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Public Health
England

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Introduction

Childhood obesity is one of the most serious global public health challenges of the 21st century.¹ Obese children and adolescents are at an increased risk of developing various health problems and are more likely to become obese adults;² there is a clear need for understanding and early prevention.

Analyses of the National Child Measurement Programme (NCMP) data have demonstrated that the obesity prevalence of 4 to 5 year olds and 10 to 11 year olds in England varies by ethnic group.^{3 4} It is often assumed that these differences are due to deprivation and other known determinants of child obesity which are sometimes associated with ethnicity. The tables and charts presented here show how obesity prevalence varies by ethnicity after adjustment for other explanatory variables.

Data

The NCMP is an annual programme that measures the height and weight of over 1 million children in Reception (aged 4 to 5 years) and Year 6 (aged 10 to 11 years) in state maintained schools in England. Although the NCMP only covers certain age groups, it includes the majority of children in those year groups. This study uses NCMP data collected in the 2016 to 2017 school year when there was an overall 95% participation rate.⁵

Assessing the body mass index (BMI, weight/height²) of children is more complicated than for adults because a child's BMI changes as they mature. In England the British 1990 growth reference (UK90) for BMI is commonly used to determine weight status according to a child's age and sex.⁶ A UK90 BMI centile of greater than or equal to 95 is considered obese using population monitoring thresholds and is the definition of obesity used here.

Socioeconomic status was classified using the Index of Multiple Deprivation (IMD) (2015).⁷ Ethnic group was allocated using the NHS ethnicity coding scheme.⁸ Numbers of children in many of these detailed ethnic groups are small so they were aggregated to the summary ethnic groups shown in Table 1 for analysis purposes.

Table 1. Summary ethnic groups used in the analysis

NHS ethnicity code	Summary ethnic group
A - British	White
B - Irish	White
C - Any other White background	White
H - Indian	Asian
J - Pakistani	Asian
K - Bangladeshi	Asian
L - Any other Asian background	Asian
F - White and Asian	Asian
M - Caribbean	Black
N - African	Black
D - White and Black Caribbean	Black
E - White and Black African	Black
P - Any other Black background	Black
R - Chinese	Other
G - Any other mixed background	Other

S - Any other ethnic group	Other
Z - Not stated	Not stated or unknown
Missing	Not stated or unknown

Method

Separate multivariable logistic regression models were built for each sex and year group measured by NCMP: Year 6 boys, Year 6 girls, Reception boys, and Reception girls. A binary obesity variable (yes/no) was used as the dependent variable in all models. Two sets of explanatory variables were considered from those available in NCMP data which are known to influence child weight status.^{9 10} The first set of explanatory variables includes pupil age in months, quarter of measurement (in the academic year), national deprivation quintile, summary ethnicity, government office region, and the urban or rural status of the lower super output area (LSOA) of the child residence. The second set of explanatory variables includes, in addition, child height. Deprivation and ethnicity were modelled with an interaction term to accommodate possible differences in the socioeconomic gradient of obesity between ethnic groups.

Height was included in the second set of models in order to remove the residual correlation between height and obesity that tends to be associated with measures of BMI in children. Although height can itself be correlated with body fat¹¹ it may also reflect pubertal status or other differences between ethnic groups. For example Black African and Black Caribbean children have been found to be on average taller, and South Asians shorter, than White children.¹²

All models were fitted in R.¹³ The R emmeans package¹⁴ was used to obtain the marginal predicted probability of obesity by deprivation and ethnicity from each of the fitted models, averaging over the other model variables. The ethnic disparity in obesity was calculated as the contrast (difference) between the predicted probability of obesity in each deprivation quintile and each summary ethnic group compared to White British, with 95% confidence intervals. An adjustment was made to the width of the confidence intervals using the Dunnett method to reflect multiple significance testing.

Results and interpretation

Table 2 gives the number of children in each of the variable categories.

Table 2. Number of children by category in study data

Variable	Category	All children	Year 6 girls	Year 6 boys	Reception girls	Reception boys
Ethnicity	White	754,178	171,659	179,675	196,869	205,975
	Asian	123,209	28,002	29,369	32,424	33,414
	Black	76,384	18,604	18,809	19,150	19,821
	Other	50,290	10,820	11,409	13,557	14,504

	Not stated or unknown	179,310	42,729	44,227	45,347	47,007
Deprivation quintile	1 - most deprived	306,826	70,510	72,365	80,434	83,517
	2	248,298	56,391	58,477	65,136	68,294
	3	215,874	49,081	51,715	56,304	58,774
	4	204,833	47,065	49,329	53,161	55,278
	5 - least deprived	207,540	48,767	51,603	52,312	54,858
Obese	No	1,012,013	222,550	221,797	279,071	288,595
	Yes	171,358	49,264	61,692	28,276	32,126
Quarter of measurement	September to November	393,632	125,580	130,005	67,854	70,193
	December to February	369,401	70,957	74,719	109,413	114,312
	March to May	339,830	61,462	64,103	104,811	109,454
	June to August	80,508	13,815	14,662	25,269	26,762
Settlement type	Urban	988,616	225,590	235,116	258,307	269,603
	Town	97,292	22,753	23,876	24,720	25,943
	Village	97,463	23,471	24,497	24,320	25,175
Region	South East	187,518	42,615	44,354	49,236	51,313
	North East	56,958	13,521	13,879	14,469	15,089
	North West	161,440	37,429	39,353	41,619	43,039
	Yorkshire and The Humber	120,904	27,947	29,089	31,355	32,513
	East Midlands	99,757	23,192	24,247	25,574	26,744
	West Midlands	132,177	30,742	31,515	34,098	35,822
	East	132,805	29,949	31,673	34,847	36,336
	London	184,878	42,425	43,849	48,301	50,303
	South West	106,934	23,994	25,530	27,848	29,562
Total		1,183,371	271,814	283,489	307,347	320,721

Source: National Child Measurement Programme 2016 to 2017, children with valid height, weight, BMI and home postcode

Predicted ethnic disparities in obesity calculated using each of the eight regression models are given in tables and charts below. As noted the ethnic disparity in obesity compares to White British children in the same deprivation quintile and is highlighted in the tables. A positive value for the disparity indicates that children in the given ethnic group and deprivation quintile have, on average, a higher prevalence of obesity than corresponding White British children. A negative value for the disparity indicates that children in the given ethnic group and deprivation quintile have, on average, a lower prevalence of obesity than corresponding White British children.

