

I. SUMMARY

The issues of the life quality, in particular in the chronic diseases, are nowadays recognised as one of the significant exponents of the treatment effectiveness. The importance of these factors is emphasised not only due to the medical reasons, but also in the context of the measurable economic costs. A process of the physical fitness recovery upon the knee replacement surgery is a key element of the post-surgery treatment. A responsibility of the rehabilitation consists in restoring a correct function of the knee as best and quickly as possible so that the patient can restart an active lifestyle.

The general objective of the work has consisted in an evaluation and a comparison of the life quality, and functioning on the everyday basis and in the social terms of the patients treated and non-treated physiotherapeutically upon the knee replacement surgery. The specific objectives have consisted in:

1. An analysis of the general perception of the physical health by the patient upon the knee replacement surgery.
2. An evaluation of the physical fitness within a scope of the performance of the everyday activities.
3. An analysis of the perception of the mental health (positive and negative feelings).
4. An evaluation of the social activity and the limitations within this scope.
5. An analysis of the limitations related to a fulfilment of the social roles upon the knee replacement surgery.

The studies have been carried out in the group of the patients of the Department of Orthopaedics and Traumatology of the University Teaching Hospital in Białystok, who have been subjected to the total knee replacement surgeries in the years 2013-2015. The evaluation refers to 267 patients who have undergone the surgical interventions due to the idiopathic gonarthrosis – 205 women (27%) on average at the age of 71,8 years old and 62 men (23%) on average at the age of 71,1 years old. The study group consisting of 118 persons (44%), included the patients treated physiotherapeutically within a period of 12 month from a date of the surgery intervention. The control group, consisting of 149 persons (56%), has comprised the persons non-treated physiotherapeutically.

The research method used for the studies has been a diagnostic survey, and the technique – the interview questionnaires: proprietary questionnaire, Medical Outcomes Study 36-item short-form health survey (SF-36) standardised life quality questionnaire in the Polish

language version and Knee Injury and Osteoarthritis Outcome Score – Physical Function Short Function Form (KOOS–PS) standardised questionnaire in the Polish language version.

The evaluation of the life quality considered the results related to the whole study group and results in respect of the respective groups upon the rehabilitation and without any rehabilitation.

The quality of life as regards to the physical functioning measured according to the SF-36 scale in the entire study population has been at the low level – on average of 36 scores (min. 0.0; max. 90.6), but the quality of life as regards to the mental health has been rather at the mean level – on average of 50.6 scores (min. 17,8; max 85,6). The evaluation of the life quality with regard to the physical functioning domain has been characterised by a rather clear right-sided asymmetry towards the high values (negative ones in the SF-36). 105 (0,4%) surveyed persons have evaluated their quality of life at the very high (<10 scores) and high (10-30 scores) level. 115 (48%) respondents have evaluated it at the average level (30-70 scores). Exclusively one respondent (0,4%) has evaluated the quality of life in a very low manner (>90 scores), and 20 (8%) persons have evaluated it at the low level (70-90 scores).

However, both in case of the group that has been subjected to the rehabilitation, and the group has failed to undergo the rehabilitation a distribution of the life quality evaluation with regard to the physical domain has shown an explicit asymmetry towards the high levels of the aforementioned evaluation. At the very high (<10 scores) and high level (10-30 scores), the quality of life in respect of the physical domain has been evaluated by 51 (48%) persons from the group that has had the rehabilitation and 54 (40%) surveyed persons from the group that has failed to have the rehabilitation.

At the average level (30-70 scores), the life quality has been evaluated by 47 (45%) respondents after the rehabilitation and 68 (50%) from the group that has not undergone the rehabilitation. Only 7 (7%) persons from the group that has been subjected to the rehabilitation, evaluated their quality of life at the low level, however, the life quality has been evaluated at this level by 13 (9%) respondents from the group without any rehabilitation. One person from the group that has not had any rehabilitation and not a single respondent from the group subjected to the rehabilitation has evaluated the quality of life in the very low manner. A comparison of both distributions illustrated a certain tendency to the worse evaluation of the life quality related to the physical domain made by the patients who has not used the rehabilitation than the patients after the rehabilitation, but it has not been demonstrated that these differences have been statistically significant ($p>0,05$).

An analysis of the impact of the rehabilitation on an ability to perform the everyday activities has shown that the physical fitness has been evaluated better in a statistically significant manner by the respondents who have not undergone the rehabilitation than these who have had this rehabilitation ($p>0,05$). The full performance of the everyday activities has been reported by 85 persons (57%) from the group that has failed to undergo the rehabilitation and 50 persons (43%) from the group upon the rehabilitation. The everyday activities could be performed partially by 56 surveyed persons (38%) not subjected to the rehabilitation and 52 persons (44%) upon the rehabilitation procedures. 8 persons (5%) from the group not subjected to the rehabilitation and 15 persons (13%) from the group subjected to the rehabilitation have been able to perform the everyday activities the minimum level.

