

The proper function and longevity of the knee joint are ensured by the presence of the menisci. Their susceptibility to damage and injury is one of the main risk factors for the rapid loss of hyaline cartilage and the development of osteoarthritis process. The vascularization pattern and consequently, the nutritional status of a damaged meniscus, determines its potential for healing and regeneration. Blood supply is a key factor in assessing the tissue's regenerative capacity and is essential for the effectiveness of surgical treatment. Degeneration of the knee joint cartilage often results from meniscal damage or extensive resection, leading to osteoarthritis. Minimally invasive procedures, such as arthroscopy, have become the gold standard in the treatment of meniscal and cartilage lesions.

The study included patients who underwent knee arthroscopy between 2019 and 2021 due to meniscal and cartilage injuries. Patients qualified had damage to either the medial or lateral meniscus, knee pain, and possibly mechanical symptoms that did not subside after conservative treatment methods. During hospitalization, sociodemographic data were collected, including: sex, age, body mass index (BMI), smoking habits, education level, and history of previous surgeries. Overall quality of life was assessed using the validated Polish version of the WHOQOL-BREF questionnaire. Postoperative outcomes were evaluated using the KOOS (Knee Injury and Osteoarthritis Outcome Score).

In original study I, a total of 274 patients aged 19 to 61 years (mean age: 43.54; SD = 11.06), including 81 women and 193 men, were enrolled. Statistically significant differences were observed between preoperative and postoperative WHOQOL-BREF scores across all quality of life domains. An exception was noted in the group of patients with injuries to both menisci—no significant differences were found in domains 3 (social relationships) and 4 (environment). Education level did not significantly affect questionnaire results either pre- or postoperatively. There were no differences between manual and mental workers before surgery; however, in the postoperative period, significant differences were found in domains 1 and 2. No significant statistical

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correlation was found between waiting time for surgery and WHOQOL-BREF scores before or after knee arthroscopy.

In original study II, the mean preoperative KOOS score was 51.77 for smokers and 51.70 for non-smokers ($p = 0.854$). The mean postoperative KOOS score was 66.80 for smokers and 66.71 for non-smokers ($p = 0.4523$). The average BMI in the smokers' group was 27.49, while in the non-smokers' group it was 27.89 ($p = 0.1799$). A statistically significant

correlation was found between the postoperative KOOS score and BMI ($p = 0.0363$), as well as between age and BMI ($p < 0.0001$).

The study demonstrated that quality of life (QOL) improves in patients undergoing surgery in the early stages of chondromalacia. However, when the pathological process involves both menisci, functional outcomes are worse. Education level and waiting time for surgery had no impact on QOL, in contrast to the type of work performed—mental workers achieved better outcomes in terms of physical and psychological health. No association was found between smoking and functional outcomes after arthroscopic treatment of medial meniscus tears. In contrast, an increasing body mass index (BMI) was associated with worse postoperative functional outcomes.