Main findings

Ethnicity has an independent effect on obesity prevalence in both Year 6 and Reception boys and girls after pupil age in months, quarter of measurement, national deprivation quintile, height, government office region, and the urban/rural status of the LSOA of the child residence are taken into account.

Ethnic disparities in obesity prevalence are in general greater in Year 6 than in Reception, and there are smaller disparities between the sexes in Reception than in Year 6.

Including height in the models reduces the disparity in predicted obesity prevalence for Black children compared to White children, but has little effect for Asian children.

Controlling for height suggests that previous findings showing that children from Black backgrounds are more likely to be obese³ are to some extent due to physical characteristics related to ethnicity, in particular height.

Year 6 Black boys in the most deprived quintile have a predicted obesity prevalence that is on average 2.6 percentage points lower than equivalent White boys after adjustment for other factors including height. In models excluding height Year 6 Black boys in the most deprived quintile have a predicted obesity prevalence that is on average 3.3 percentage points higher than equivalent White boys after adjustment for other factors.

Year 6 Asian boys in the most deprived quintile have a predicted obesity prevalence that is on average 5.2 percentage points higher than equivalent White boys after adjustment for other factors including height. In models excluding height Year 6 Asian boys in the most deprived quintile have a predicted obesity prevalence that is on average 5.5 percentage points higher than equivalent White boys after adjustment for other factors

Year 6 Asian girls in the most deprived quintile have a predicted obesity prevalence that is on average 0.5 percentage points lower than equivalent White girls after adjustment for other factors including height. In models excluding height Year 6 Asian girls in the most deprived quintile have a predicted obesity prevalence that is on average 0.2 percentage points lower than equivalent White girls after adjustment for other factors.

The disparity in predicted obesity prevalence for Year 6 Asian girls compared to equivalent White girls is on average less than $\pm 1\%$ across deprivation quintiles and models. This is considerably smaller than the predicted disparity for Year 6 Asian boys compared to equivalent White boys.

The disparity in predicted obesity prevalence for Year 6 Black girls compared to equivalent White girls is greater than the predicted disparity in obesity prevalence for Year 6 Black boys compared to equivalent White boys. This is the opposite of the pattern seen in Asian children.

Year 6 Black girls in the most deprived quintile have a predicted obesity prevalence that is on average 0.2 percentage points higher than equivalent White girls after adjustment for other factors including height. In models excluding height Year 6 Black girls in the most deprived quintile have a predicted obesity prevalence that is on average 7.0 percentage points higher than equivalent White girls after adjustment for other factors.

For Black children, the adjusted disparities in obesity prevalence tend to increase with decreasing deprivation, despite overall obesity prevalence declining as deprivation declines, it does not decline as rapidly in Black children as White children. There is no clear pattern in disparity by deprivation decile in Asian children.

Limitations and recommendation for future research

As the data used comprised only one year of NCMP, the number of children from Asian and Black ethnic groups was not large enough to allow analysis by detailed ethnic group. The summary ethnic groups considered here, therefore, each includes a number of constituent groups which may have different sociodemographic and physical characteristics. This is also the case for the other groups included, for example, children from the Chinese ethnic group were included in 'Other'.

BMI acts as a proxy for lean and fat mass but does not reflect body composition or fat distribution. Inter-ethnic differences in body composition are a confounding factor in comparing obesity levels between ethnic groups: BMI has been found to underestimate body fat in South Asian children and over-estimate body fat in Black African children.¹⁵ Nevertheless, BMI is non-invasive, quick, easy, cost-effective and very useful as a population measure, such as in the NCMP. It provides consistency in child weight status measurement over time, enabling reliable monitoring of trends and remains the most commonly used, widely accepted, and practical measure of obesity in both children and adults.¹⁶

Further work is required to identify ethnic disparities in obesity using more specific ethnic groups than was possible here, potentially combining more years of NCMP data. It would also be informative to examine ethnic disparities in other weight categories such as severe obesity or overweight including obese.

Results tables and charts for models not including height

Year 6 boys

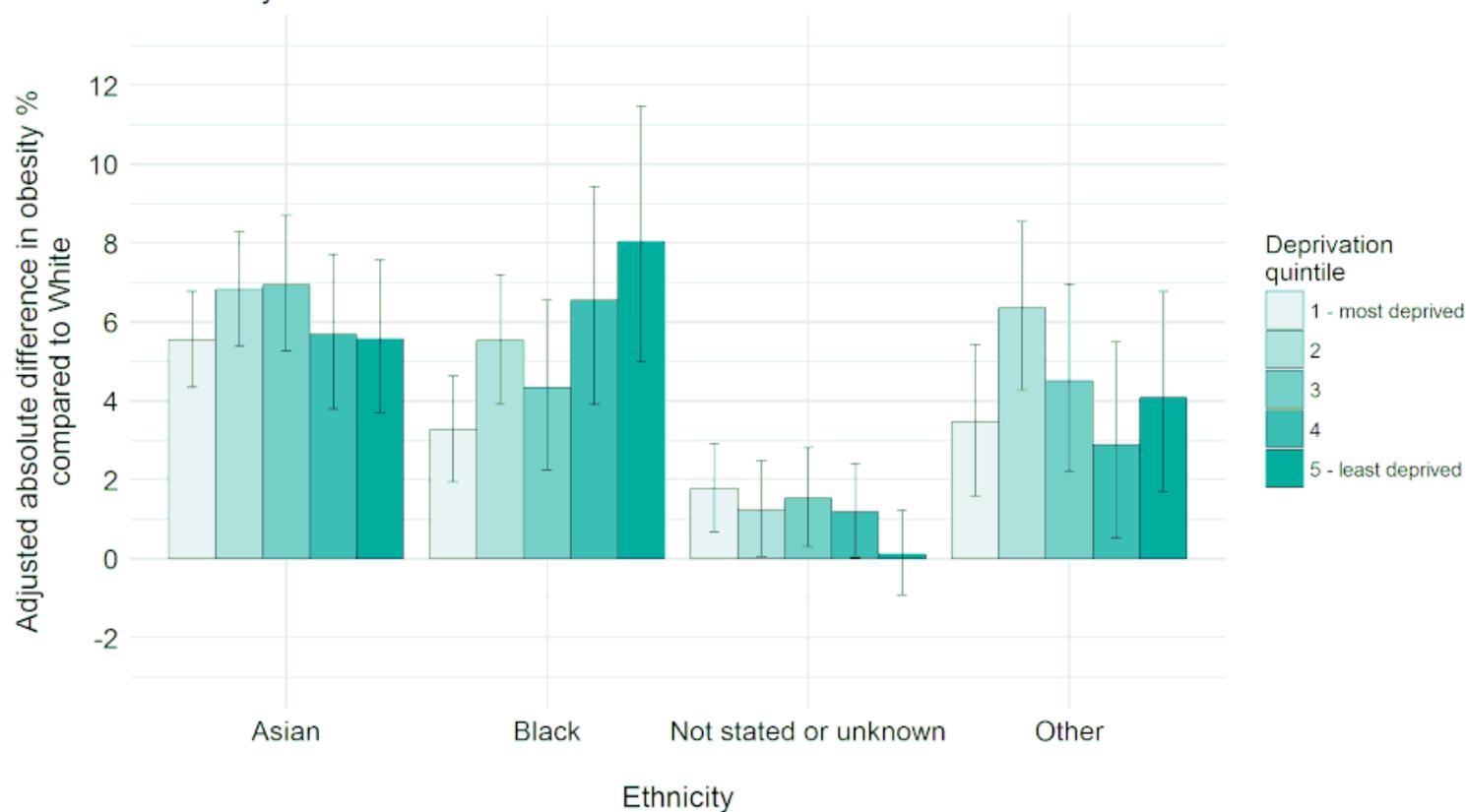
Table 3. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile: Year 6 boys

