



# Ethnic Minorities Have Equal Access to Bariatric Surgery in the UK and Ireland

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**Abstract** Under-representation of ethnic minority groups in bariatric surgery rates has been reported in the USA. Ethnic minorities form 7.9 % of the UK population, but comparable data on provision of bariatric surgery for these groups have not previously been reported in the UK. We calculated an estimate of rates of bariatric surgery amongst ethnic groups in the UK and Ireland using data from the National Bariatric Surgery Registry and census data from the UK and Ireland. The number of procedures recorded per 1,000 morbidly obese patients was 5.2 for Caucasian patients, 5.2 for Asian patients and 5.2 for Black patients. The identical rates across different ethnic groups suggest that bariatric services are provided equitably in the UK, with ethnic minority groups achieving equal access.

**Keywords** Bariatric surgery · Ethnicity · UK

## Background

A number of studies have explored disparities in the use of bariatric surgery according to race or ethnicity within the USA. Several authors have presented data from the Nationwide Inpatient Sample and reported disproportionately

higher rates of bariatric surgery amongst White patients than for ethnic minority groups based on prevalences of morbid obesity [1–3]; in contrast with the nationwide data, a recent study in Michigan using state databases found equitable use of bariatric surgery between racial groups in this population [4]. Healthcare providers, patient factors and societal variables have all been cited as possible explanations for the observed under-representation of ethnic minority groups in the USA, with authors speculating that lower referral rates to secondary care, negative patient perceptions regarding bariatric interventions or limited access to healthcare amongst these groups may underlie this trend [1].

Ethnic minority groups form 7.9 % of the UK population [5], but to date, comparable studies have not been published for ethnic groups in the UK. Here, we have analysed data from the UK and Ireland National Bariatric Surgery Registry (NBSR) to produce a first estimate. The NBSR published their first report in 2011; this is not a complete dataset for the UK and Ireland but is thought to represent around 80 % of bariatric surgical practice in the UK and Ireland [6].

## Methods

We retrospectively analysed data recorded for the NBSR from the 2011 NBSR report. The NBSR records data on patient ethnicity for every procedure performed at participating hospitals in the UK and Ireland. We used census data from the UK [5] and Ireland [7], along with measured prevalences of morbid obesity (BMI>40) for each ethnic group [8] to calculate estimates of the number of morbidly obese individuals in each ethnic group. We then compared rates of bariatric surgery per 1,000 morbidly obese

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individuals between ethnic groups as recorded on the NBSR dataset.

We have excluded from analysis groups where prevalence of morbid obesity was unknown ('mixed race', 'other ethnicity'). A significant proportion of individuals are listed on the census as 'other Asian' or 'other Black'. We do not have a known figure for the proportion of morbidly obese individuals within these groups, but for the purposes of our study, we have calculated an estimated figure using the mean value of known groups within each category. The NBSR groups together White races as 'Caucasian' and all Asian groups as 'Asian' but lists separately 'Black Afro-Caribbean' and 'Black-African'. To ensure similarity between groups, we have analysed the data as Caucasian, 'Asian-any' and 'Black-any' patient groups.

## Results

The census figures gave a combined population for the UK and Ireland of 63,314,475; 1,018,780 people were recorded as 'mixed', 'other ethnic group', 'other including mixed background' or 'not stated' and were excluded from further analysis, leaving a total population of 62,295,695. The population of each ethnic group is shown in Table 1.

A total of 6,483 procedures were recorded in the NBSR. In 1,213 cases, the patient's ethnicity was not recorded or recorded as 'other'; these were excluded from analysis, leaving 5,270 procedures. The rates of bariatric surgery for each ethnic group are shown in Table 2.

We found the number of procedures in the database performed per 1,000 morbidly obese patients to be 5.2 for Caucasian patients, 5.2 for patients of any Asian origin and 5.2 for Black patients.

**Table 1** UK and Ireland population by ethnic group

Ethnicity	UK and Ireland population ( $\times 1,000$ )	Percentage of population with BMI > 40 (%)	Population with BMI > 40 (3sf)
White British/Irish	58,418	1.65	964,000
Asian Indian	1,053	0.80	8,420
Asian Pakistani	747.3	1.55	11,600
Asian Bangladeshi	283.1	0.45	1,270
Other Asian	314.5	0.78	2,440
Black African	544.0	2.65	14,400
Black Caribbean	565.9	2.20	12,400
Other Black	104.3	2.43	2,530
Chinese	265.2	0.30	796

**Table 2** Rates of bariatric surgery by ethnic group in UK and Ireland

Ethnicity	Total population with BMI > 40	No. of bariatric procedures recorded	Bariatric procedures/1,000 morbidly obese
Caucasian	964,000	4,989	5.2
Asian-any	24,540	128	5.2
Black-any	29,430	153	5.2

## Conclusion

These figures are remarkably consistent between groups and show no differences between rates of bariatric surgery amongst Caucasian, Asian or Black patients in the UK and Ireland. There are a number of potential sources of error in our estimated figures. The absolute number of procedures per 1,000 morbidly obese patients will be an underestimate; at the time of publication of the NBSR, it was thought to represent around 80 % of bariatric practice in the UK. There will be considerable regional variation across the UK in the population of ethnic groups, and since the NBSR dataset is not complete, those surgeons who were not submitting data may serve populations with certain ethnic group populations outside the national average. Similarly, whilst data from private hospitals are included in the NBSR, either over- or under-representation of private practice in these figures may distort the figures if any ethnic group receives more or less care within the private sector.

The latest available census figures are from 2001 (UK) and 2011 (Ireland), and the estimates of morbid obesity are from 2004, whilst the vast majority of data in the NBSR were from 2008 to 2010; consequently, the prevalence of morbid obesity and population figures will have changed across these time periods. For patients listed on the census as other Asian or other Black, our derived estimate for the prevalence of morbid obesity introduces a further potential source of error.

Co-morbidities that strengthen the indication for bariatric surgery are more frequent in certain ethnic groups and may occur at comparatively lower BMI (e.g. diabetes in Asian ethnic groups); our figures do not account for these differences. We have excluded from analysis groups where a derived figure for the proportion of morbidly obese individuals could not be reliably estimated, i.e. mixed race and other ethnicity; therefore, we cannot comment on the provision of bariatric surgery for these groups. There may also be errors in entering data on ethnicity on the NBSR, and the limited number of subgroups on the NBSR restricts further analysis.

In spite of these limitations, we feel that this work demonstrates consistency in the rates of bariatric surgery between ethnic groups in the UK and Ireland and strongly suggests that these services are being provided equitably.

**Conflict of interest** The authors declare that they have no potential conflicts of interest.

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