Background: The relationship between obesity and clinical outcomes following total knee arthroplasty (TKA) remains unclear. The association between body mass index (BMI) and mid-term improvement in quality of life, function, and pain of patients after total knee arthroplasty, particularly with the monoblock tibial component (MTC), has not been extensively explored.

Design and Methods: A retrospective cohort study was designed to describe whether there is an association between the pre-operative BMI of patients who underwent TKA with MTC and BMI post-operatively. Additionally, this study examines the association between pre and post-operative BMI and clinical outcome measures for 75 patients during 2-4 years of follow-up. The outcome measure data were gathered via patient-reported surveys, including Oxford Knee score (OKS), WOMAC score (WS), Short Form 12 score (SF-12), and the American Knee Society function score (KSS). BMI and survey score trends over time were analyzed by multiple regression, logistic regression, and Pearson’s correlation coefficient with the SAS statistical package.

Results: There was a significant correlation between pre-operative BMI and post-operative BMI (P> 0.0001, r = 0.73). In the multiple regression models, an increase in BMI was associated with a decrease in KSS (P > 0.0001) and an improvement in OKS was associated with a decrease in BMI (P> 0.0001). Improvements in OKS, SF-12, and KSS were all significantly associated with an increase in duration of follow-up time.

Conclusion: Three of the four clinical outcome measures improve with increased duration of follow-up after TKA with MTC regardless of BMI value or stratification. Additionally, pre-operative BMI and post-operative BMI values over time of follow-up do not differ significantly. This suggests that although TKA with MTC recipients report increased function and less pain in completing activities of daily life, they are not necessarily more active and may not utilize their enhanced ability to reduce BMI. Higher pre-operative BMI and post-operative BMI are associated with less improvement in KSS and OKS clinical outcome measures over time compared to patients with lower BMI. Ultimately, it is essential to encourage BMI reduction pre-operatively in potential TKA with MTC candidates in order to maximize clinical outcome success post-operatively; however, patients seem to benefit from TKA with MTC regardless of BMI status.