Reference ethnicity	Reference IMD quintile	Contrast ethnicity	Contrast IMD quintile	Adjusted prevalence of obesity of reference ethnicity and IMD	Absolute disparity in adjusted prevalence of obesity of contrast ethnicity and IMD	Disparity lower 95% confidence limit	Disparity upper 95% confidence limit
White	1	Asian	1	24.7%	5.5%	4.3%	6.8%
White	1	Black	1	24.7%	3.3%	1.9%	4.6%

Differences in child obesity by ethnic group - GOV.UK

White	1	Other	1	24.7%	3.5%	1.6%	5.4%
White	1	Not stated or unknown	1	24.7%	1.8%	0.7%	2.9%
White	2	Asian	2	22.1%	6.8%	5.4%	8.3%
White	2	Black	2	22.1%	5.5%	3.9%	7.2%
White	2	Other	2	22.1%	6.4%	4.3%	8.5%
White	2	Not stated or unknown	2	22.1%	1.2%	0.0%	2.5%
White	3	Asian	3	19.2%	6.9%	5.3%	8.7%
White	3	Black	3	19.2%	4.3%	2.2%	6.6%
White	3	Other	3	19.2%	4.5%	2.2%	7.0%
White	3	Not stated or unknown	3	19.2%	1.5%	0.3%	2.8%
White	4	Asian	4	16.5%	5.7%	3.8%	7.7%
White	4	Black	4	16.5%	6.6%	3.9%	9.4%
White	4	Other	4	16.5%	2.9%	0.5%	5.5%
White	4	Not stated or unknown	4	16.5%	1.2%	0.0%	2.4%
White	5	Asian	5	13.1%	5.6%	3.7%	7.6%
White	5	Black	5	13.1%	8.0%	5.0%	11.5%
White	5	Other	5	13.1%	4.1%	1.7%	6.8%
White	5	Not stated or unknown	5	13.1%	0.1%	-0.9%	1.2%

Figure 1. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile:
Year 6 Boys



In addition to ethnicity and deprivation, model also adjusted for age at measurement, month of measurement, government office region and urban/rural residence

