Effects of Obesity in Patient Reported Outcomes After Hip Arthroscopy

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INTRODUCTION:

For over half a century, there has been a marked increase in obesity, defined as a body mass index (BMI) greater than 30 kg/m2, in the United States. With the growing utilization of patient-reported outcome (PRO) tools to assess the success of orthopedic interventions, it has become increasingly evident that obesity serves as a poor prognostic indicator for an array of orthopedic procedures. While considerable research has investigated the association between obesity and PROs, no previous studies have explored the categorization of obesity severity and its consequent impact on outcomes. There is a noticeable gap in the literature particularly concerning patients with class III obesity, defined as having a BMI of 40 or greater. As obesity prevalence continues to climb, surgeons will become more and more likely to encounter this demographic in practice and should be equipped with the proper information to best counsel patients on the likely outcomes of procedures such as hip arthroscopy. The aim of this study was to explore the association between obesity categorization and patient-reported outcomes (PROs) in hip arthroscopy.

METHODS:

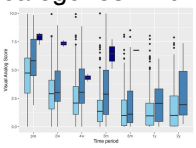
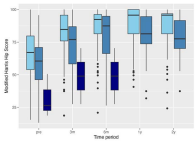
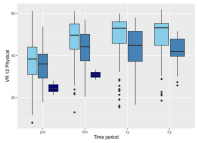
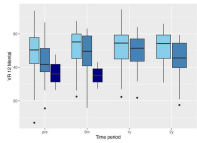
Patients who underwent unilateral hip arthroscopy and completed at least one of the following PROs—the Harris Hip Score (HHS), Visual Analog Pain Scale (VAS), or Veterans RAND 12 (VR-12)—were included in the study. Patients were categorized into 2 main groups: non-obese (BMI < 30) and obese (BMI ≥ 30). The obese cohort was further divided into groups of patients with BMIs between 30-40, and BMIs ≥ 40 for additional analysis prior to one year. Comparisons were performed using Welch Two-Sample t tests and One Way Analysis of Variance (ANOVA). Significance level was set at alpha = 0.05.

RESULTS:

Of the 349 recorded preoperative BMIs, 82.5% were considered non-obese (BMI < 30) and 17.5% were obese (BMI ≥ 30). Of the obese cohort, 95.1% had a BMI between 30 and 40, and 4.9% had a BMI ≥ 40. The average BMI for all patients was 25.87 kg/m2. The majority of patients were female (65%), and the average age of all patients was 34.42 years (table 1). Compared to baseline, non-obese patients demonstrated significant improvements across all 4 PROs at every time point. Similarly, obese patients overall demonstrated significant improvement across all time points in the VAS, HHS, and VR-12 Physical. When obese patients were further stratified, however, it was found that such improvements were only consistently statistically significant in the 30-40 cohort. Apart from VAS pain at 4 weeks, the ≥ 40 cohort experienced no significant improvements in VAS (figure 1), HHS (figure 2), and VR-12 Physical (figure 3) scores. Only non-obese patients experienced consistent improvements in VR-12 Mental from baseline (figure 4). The 30-40 cohort did not demonstrate significant changes in the VR-12 Mental except at 1 year, while patients with a BMI ≥ 40 did not demonstrate any improvements.

DISCUSSION AND CONCLUSION:

While non-obese patients consistently demonstrated significant improvements across all 4 PROs, outcomes for obese patients were contingent on the distinction between class I/II obesity (BMI 30-40) and class III obesity (BMI ≥ 40). PRO scores were significantly different between the 3 cohorts at all assessable time points, but when comparing simply obese to non-obese patients, this wasn't consistently true. This suggests the relationship between PROs and obesity status is influenced by the specific categorization of obesity, thus emphasizing the importance of distinguishing between different levels of obesity in assessing hip arthroscopy outcomes. The distinct variations in PROs based on different obesity categories underscore the need for tailored interventions and post-operative care strategies.

n = 349	
Age, mean ± SD	34.42
Sex, n (%)	
Female	227 (65)
Male	121 (35)
BMI, mean ± SD	25.87
BMI group, n (%)	
< 30	288 (82.5)
30-40	58 (16.6)
≥ 40	3 (0.9)