the SF-36 questionnaire, 8 parameters can be assessed: physical function, the role of physical function, pain, general health, vitality, social relationship, emotional functionality and mental health conditions.

Each subscale of the SF-36 test was applied to each group of study participants, and the obtained results were compared to the general population of Suceava county.

In order to achieve this purpose and objectives, a number of 237 persons diagnosed with degenerative osteoarticular diseases in the lower limbs were selected by family doctors and specialists, of which 117 patients with gonarthrosis and 120 patients with coxarthrosis. The distribution by age groups in the study group is shown in table no. 1.

Table no. 1. Distribution of patients by age groups

Group	Gender/ Age group	35-44 years	45-54 years	55-64 years	65-74 years	>75 years
Group G (gonarthrosis)	Masculin	12	18	13	7	7
	Feminin	15	19	8	7	11
Group C (coxarthrosis)	Masculin	14	14	16	11	3
	Feminin	11	15	20	13	3

STATISTICAL ANALYSIS

The collected data was processed statistically by using Microsoft Excel 10. Thus the median, the standard deviation and the t-student test were calculated in order to test the work hypothesis. It was chosen the level of statistical signification of 5%, so p should be less than 0.05 ($p < 0.05$).

The data were subsequently processed using the application SPSS (Statistical Package for the Social Sciences) that enables the selection and reconfiguration of data in order to make a relevant statistical analysis. In order to express the correlation between 2 parameters, the Pearson correlation coefficient was used with the following interpretation: positive values very close to 1 show a very strong direct correlation, those between 0.7-0.9 show a strong correlation, those between 0.4-0.7 show a good correlation, those between 0.15- 0.4 show a weak correlation, whereas the values <0.1 show no correlation.

Results

The SF-36 questionnaire uses 8 scales that analyze aspects related to physical function and physical role, social function, emotional condition and general one, vitality, pain and mental health.

Descriptive statistics were made for each scale in the SF-36 questionnaire.

1.In order to assess the functional capacity in order to obtain the daily autonomy, the physical function scale was used as it includes items (for tiresome activities, moderate activities, lifting weights, climbing several floors, climbing a floor, bending and kneeling, walking 1 km , walking several hundred meters, walking 100 meters, getting dtessed / having a bath), the scale for the physical role (the reduction of working time, the reduction of activities, the limitation of the type of work, work difficulties) and the scale for vitality (vitality, energy, exhaustion, fatigue)

2.In order to assess the skills for reintegration in the social and family environment, the social activity scale (extension), the social activity scale (time) and the emotional role scale (reduction of time, reduction of activity, inattention) were used.

3.In order to assess the satisfaction degree of the patients who received medical rehabilitation services, the pain scale (magnitude), the vitality scale (nervousness, depression, calmness, discouragement, happiness), the general health scale (the appreciation of one's own health, mild illness, equally healthy, worsening health, excellent health)

The age distribution of the sample chosen for this study shows that the average age for patients with gonarthrosis is 54 years (± 12.67) and for patients with coxarthrosis it is 55.5 years (± 11.14). As for the distribution by gender, there are relatively close values, namely 51.28% for females and 48.72% for males in the group with gonarthrosis, in comparison to 51.67% for females and 48.33% for males.

The distribution by origin shows the predominance of people from the urban areas, 60.68% of those diagnosed with gonarthrosis and 54.17% of those with coxarthrosis, in comparison to those in rural areas, 39.32% of those diagnosed with gonarthrosis and 45.83% diagnosed with coxarthrosis .

Table 2. Descriptive statistics in patients with gonarthrosis and coxarthrosis

Parameters	Gonarthrosis	Coxarthrosis
	Median (standard deviation)	Median (standard deviation)
Physical function	15.56±4.69	16.03±4.07
Physical role	6.50±1.66	5.62±1.62
Pain	6.98±2.24	6.29±2.10
General condition	11.39±1.44	12.12±0.38
Vitality	13.70±2.07	11.81±1.27
Social function	7.69±2.96	5.88±0.79
Emotional role	6.38±0.54	4.40±1.42
Mental health	16.61±2.86	14.37±2.21
Valid N	117	120

The physical function scale includes 10 items and it shows the degree to which physical condition limits the performance of activities. Among the 117 study participants diagnosed with gonarthrosis, 41.88% said that their health was greatly affected by their activity, 43.59% said that their activities were moderately limited and 14.53% had a reduced limitation of the physical function. In comparison, among the 120 study participants diagnosed with coxarthrosis, 35.83% said that their health greatly affected their activity, 26.67% said that their activities were moderately limited and 37.5% had a reduced limitation of the physical function.