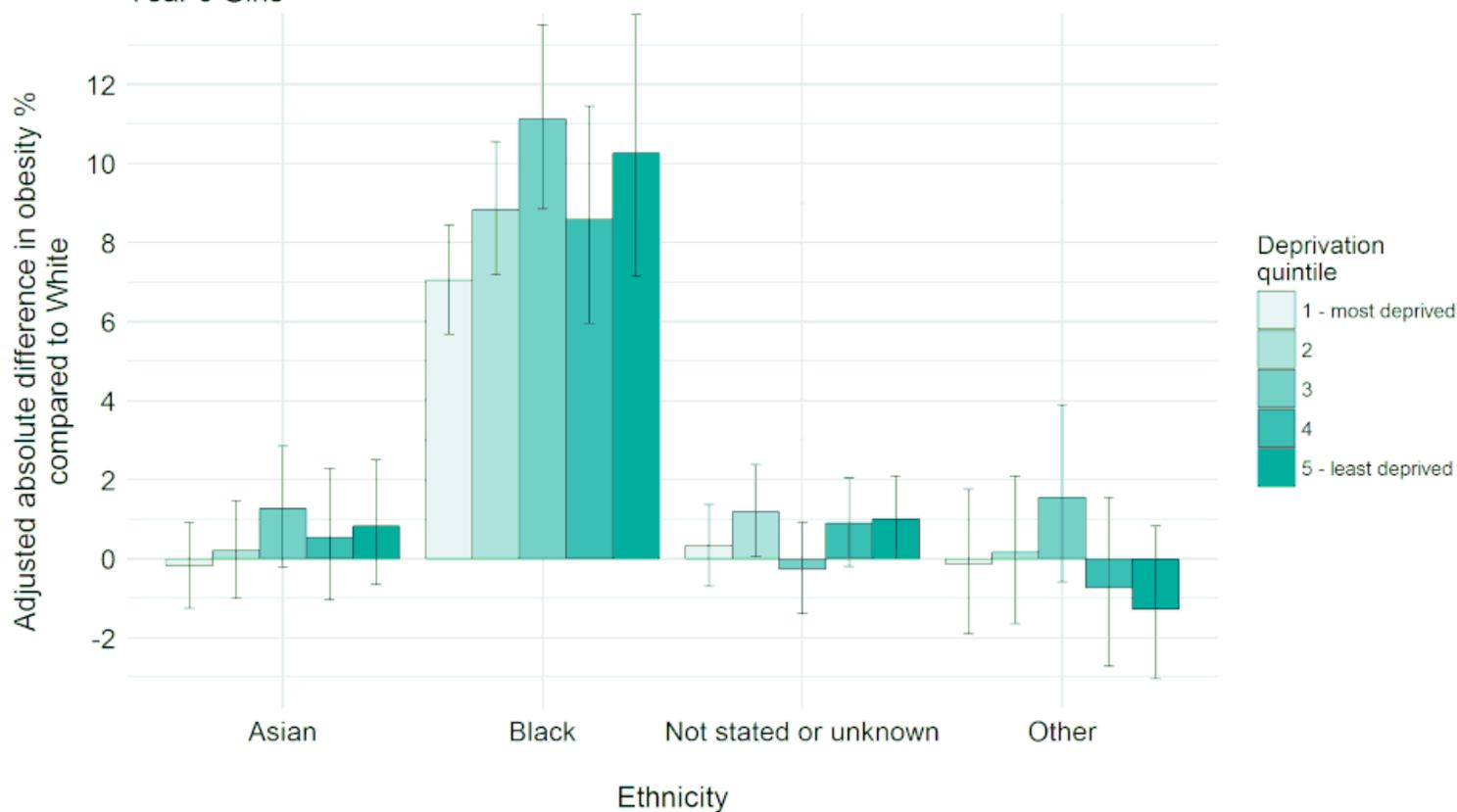
Year 6 girls

Table 4. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile: Year 6 girls

Reference ethnicity	Reference IMD quintile	Contrast ethnicity	Contrast IMD quintile	Adjusted prevalence of obesity of reference ethnicity and IMD	Absolute disparity in adjusted prevalence of obesity of contrast ethnicity and IMD	Disparity lower 95% confidence limit	Disparity upper 95% confidence limit
White	1	Asian	1	21.6%	-0.2%	-1.2%	0.9%
White	1	Black	1	21.6%	7.0%	5.7%	8.5%
White	1	Other	1	21.6%	-0.1%	-1.9%	1.8%
White	1	Not stated or unknown	1	21.6%	0.3%	-0.7%	1.4%
White	2	Asian	2	18.7%	0.2%	-1.0%	1.5%
White	2	Black	2	18.7%	8.8%	7.2%	10.5%

White	2	Other	2	18.7%	0.2%	-1.6%	2.1%
White	2	Not stated or unknown	2	18.7%	1.2%	0.0%	2.4%
White	3	Asian	3	16.5%	1.3%	-0.2%	2.9%
White	3	Black	3	16.5%	11.1%	8.8%	13.5%
White	3	Other	3	16.5%	1.5%	-0.6%	3.9%
White	3	Not stated or unknown	3	16.5%	-0.3%	-1.4%	0.9%
White	4	Asian	4	13.5%	0.5%	-1.0%	2.3%
White	4	Black	4	13.5%	8.6%	6.0%	11.4%
White	4	Other	4	13.5%	-0.7%	-2.7%	1.5%
White	4	Not stated or unknown	4	13.5%	0.9%	-0.2%	2.1%
White	5	Asian	5	10.7%	0.8%	-0.7%	2.5%
White	5	Black	5	10.7%	10.3%	7.1%	13.8%
White	5	Other	5	10.7%	-1.3%	-3.0%	0.8%
White	5	Not stated or unknown	5	10.7%	1.0%	0.0%	2.1%

Figure 2. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile:
Year 6 Girls



Reception boys

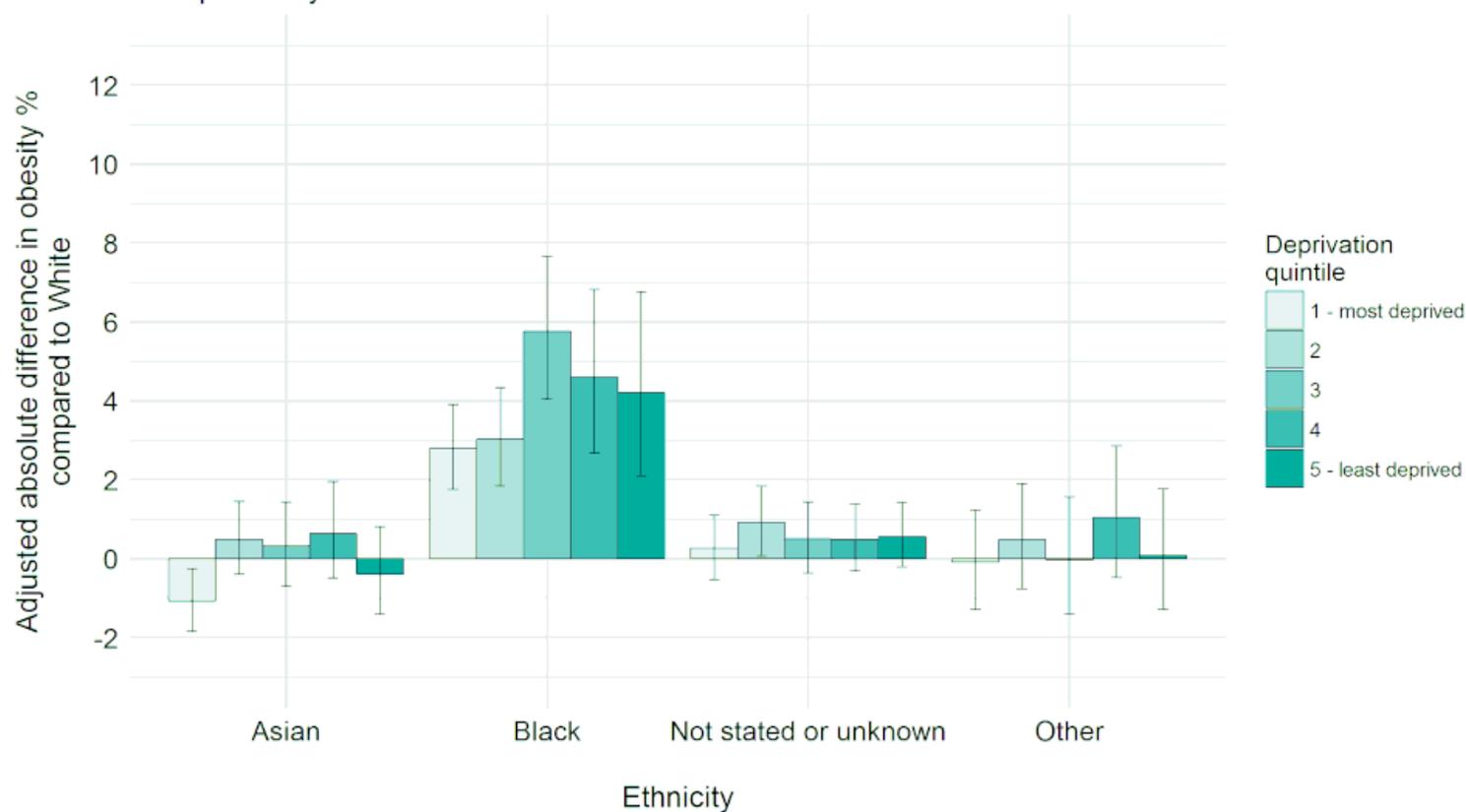
Table 5. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile: Reception boys

