

# THE EPIDEMIOLOGY OF SEVERE OBESITY IN PATIENTS UNDERGOING TOTAL KNEE REPLACEMENT. IN THE KINGDOM OF FIFE, OVER THE LAST 20 YEARS - Jack Thomson, CDF in Orthopaedic Surgery

## Introduction:

- Obesity increases the risk of postoperative complications (Wallace et al., 2014).
- The proportion of overweight/obese adults in Scotland has increased over the past 20 years (Figure 1) (*Scottish Health Survey 2018: main report - revised 2020, 2020*).
- This study examined the epidemiology of severe obesity (WHO classification, BMI  $\geq 40$ ) in patients undergoing Total Knee Replacements (TKR), in NHS Fife, from 2001-2021.

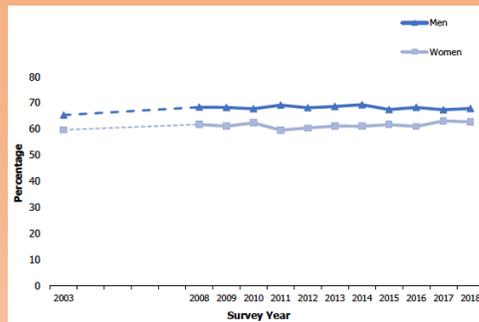


Figure 1. Prevalence of overweight including obesity (BMI 25 and over) among adults aged 16 and over, 2003 to 2018 (*Scottish Health Survey 2018: main report - revised 2020, 2020*)

## Methods:

- Retrospective analysis of prospectively collected data was performed for 7320 patients, who underwent TKR between 2001 and 2021, in NHS Fife.
- Those with BMI  $\geq 40$  at the time of their operation were isolated and studied. Particularly in 3 “snapshot” years (2001, 2011 and 2021), used to analyze for changes over the 20-year period.
- Demographic details, BMI, rates of severe obesity and length of stay were studied.

## Results:

- 474 patients with BMI  $\geq 40$  underwent TKR between 2001 and 2021.
- % of TKR’s performed in severely obese patients from 2001-2021 is summarised in Figure 3. This constitutes a 7.51% increase over the 20-year period, P = 0.0186.
- Mean BMI of these patients remained unchanged, 41.45 (SD 0.84) in 2001 versus 42.62 (SD 2.21) in 2021, P=0.124.
- Male vs Female split in these patients over the 20-year period can be seen in Figure 2.
- Mean age was unchanged, 61 (SD13.23) in 2001 and 63 (SD 8.89) in 2021, P = 0.807.
- Mean length of stay decreased from 7.33 (SD 1.53) to 2.50 (SD 1.33), from 2001-2021, P = 0.024.

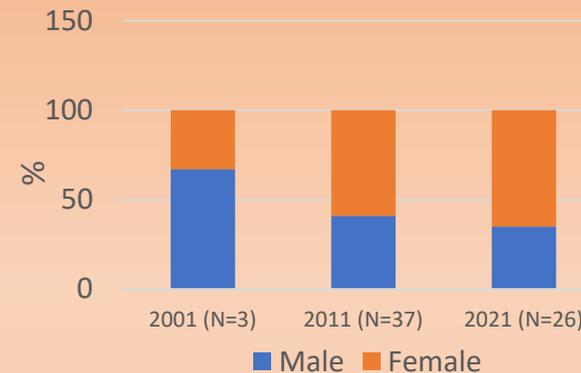


Figure 2. Male vs Female split in TKR patients with BMI  $\geq 40$ , 2001 vs 2011 vs 2021. N = number of patients



Figure 3. % of TKR’s performed in severely obese patients from 2001-2021

## Conclusion:

- Rates of severe obesity significantly increased in patients undergoing TKR, despite stable levels of severe obesity in the general population (*Scottish Health Survey 2018: main report - revised 2020, 2020*).
- Mean length of stay also decreased, likely due to the introduction of enhanced recovery after surgery programs in NHS Fife.

## References:

- Wallace, G., Judge, A., Prieto-Alhambra, D., de Vries, F., Arden, N. K., & Cooper, C. (2014). The effect of body mass index on the risk of post-operative complications during the 6 months following total hip replacement or total knee replacement surgery. *Osteoarthritis and cartilage*, 22(7), 918-927.
- Scottish Government (2020, February 21) *Scottish Health Survey 2018: main report - revised 2020*. <https://www.gov.scot/publications/scottish-health-survey-2018-volume-1-main-report/pages/62/>