The physical role scale includes 4 items in which the score highlights the state of physical health and the influence of physical condition on daily activities. Among the study participants diagnosed with gonarthrosis, 34.19% said that they had difficulties in performing specific activities, 16.24% noted that their health condition moderately reduced their activity, while 49.57% mentioned that they had no difficulties in doing activities. Among the 120 study participants diagnosed with coxarthrosis, 44.17% said that they had difficulties in doing specific activities, 15% noted that their health condition moderately reduced their activity and 40.83% mentioned that they had no difficulties in doing activities.

The pain scale assesses the intensity of the pain expressed by the patient and it indicates the fact that the pain limits the person's activity. Thus, 33.34% of patients diagnosed with gonarthrosis and 44.17% of those diagnosed with coxarthrosis indicated that pain severely limited their activity, 16.24% of those diagnosed with gonarthrosis and 25% of those diagnosed with coxarthrosis reported a moderate limitation of activity due to pain, while 50.42% of those with gonarthrosis and 30.83% of those with coxarthrosis showed that pain does not greatly influence the development of activities.

The overall health scale or the assessment of their own health by patients is an assessment of their health and treatment prospects and it showed the following: 10.26% of patients with gonarthrosis and 10.84% of those with coxarthrosis said that they were in excellent health, 81.19 % of those diagnosed with gonarthrosis and 75% of those diagnosed with coxarthrosis reported that most of them were in good health, while 8.54% of patients with gonarthrosis and 14.17% of those with coxarthrosis said that their health condition often involved the application of treatment.

The vitality scale shows that the participant is full of energy and strength or on the contrary, he is exhausted or tired. Among the 117 participants diagnosed with gonarthrosis, 31.62% stated that fatigue was present all the time, 47.86% noted that fatigue was present all the time and 20.51% stated that fatigue was rare. In patients with coxarthrosis, 50.83% stated that fatigue was present all the time, 32.5% noted that fatigue was always present and 17.5% stated that fatigue was rare.

The social function scale assesses the physical and emotional health condition that may limit social activity in certain situations. Thus, 37.6% of the participants diagnosed with gonarthrosis and 22.5% of those diagnosed with coxarthrosis reported a very significant impairment of their activities in relation to family or friends, 8.55% of those diagnosed with gonarthrosis and 41.66% of those diagnosed with coxarthrosis moderate whereas 53.85% of those with gonarthrosis, respectively 37.5% of those with coxarthrosis stated that their physical condition did not influence their activity at all. Low values indicate the significant limitation of social contacts, the decrease in the communication level due to the deterioration of physical and emotional condition.

The emotional role scale involves the assessment of the degree to which the emotional condition interferes with work performance or other daily activities. Among the participants, 25.6% of those diagnosed with gonarthrosis and 47.5% of those diagnosed with coxarthrosis answered that due to their emotional issues, the time spent at work or in activities was reduced, 56.41% of those with gonarthrosis and 11.67% of those with coxarthrosis did less activities whereas 49.57% of those with gonarthrosis and 40.83% of those with coxarthrosis responded negatively.

The mental health scale characterizes the mood, the presence of anxiety, depression, being indicators of positive emotions. After the assessment, 20.51% of the study participants diagnosed with gonarthrosis and 44.17% of those with coxarthrosis felt severe nervousness, 41.03% of those with gonarthrosis and 26.67% of those with coxarthrosis had especially depression or discouragement, whereas 38.46% of those with gonarthrosis and 29.17% of those with coxarthrosis sometimes felt these conditions.

DISCUSSIONS

The application of the SF-36 questionnaire helps to identify ways to improve the quality of life of patients diagnosed with degenerative osteoarticular disorders, gonarthrosis and coxarthrosis, and to prevent the negative aspects.

After making the descriptive statistics for each scale in the SF-36 questionnaire in Group G (gonarthrosis), the following statements can be made:

• On the physical function scale: there is direct strong correlation with the physical role scale (0.814) and weak correlation with the mental health scale (0.208).

