Women Have Worse Preoperative Knee Specific Symptoms and Health Related Quality of Life Prior to Primary Knee Arthroplasty

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INTRODUCTION:

Total knee arthroplasty is a surgical intervention used to treat end-stage knee osteoarthritis, aimed at alleviating pain and restoring function. Existing literature has identified potential gender disparities in the progression of osteoarthritis and subsequent utilisation of total knee arthroplasty, with women often presenting with more advanced disease at the time of surgery. The aim of this study was to investigate gender-related differences in knee-specific function and health-related quality of life (HRQoL) both prior to primary total knee arthroplasty (TKA) and one year post-operatively.

METHODS:

Data from 3605 patients undergoing primary TKA between 2013 and 2023 were analysed. Pre-operative and 1-year postoperative patient-reported outcome measures (PROMs) were recorded, including the Oxford Knee Score (OKS) and EQ-5D questionnaire. Univariate analysis was used to assess differences in continuous variables between men and women. Multivariate regression was used to assess the independent association between gender and preoperative OKS.

RESULTS:

Of 3605 patients undergoing primary knee arthroplasty from 2013-2023, 2015 were female (54.6%). Women demonstrated significantly worse mean preoperative OKS than men (19.6 vs. 22.3; mean difference 2.7, 95% CI 2.21–3.22, $p < 0.001$). Women also demonstrated significantly worse median EQ-5D scores than men (0.516 vs. 0.620; median difference 0.104, $p < 0.001$), and the risk of women being in a HRQoL state “worse than death” (negative EQ-5D score) was significantly greater (Odds Ratio 1.66, 95%CI 1.35 to 2.05). These differences exceeded the minimal clinically important difference (MCID) for EQ-5D but not for OKS. Additionally, a significantly higher portion of women (19%) fell into the lowest quartile of OKS scores compared to men (11%; Odds Ratio 1.95, $p <0.001$).

Postoperatively, women achieved significantly greater absolute improvements in PROMs but maintained overall lower scores than men. Women achieved a greater improvement in mean OKS than men (improvement of 15.6 vs 14.1, mean difference 1.47, $p<0.001$) but lower overall mean OKS scores (37 vs 39, $p <0.001$). Similarly, women achieved greater improvements in median EQ-5D scores than men (improvement of 0.309 vs 0.273, $p<0.001$), but also achieved lower overall scores (0.760 vs 0.796, $p <0.020$).

There was no observed difference in satisfaction post-TKA between men and women ($p=0.298$, Chi Square).

DISCUSSION AND CONCLUSION:

Women had worse knee-specific PROMs and greater HRQoL scores compared to men prior to TKA. Women also experienced the greatest overall improvement in symptoms yet demonstrated poorer post-operative PROM scores for primary TKA than men, likely due to poorer baseline status. This may suggest delays in arthroplasty treatment delivery to women which may be attributed to several factors, including differences in healthcare-seeking behaviour, delayed referral, or gender-related differences in decision-making. Additionally, the construction and sensitivity of PROMs to gender differences should be further explored.

This study underscores the importance of sex-disaggregated data and highlights the need for further research into barriers that may delay access to arthroplasty for women. Addressing these issues is critical to achieving equitable care and optimising outcomes for all patients with knee OA. Further research is required to investigate barriers to arthroplasty delivery among women, including clinician bias and patient decision-making.