

Can Gender Influence Pain Levels in Patients with Knee Osteoarthritis?

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Background: Many treatment regimens used for knee osteoarthritis (OA) do not discriminate between males and females. Previous studies have shown anatomical differences in knee cartilage between the males and females that may explain the discrepancy in severity of OA and pain levels between both genders. Female hormonal status undergoes lifetime changes that may affect central nervous processing of nociceptive stimulation and make them more sensitive to pain.

Objective: To determine (1) how gender influences severity of diagnosis, pain levels, and satisfaction with the physician (2) how patient's age impacts severity of diagnosis, pain levels, satisfaction with the physician, and understanding of the treatment regimen, and (3) the relationship between actual severity of diagnosis and patient reported pain level.

Methods: Patients were recruited as part of a prospective observational study at an outpatient orthopaedic clinic in New Orleans, LA. All patients were seen by one physician throughout the study. Patient population included new patients who presented with knee osteoarthritis symptoms. Data was gathered regarding age, gender, insurance type, x-ray grades, feedback surveys, and health-status instrument surveys. X-ray grades were scored using the Kellgren-Lawrence Grading Scale (KL) and Ahlback Radiographic Grading Scale (AR). The feedback survey assessed for physician-patient interaction time, pain levels, satisfaction, and understanding. The health-status instrument surveys included the Oxford Knee Score (OKS), Western Ontario and McMaster University Osteoarthritis Index (WOMAC), Knee Injury and Osteoarthritis Outcome Score (KOOS), and SF-12 Health Survey.

Results: (1) Males reported an average pain score of 5.3, while females reported an average pain score of 6.6 on a scale of 1-10 ($p < 0.05$). The average KL x-ray score for males and females respectively was 2.47 and 2.36, on a scale of 0-4 ($p > 0.05$). In the WOMAC grading scale, which yields lower scores for worse pain levels, males averaged a score of 52, while females averaged a score of 44 ($p > 0.05$). (2) Age was not found to be significantly correlated with diagnosis severity and pain levels. (3) More severe diagnosis was also significantly correlated with an increase in pain ($p < 0.05$).

Discussion: The findings of this study indicate that gender can have a significant influence on pain levels. Biological and cultural factors could play a large role in this since pain is a subjective value given by the patient. The data shows that there was no significant difference in severity of knee OA between both genders. This calls into question why females report higher pain levels compared to males. It puts importance on implementing more objective forms of evaluating knee osteoarthritis such as x-ray scores and physical exam findings to find a proper treatment regimen for both genders. Other variables that were looked at in this study such as age were not significant, but further research is necessary to determine if it can have any influence on how either gender perceives pain.