• On the pain scale: there is direct good correlation with the social function scale (0.77) and poor correlation with the emotional role scale (0.319).

• On the general state scale: there is weak correlation with the social function scale (0.242).

• On the vitality scale: there is weak correlation with the social function scale (0.371) and with the emotional role scale (0.266).

• On the social function scale: there is good correlation with the pain scale (0.659) and poor correlation with the general condition scale (0.242) and with the vitality scale (0.371).

• On the emotional role scale: there is good correlation with the social function scale (0.670) and poor correlation with the pain scale (0.319).

• On the mental health scale: there is good correlation with the vitality scale (0.636), the physical role scale (0.604), the emotional role scale (0.587), the pain scale (0.432).

For group C (coxarthrosis) here are the obtained results:

• On the physical function scale, there is direct, strong correlation with the physical role scale (0.901) and the emotional role scale (0.850), good correlation with the mental health scale (0.713) and poor correlation with the general condition scale (0.407)

• On the physical role scale: there is direct, strong correlation with the emotional role scale (0.813), good correlation with the mental health scale (0.689) and weak correlation with the general condition scale (0.487).

• On the pain scale: there is good, direct correlation with the vitality scale (0.480) and with the social function scale (0.416).

• On the emotional role scale: strong correlation with mental health scale (0.846)

On the above mentioned scales, the values of the relationship coefficients show strong, good or weak, correlation, but the scales influence each other. In the health field, quality of life is an indicator used to assess the physical, mental and social effects of illness and the applied medical treatments, as well as to analyze the needs of a patient during the illness. There has been an increase of approximately 45% worldwide in the past 20 years in the number of people affected by degenerative osteoarticular diseases, with socioeconomic consequences (absenteeism -50%, incapacity for work, disability -60%), so it was necessary to give an early diagnosis. and to use a complex treatment in order to improve the quality of life [22].

In our study, females are predominant, 122 people (51.47%), who reported pain, decreased functional capacity, results similar to those in the specialty literature [9].

Among the 237 participants in the study, 93 (38.39%) were over 60 years old, the results were similar to those in Goh's study [23] where this age group was affected 10-20%, the consequences were the increase of social, economic [24] and medical costs.

The study also shows the role of functional deficit caused by the disease as knee osteoarthritis is considered a public health problem [14].

The current study shows the strong correlation between physical condition and daily activities, the decrease in pain and its good correlation with social activities, and also the integration in the social environment, as shown by Regnaux's research [25] that points out the important role of physical activity in relieving pain. and the restoration of the functional capacity in patients with knee osteoarthritis, but also by Fransen's study [26] which points out that exercise is one of the non-pharmacological methods recommended by international guidelines for the treatment of this condition.

The physical condition assessed by the physical function scale is strongly correlated with the physical role, respectively with the possibility of doing daily activities, whereas the pain is in good correlation with the social function and the vitality of the study participants. The general condition of patients with chronic degenerative osteoarticular diseases is weakly correlated with social function, namely reduced social integration due to physical and mental disabilities, as well as with physical function that does not enable daily activities. These results are similar to those in the specialty literature [27] that points out the role of physical activity in pain management, with benefits on the physical function, general health and implicitly the quality of life of patients with degenerative osteoarticular diseases. Pain, depression, and positive emotions were assessed by using the mental health scale and correlated well with the physical role, emotional role, and vitality of the study participants, which explains a possible social isolation of these individuals due to the physical disability and by influencing the quality of life through anxiety determined by the disease, especially in the conditions of the COVID-19 pandemic, these data are in accordance with the specialized studies [28,29].

CONCLUSIONS

The current study was meant to show how certain conditions, such as the physical or emotional ones, whereas the role of socioeconomic factors can influence the quality of life in patients with degenerative osteoarticular pathology in the lower limbs.

The participants in this study could not do all their daily activities, either in the family or at the work place.

The suffering caused by this type of disease has an impact on the quality of life of patients, both physically and emotionally. Pain, especially the somatic one, is an important factor in the decrease in the quality of life, by influencing the general health conditions, the emotional health conditions and the physical conditions of these patients. A special role in assessing the quality of life in these patients is their emotional condition and the acceptance of their functional status, trying to improve it.

The quality of life of patients with chronic degenerative osteoarticular diseases is a public health issue, by the duration of the disease, by family, social, economic and medical implications.

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