Factors Influencing Quality of Life in Elderly Patients Undergoing Total Knee Replacement Surgery

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Purpose: Total knee replacement is one of the most common treatment for elderly patients with severe knee osteoarthritis. Due to severe postoperative-pain, patients undergoing total knee replacement surgery typically suffered to perform physical activities, which resulted in developing depressive symptom and negatively affected their quality of life (Herrero-Sanchez, Garcia-Inigo Mdel, Nuno-Beato-Redondo, Fernandez-de-Las-Penas, & Alburquerque-Sendin, 2014; Hyun, Kim, Han, & Kim, 2016).Complications could then lead to poor satisfaction and quality of life (Canovas & Dagneaux, 2018; da Silva, Santos, de Sampaio Carvalho Júnior, & Matos, 2014).Previous studies have focused on comparison in pain intensity level (Wylde, Beswick, Dennis, & Gooberman-Hill, 2017) and level of physical activities (Almeida, Khoja, & Piva, 2018) from pre to post-operation; however, no study examines a relationship among pain intensity level, physical activities, depression, and quality of life, especially at 6 week after surgery, a short term period to promote rehabilitation. The results in this study could provide direction to develop an intervention in order to reduce pain and depressive symptom as well as enhancing physical activities, which can then lead to improvement of patients' quality of life.

Methods: The study was guided by International Classification of Functioning, Disability, and Health framework (World Health Organization, 2001). A non-experimental, associational, cross-sectional design was used to accomplish the aim of this study. The samples in this study were hundred of elderly patients undergoing total knee replacement surgery at one tertiary care hospital in Bangkok, Thailand. Participants were a) older adults whose age 60 years or older, b)diagnosed with knee osteoarthritis by physicians, c) able to understand and communicate in Thai, and d) no cognitive impairment (determined by the Mini-Cog, with a score higher than 3). Participants with postoperative complications, including loosening total knee arthroplasty, developing deep vein thrombosis were excluded from this study. During following up with the physician at 6 weeks postoperatively, participants were asked to complete the demographic questionnaire, the Numeric Rating Scale, the Modified Barthel Activities of Daily Index, the Thai Geriatric Depression Scale-15, and the Osteoarthritis of Knee Hip Quality of life questionnaire-Thai version. Data were analyzed using descriptive statistics, Pearson's correlation coefficients, and multiple linear regression. Normality, linearity, homoscedasticity, and multicollinearity were tested before analysis.

Results: The mean age of participants was 70.56 years (SD = 7.04). Approximately 86% of participants were female. The mean body mass index was 27.78(SD = 4.16) kgs/m^2 with 76% had body mass index higher than 25 kgs/m^2. At 6 week after surgery, a mean pain intensity level was moderate (Mean ± SD = 3.49 ± 2.08). In addition,

participants had a high score in performing physical activity (Mean ± SD = 16.06 ± 1.09). Regarding depression, about 89% had mild depressive symptom. Moreover, the results indicated that pain intensity level had a strong negative correlation with quality of life (r = -.621, p < .01) whereas physical activities had a moderate positive correlation with quality of life (r = .333,p < .01). Controlling for covariates, pain intensity level, physical activities, and depression could explain 46% of variance on elderly patients undergoing total knee replacement surgery' quality of life.

Conclusion: Our results were consistent with findings in previous studies in which high pain intensity level and low ability to perform physical activity at 6 week after surgery affected poor quality of life (Herrero-Sanchez et al., 2014). However, depression was not a significant factor in predicting quality of life, which could be explained by the fact that although patients had mild depressive symptom, good outcome after surgery representing by a high score on patients' quality of life could eliminate effect of depression. The results suggested that it is necessary to have an intervention program to assess and mage pain after discharge as well as promoting physical activities for this population. This will then lead to enhancement of patients' quality of life.

Title:
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References:
Almeida, G. J., Khoja, S. S., & Piva, S. R. (2018). Physical activity after total joint arthroplasty: a narrative review. *Open access journal of sports medicine*, *9*, 55-68. doi:10.2147/OAJSM.S124439

Canovas, F., & Dagneaux, L. (2018). Quality of life after total knee arthroplasty. *Orthopaedics, traumatology, surgery, and research, 104*(1S), S41-S46.

da Silva, R. R., Santos, A. A., de Sampaio Carvalho Júnior, J., & Matos, M. A. (2014). Quality of life after total knee arthroplasty: systematic review. *Revista brasileira de ortopedia*, *49*(5), 520-527. doi:10.1016/j.rboe.2014.09.007

Herrero-Sanchez, M. D., Garcia-Inigo Mdel, C., Nuno-Beato-Redondo, B. S., Fernandez-de-Las-Penas, C., & Alburquerque-Sendin, F. (2014). Association between ongoing pain intensity, health-related quality of life, disability and quality of sleep in elderly people with total knee arthroplasty. *Ciencia and saude coletiva, 19*(6), 1881-1888.

Kim, K. W., Han, J. W., Cho, H. J., Chang, C. B., Park, J. H., Lee, J. J., . . . Kim, T. K. (2011). Association between comorbid depression and osteoarthritis symptom severity in patients with knee osteoarthritis. *The Journal of Bone and Joint Surgery, 93*(6), 556-563.

World Health Organization. (2001). International classification of functioning, disability, and health. Retrieved from http://www.who.int/classifications/icf/en/

Wylde, V., Beswick, A. D., Dennis, J., & Gooberman-Hill, R. (2017). Post-operative patient-related risk factors for chronic pain after total knee replacement: a systematic review. *British medical journal open*, *7*(11), 1-12. doi:10.1136/bmjopen-2017-018105

Abstract Summary:
Total knee arthroplasty is one of the most common treatment for patients with severe knee osteoarthritis. Therefore, it is important to understand factors predicting patients' quality of life during post operation.

Content Outline:
Total knee arthroplasty is one of the most common treatment for elderly patients with severe knee osteoarthritis. During post operation, it is important to assess patients' quality of life. The aim of this study was to examine pain intensity, physical activities, depression in predicting elderly patients undergoing total knee arthroplasty at 6 week quality of life. The samples in this study were hundred of elderly patients undergoing total knee arthroplasty at one tertiary care hospital in Bangkok, Thailand. The questionnaires included demographic questionnaire, Numeric Rating Scale, Modified Barthel Activities of Daily Index, Thai Geriatric Depression Scale-15, and the Osteoarthritis of Knee Hip Quality of life questionnaire. Data were analyzed using descriptive statistics, Pearson's correlation coefficients, and multiple linear regression. The results indicated that pain intensity level had a strong negative correlation with quality of life whereas physical activities had a moderate positive correlation with quality of life. All predictors could explain 46% of variance on patients' quality of life. The results suggested that it is necessary to have an intervention program to assess and mage pain after discharge as well as promoting physical activities for this population. This will then lead to enhancement of patients' quality of life.

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