Reference ethnicity	Reference IMD quintile	Contrast ethnicity	Contrast IMD quintile	Adjusted prevalence of obesity of reference ethnicity and IMD	Absolute disparity in adjusted prevalence of obesity of contrast ethnicity and IMD	Disparity lower 95% confidence limit	Disparity upper 95% confidence limit
White	1	Asian	1	12.7%	-1.1%	-1.8%	-0.3%
White	1	Black	1	12.7%	2.8%	1.8%	3.9%
White	1	Other	1	12.7%	-0.1%	-1.3%	1.2%
White	1	Not stated or unknown	1	12.7%	0.3%	-0.5%	1.1%
White	2	Asian	2	10.6%	0.5%	-0.4%	1.4%

Differences in child obesity by ethnic group - GOV.UK

White	2	Black	2	10.6%	3.0%	1.8%	4.3%
White	2	Other	2	10.6%	0.5%	-0.8%	1.9%
White	2	Not stated or unknown	2	10.6%	0.9%	0.1%	1.8%
White	3	Asian	3	9.2%	0.3%	-0.7%	1.4%
White	3	Black	3	9.2%	5.8%	4.0%	7.7%
White	3	Other	3	9.2%	0.0%	-1.4%	1.6%
White	3	Not stated or unknown	3	9.2%	0.5%	-0.4%	1.4%
White	4	Asian	4	7.8%	0.6%	-0.5%	1.9%
White	4	Black	4	7.8%	4.6%	2.7%	6.8%
White	4	Other	4	7.8%	1.0%	-0.5%	2.9%
White	4	Not stated or unknown	4	7.8%	0.5%	-0.3%	1.4%
White	5	Asian	5	6.5%	-0.4%	-1.4%	0.8%
White	5	Black	5	6.5%	4.2%	2.1%	6.8%
White	5	Other	5	6.5%	0.1%	-1.3%	1.8%
White	5	Not stated or unknown	5	6.5%	0.6%	-0.2%	1.4%

Figure 3. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile:
Reception Boys



In addition to ethnicity and deprivation, model also adjusted for age at measurement, month of measurement, government office region and urban/rural residence

Reception girls

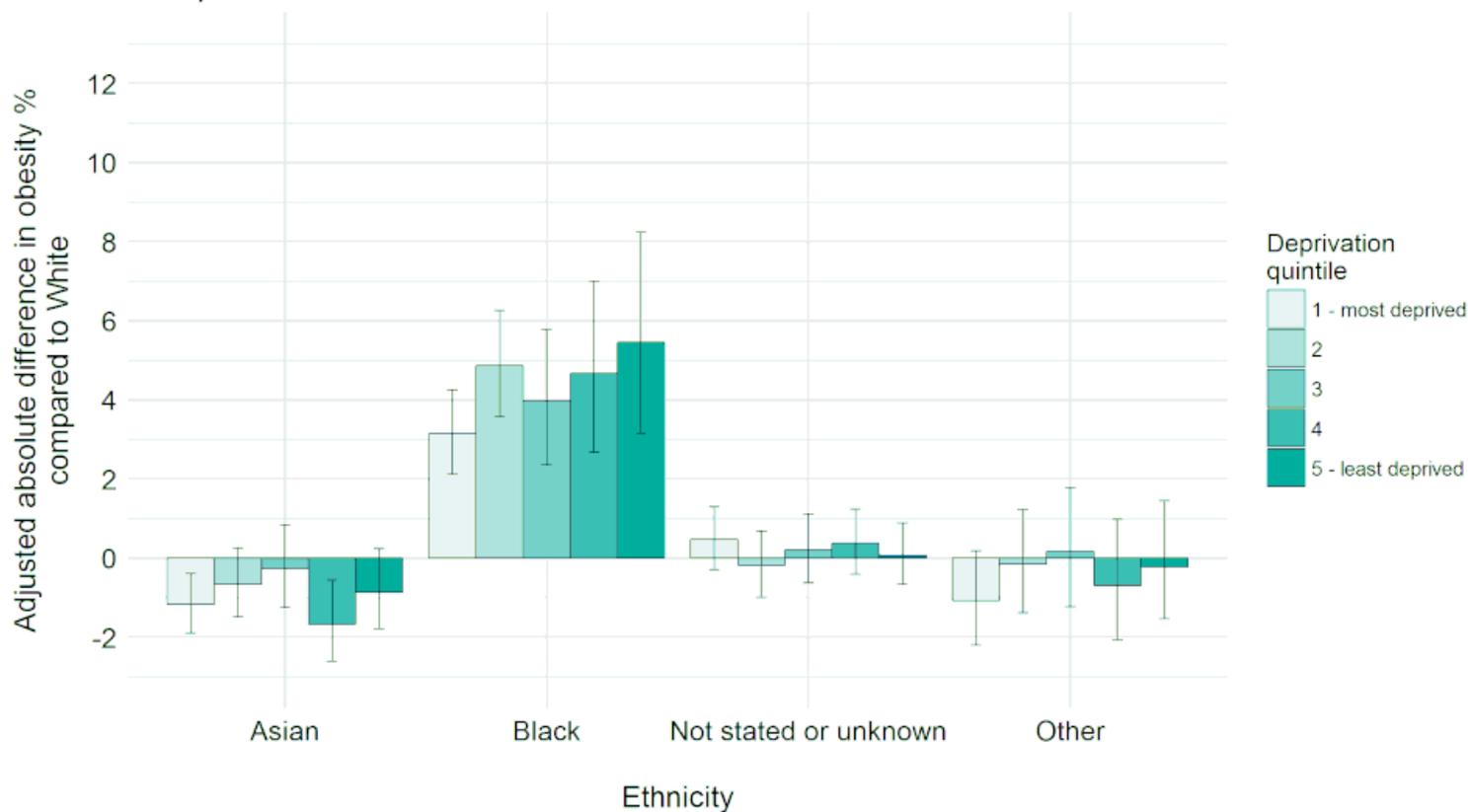
Table 6. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile: Reception girls

Reference ethnicity	Reference IMD quintile	Contrast ethnicity	Contrast IMD quintile	Adjusted prevalence of obesity of reference ethnicity and IMD	Absolute disparity in adjusted prevalence of obesity of contrast ethnicity and IMD	Disparity lower 95% confidence limit	Disparity upper 95% confidence limit
White	1	Asian	1	11.5%	-1.2%	-1.9%	-0.4%
White	1	Black	1	11.5%	3.1%	2.1%	4.2%
White	1	Other	1	11.5%	-1.1%	-2.2%	0.2%
White	1	Not stated or unknown	1	11.5%	0.5%	-0.3%	1.3%
White	2	Asian	2	10.0%	-0.7%	-1.5%	0.2%