In reference to the mental domain, a distribution of the results has been symmetrical as concerns an average value – 50.6. The vast majority in the quantity of 206 (85%) respondents has evaluated their quality of mental life at the average value (30-70 scores). 17 (7%) of the respondents have evaluated their life quality related to the mental domain at the high level (10-30 scores), and 17 (8%) of the surveyed persons – at the low level (70-90 scores). Any person has not evaluated the life quality at the very high level (<10 scores) and at the very low level (>90 scores). 9 (9%) persons who have been subjected to the rehabilitation and 8 (6%) not subjected to the rehabilitation have evaluated their life quality in the high manner (10-30 scores). The highest number of the persons from both groups - 89 (85%) from the group after the rehabilitation and 117 (86%) from the group that has failed to have the rehabilitation – have evaluated their quality of life at the average level (30-70 scores). A low level (70-90 scores) has been demonstrated by 7 (7%) respondents from the group that has undergone the rehabilitation and 11 (8%) from the group that has not undergone the rehabilitation. Not a single surveyed person has evaluated the life quality in the very low manner, that is >90 scores. It has not been proven that there has been a statistical significance of the differences between the compared group ($p>0,05$).

The health and emotional concerns have had no impact on the functioning in social terms in 49 (44,9%) persons from the group upon the rehabilitation and 68 (48.2%) without any rehabilitation. Similarly, as in case of the respondents in respect of whom these issues only sometimes have affected their social functioning – 53 (49.4%) among the respondents after the rehabilitation and 43 (37,6%) in the group of the patients not subjected to the rehabilitation. However, for 17 (15,6%) responders after the rehabilitation and 20 (14,2%) without any rehabilitation, these problems have had a huge and very huge impact on their social functioning.

For the most measures taken into account in the SF-36 questionnaire, there have been no significant differences between both groups – subjected and not subjected to the rehabilitation – related to the level of the life quality ($p > 0,05$). The only statistically significant differences ($p > 0,05$) between the groups has occurred exclusively in the “social functioning” component in the mental domain.

The emotional limitation of the role has failed to refer to 65 (58.0%) respondents from the group that has undergone the rehabilitation and 42 (53.9%) from the group that has not had any rehabilitation. The emotional limitation of the role has been perceived by 76 (46,1%) respondents who have failed to have the rehabilitation and 58 (42,0%) after the rehabilitation.

The level of mobility of the surveyed persons has been evaluated using the Knee Injury and Osteoarthritis Outcome Score – Physical Function Short Function Form (KOOS–PS). On the basis of the components from the seven areas of the physical fitness, the measure for the entire population with a value from 5 scores (no difficulties) up to 35 scores (maximum difficulties) has been determined. An average evaluation of the perceived difficulties in the study population was of 22,7 ($\pm 5,3$) scores. However, in the group of the persons who have undergone the rehabilitation, an average evaluation of the perceived difficulties has been of 23,4 ($\pm 5,3$) scores, and in the group not subjected to the rehabilitation – 22,2 ($\pm 5,3$) scores. These differences have been of no statistical significance ($p > 0.05$).

In the total KOOS measurement, the difference between the respondents who have undergone and have not undergone the rehabilitation has not been statistically significant ($p > 0.05$). The group that has not had the rehabilitation has been characterised by the level of the dysfunctionality in the everyday life that is on average lower by 1,2. When comparing the SF-36 and KOOS measures, a statistically significant, inversely proportional correlation between the total KOOS measure and the physical domain of the SF-36 scale has been found in the group of persons after the rehabilitation. The determined correlation coefficient $R = -0,22$ ($< 0,3$) should be considered as weak. For the group without any rehabilitation, this relationship has been statistically insignificant.

The obtained results enabled to formulate the following conclusions:

1. The overall perception of health for all 267 patients after the total knee replacement in the area of the physical functions has been at the high (44%) and medium (48%) level.

2. Most respondents positively assessed their abilities within the scope of the performance of the everyday activities. 57% of the respondents from the group of 149 without any rehabilitation and 43% of the respondents from the group of 118 after the rehabilitation have reported to be able to perform fully their everyday activities. The partly performance of

the everyday activities has been possible in 38% of the persons nor subjected to the rehabilitation and 44% after the rehabilitation procedures.

3. The vast majority of respondents evaluated their quality of mental life on the average level – 86% of persons from the group without any rehabilitation and 85% of persons from the group after the rehabilitation. 8% of the respondents from the group that has failed to undergo the rehabilitation and 7% of the respondents from the group that had undergone the rehabilitation have evaluated their life quality at the low level.

4. The health and emotional concerns have had no influence or a little influence on the social functioning of 86% of the persons from the group not subjected to the rehabilitation and 84% of the respondents from the group after the rehabilitation.

5. After the knee replacement surgery, a slight majority of the patients has failed to have any limitations in performing their social roles. This concerned 54% of the persons from the group without any rehabilitation and 58% of the respondents from the group subjected to the rehabilitation.