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*Polish adaptation of Knee Outcome Survey Activities of Daily Living Scale (KOS- ADLS)*

**SUMMARY**

**Introduction:** In recent years there has been bigger necessity to extend standard medical and radiological examinations of patients diagnosed with advanced knee osteoarthritis by subjective evaluation of overall health of the patient. It is derived from the fact that both results of medical examination and additional tests are not always identical with subjective sense of different unwellnesses and discomforts as well as with evaluation of the activity level in daily actions. The widening of diagnostics with subjective overall patient's health evaluation enables to plan and monitor the treatment of osteoarthritis in more efficient way. There are numerous patient questionnaires applied during knee osteoarthritis. The majority of them were created in English spoken countries therefore their application in different countries or communities, speaking different languages or dialects and representing different culture, has obliged the researcher to cross-culturally adapt them. Such adaptation should be conducted according to methodology available in scientific literature concerning this area. One of the subjective scales evaluating overall health of the patient with various dysfunctions of knee including osteoarthritis is Knee Outcome Survey Activities of Daily Living (KOS-ADL) Scale, elaborated by J. Irgang. It contains 14 questions, concerning the symptoms and limitations in patient's level of activity due to dysfunction of knee joint, pain, stiffness, swelling, lack of knee stability, weakness of extremity and limping. The second part of the thesis includes 8 questions concerning functioning of the patient in his daily life. It depicts the difficulties in performance of daily activities such as: walking, ascending and descending the stairs, standing, squatting, kneeling, sitting with bent knees and getting up from chair. The patient is being asked to describe the way he feels according to 6 six-level scale where 5 indicates the total lack of particular symptom or lack of difficulties in performing that kind of activity while 0 indicates such intensity of symptoms that makes the performance of particular activity impossible. The maximum final score is 70 points. In order to obtain ADL factor, the final score should be divided by 70 and then multiplied by 100 percent.

**Objective:** The purpose of the thesis was cross-cultural adaptation of Polish version of KOS-ADL as well as verification of its psycho-metrical features such as reproducibility,

validity and responsiveness to clinical changes in subjective evaluation of patient's overall health after knee replacement.

**Material and methods:** The study group consisted of 70 patients (59 females and 11 males). The average age of the patients during the initial examination was 66 (59 to 79 years old). All patients were qualified for knee replacement procedure due to advanced and primary osteoarthritis. The patients underwent the surgeries in two facilities: Regional Clinical Hospital nr 2 in Rzeszów and Holy Family's Specialized Hospital in Rudna Mała. The knee replacement surgeries were performed by the team led always by the same surgeon. To adapt KOS-ADL scale the following scales and reference tests were applied: KOOS and VAS scales, TUG test, 5xSTS and 10 meters long gait test. The researches were conducted three times. The first examination took place one or two weeks before the surgery and consisted of medical interview, fulfillment of all scales and performance of all tests. The second examination was conducted in 6-13 day intervals since the first one and its aim was to obtain the answers to the questions included in KOS-ADL scale (test-retest). The third examination conducted 6 months after the surgery was identical to the first one.

**Results:** Both the high repetitiveness of measurements (ICC 0,89 with SEM 2,68 and MDC 7,43) and good internal consistency ( $\alpha$ -Cronbach rate of 0,68 in pre-surgery and 0,86 in post-surgery examinations) characterize Polish version of KOS-ADL scale. The average and medium correlations between KOS-ADL and VAS scales during the first examination were perceived ( $r=-0,47$ ), TUG ( $r=-0,5$ ), 5xSTS ( $r=-0,38$ ). The correlations between the speed of gait and results obtained in KOS-ADL scale were not stated ( $r=-0,16$ ) while the dependencies between the results obtained in KOS-ADL and KOOS scales were observed. The strongest correlations occurred between the general results obtained in KOS-ADL scale and subscale "activity in daily living" of KOOS ( $r=0,63$ ), between subscales "symptoms" ( $r=0,53$ ) and "activity in daily living" in both scales ( $r=,58$ ). The evaluation of internal and external responsiveness of KOS-ADL scale to clinical changes in overall patient's health showed that the medium value of ADL factor after the surgery has risen by 35,5 % for „symptoms” subscale, by 36,7 % for „daily activity” subscale and by 36,2 % for general value of ADL factor. The value of ES was calculated and it amounts to 4,76 for the general result in KOS-ADL scale. The results of TUG, 5xSTS and gait tests were not significantly correlated with the improvement of subjective health evaluation measured with the use of KOS-ADL scale while the correlations between the pain level evaluated by VAS scale and changes in KOS=ADL scale were perceived (general result KOS-ADL  $r=0,68$ ). Significant statistical

correlations were shown between the changes in subscales KOS-ADL and changes in subscales of KOOS questionnaire. The strongest correlations were obtained between the changes in “daily activities” subscale in both KOS-ADL and KOOS ( $r=0,74$ ) and between changes of ADL factor and changes in KOOS “daily activities” subscale ( $r=0,73$ ).

**Conclusions:** The results of conducted research indicate that Polish version of KOS-ADL scale can be considered repetitive tool in subjective evaluation of health of patients with advanced osteoarthritis undergoing knee replacement surgery. Polish version of KOS-ADL is characterized by high validity of measurements of typical osteoarthritis symptoms as well as limitations in daily activities. Polish version of KOS-ADL enables to detect the changes in subjective evaluation of patient's health before and after knee replacement surgery.