Differences in child obesity by ethnic group - GOV.UK

White	2	Black	2	10.0%	4.9%	3.6%	6.3%
White	2	Other	2	10.0%	-0.2%	-1.4%	1.2%
White	2	Not stated or unknown	2	10.0%	-0.2%	-1.0%	0.7%
White	3	Asian	3	8.7%	-0.3%	-1.2%	0.8%
White	3	Black	3	8.7%	4.0%	2.4%	5.8%
White	3	Other	3	8.7%	0.2%	-1.2%	1.8%
White	3	Not stated or unknown	3	8.7%	0.2%	-0.6%	1.1%
White	4	Asian	4	7.4%	-1.7%	-2.6%	-0.6%
White	4	Black	4	7.4%	4.7%	2.7%	7.0%
White	4	Other	4	7.4%	-0.7%	-2.1%	1.0%
White	4	Not stated or unknown	4	7.4%	0.4%	-0.4%	1.2%
White	5	Asian	5	6.0%	-0.9%	-1.8%	0.2%
White	5	Black	5	6.0%	5.5%	3.2%	8.2%
White	5	Other	5	6.0%	-0.2%	-1.5%	1.4%
White	5	Not stated or unknown	5	6.0%	0.1%	-0.7%	0.9%

Figure 4. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile:
Reception Girls



In addition to ethnicity and deprivation, model also adjusted for age at measurement, month of measurement, government office region and urban/rural residence

Results tables and charts for models including height

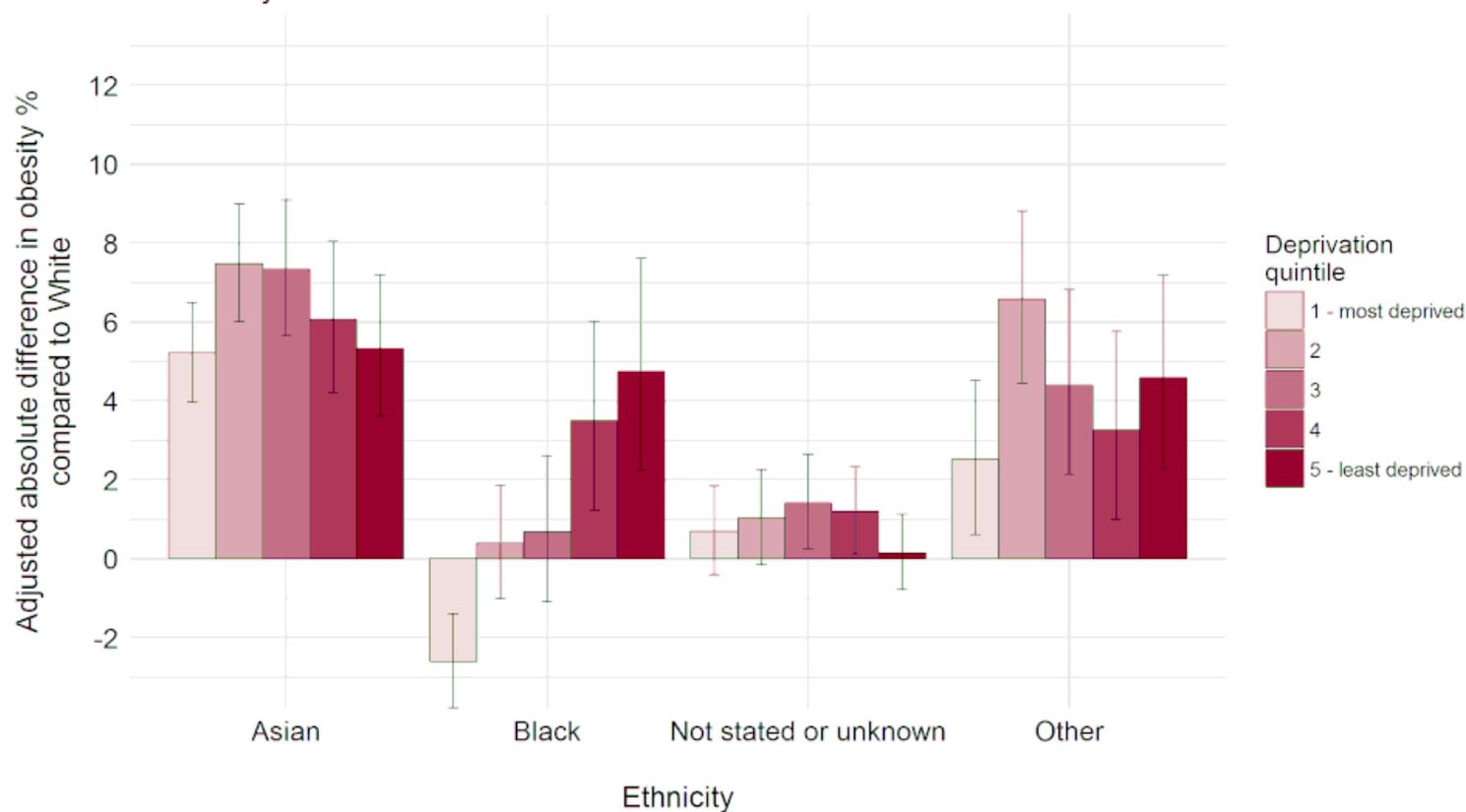
Year 6 boys

Table 7. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile: Year 6 boys

Reference ethnicity	Reference IMD quintile	Contrast ethnicity	Contrast IMD quintile	Adjusted prevalence of obesity of reference ethnicity and IMD	Absolute disparity in adjusted prevalence of obesity of contrast ethnicity and IMD	Disparity lower 95% confidence limit	Disparity upper 95% confidence limit
White	1	Asian	1	24.3%	5.2%	4.0%	6.5%
White	1	Black	1	24.3%	-2.6%	-3.8%	-1.4%
White	1	Other	1	24.3%	2.5%	0.6%	4.5%
White	1	Not stated or unknown	1	24.3%	0.7%	-0.4%	1.8%

White	2	Asian	2	20.7%	7.5%	6.0%	9.0%
White	2	Black	2	20.7%	0.4%	-1.0%	1.8%
White	2	Other	2	20.7%	6.6%	4.5%	8.8%
White	2	Not stated or unknown	2	20.7%	1.0%	-0.2%	2.3%
White	3	Asian	3	17.4%	7.3%	5.6%	9.1%
White	3	Black	3	17.4%	0.7%	-1.1%	2.6%
White	3	Other	3	17.4%	4.4%	2.1%	6.8%
White	3	Not stated or unknown	3	17.4%	1.4%	0.2%	2.6%
White	4	Asian	4	14.4%	6.1%	4.2%	8.1%
White	4	Black	4	14.4%	3.5%	1.2%	6.0%
White	4	Other	4	14.4%	3.3%	1.0%	5.8%
White	4	Not stated or unknown	4	14.4%	1.2%	0.1%	2.3%
White	5	Asian	5	11.0%	5.3%	3.6%	7.2%
White	5	Black	5	11.0%	4.7%	2.2%	7.6%
White	5	Other	5	11.0%	4.6%	2.3%	7.2%
White	5	Not stated or unknown	5	11.0%	0.1%	-0.8%	1.1%

Figure 5. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile:
Year 6 Boys



In addition to ethnicity and deprivation, model also adjusted for age at measurement, month of measurement, government office region, urban/rural residence and height

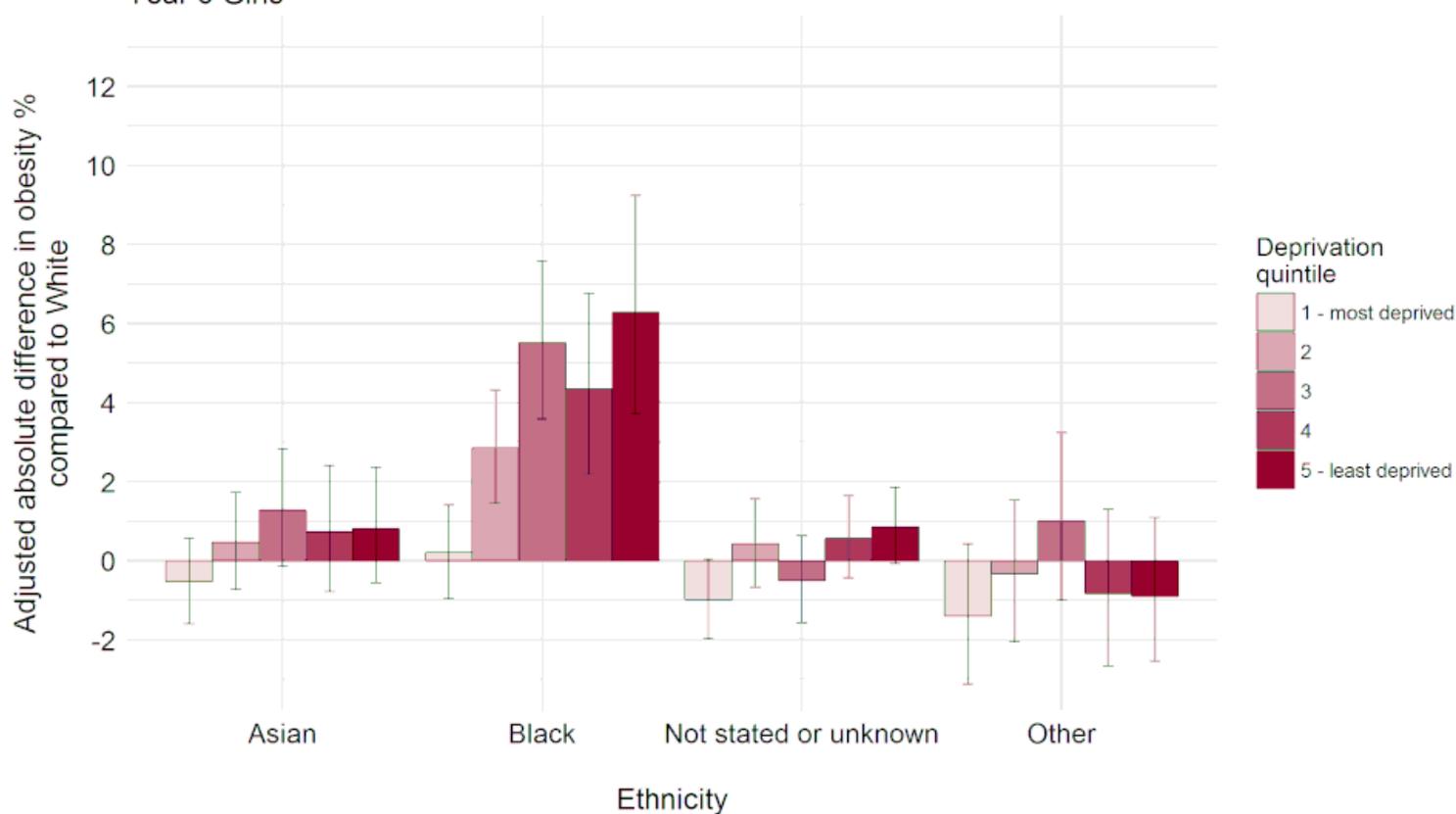
Year 6 girls

Table 8. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile: Year 6 girls

Reference ethnicity	Reference IMD quintile	Contrast ethnicity	Contrast IMD quintile	Adjusted prevalence of obesity of reference ethnicity and IMD	Absolute disparity in adjusted prevalence of obesity of contrast ethnicity and IMD	Disparity lower 95% confidence limit	Disparity upper 95% confidence limit
White	1	Asian	1	21.0%	-0.5%	-1.6%	0.6%
White	1	Black	1	21.0%	0.2%	-1.0%	1.4%
White	1	Other	1	21.0%	-1.4%	-3.1%	0.4%
White	1	Not stated or unknown	1	21.0%	-1.0%	-2.0%	0.0%
White	2	Asian	2	17.6%	0.5%	-0.7%	1.7%
White	2	Black	2	17.6%	2.8%	1.5%	4.3%

White	2	Other	2	17.6%	-0.3%	-2.1%	1.5%
White	2	Not stated or unknown	2	17.6%	0.4%	-0.7%	1.6%
White	3	Asian	3	15.2%	1.3%	-0.1%	2.8%
White	3	Black	3	15.2%	5.5%	3.6%	7.6%
White	3	Other	3	15.2%	1.0%	-1.0%	3.2%
White	3	Not stated or unknown	3	15.2%	-0.5%	-1.6%	0.6%
White	4	Asian	4	12.2%	0.7%	-0.8%	2.4%
White	4	Black	4	12.2%	4.3%	2.2%	6.8%
White	4	Other	4	12.2%	-0.8%	-2.7%	1.3%
White	4	Not stated or unknown	4	12.2%	0.6%	-0.4%	1.6%
White	5	Asian	5	9.5%	0.8%	-0.6%	2.4%
White	5	Black	5	9.5%	6.3%	3.7%	9.2%
White	5	Other	5	9.5%	-0.9%	-2.5%	1.1%
White	5	Not stated or unknown	5	9.5%	0.9%	-0.1%	1.9%

Figure 6. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile:
Year 6 Girls



In addition to ethnicity and deprivation, model also adjusted for age at measurement, month of measurement, government office region, urban/rural residence and height

Reception boys

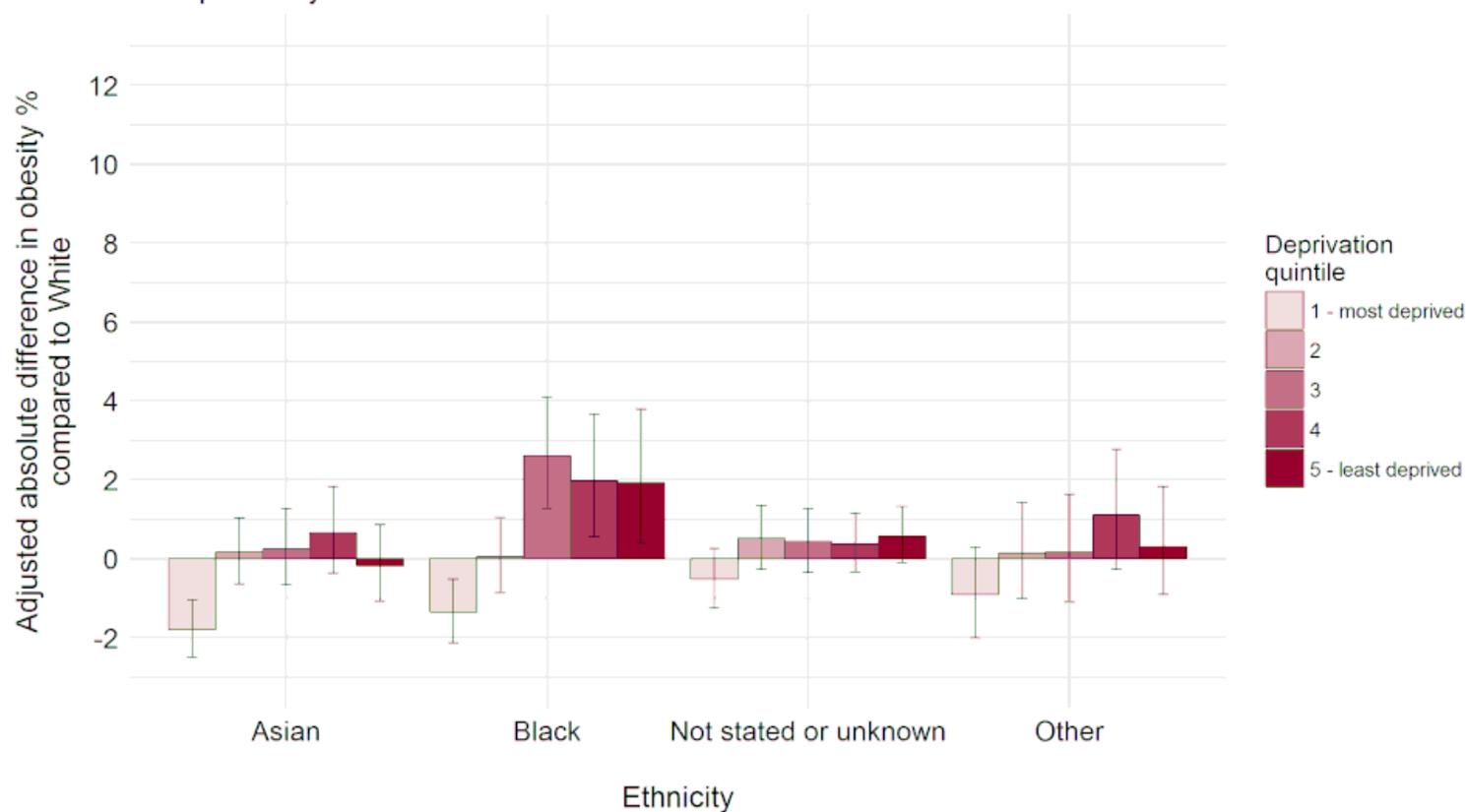
Table 9. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile: Reception boys

Reference ethnicity	Reference IMD quintile	Contrast ethnicity	Contrast IMD quintile	Adjusted prevalence of obesity of reference ethnicity and IMD	Absolute disparity in adjusted prevalence of obesity of contrast ethnicity and IMD	Disparity lower 95% confidence limit	Disparity upper 95% confidence limit
White	1	Asian	1	12.0%	-1.8%	-2.5%	-1.1%
White	1	Black	1	12.0%	-1.4%	-2.1%	-0.5%
White	1	Other	1	12.0%	-0.9%	-2.0%	0.3%
White	1	Not stated or unknown	1	12.0%	-0.5%	-1.3%	0.3%
White	2	Asian	2	9.6%	0.2%	-0.6%	1.0%

Differences in child obesity by ethnic group - GOV.UK

White	2	Black	2	9.6%	0.0%	-0.9%	1.0%
White	2	Other	2	9.6%	0.1%	-1.0%	1.4%
White	2	Not stated or unknown	2	9.6%	0.5%	-0.3%	1.4%
White	3	Asian	3	8.1%	0.3%	-0.7%	1.3%
White	3	Black	3	8.1%	2.6%	1.3%	4.1%
White	3	Other	3	8.1%	0.2%	-1.1%	1.6%
White	3	Not stated or unknown	3	8.1%	0.4%	-0.4%	1.3%
White	4	Asian	4	6.7%	0.6%	-0.4%	1.8%
White	4	Black	4	6.7%	2.0%	0.6%	3.7%
White	4	Other	4	6.7%	1.1%	-0.3%	2.8%
White	4	Not stated or unknown	4	6.7%	0.4%	-0.3%	1.2%
White	5	Asian	5	5.5%	-0.2%	-1.1%	0.9%
White	5	Black	5	5.5%	1.9%	0.4%	3.8%
White	5	Other	5	5.5%	0.3%	-0.9%	1.8%
White	5	Not stated or unknown	5	5.5%	0.6%	-0.1%	1.3%

Figure 7. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile:
Reception Boys



In addition to ethnicity and deprivation, model also adjusted for age at measurement, month of measurement, government office region, urban/rural residence and height

Reception girls

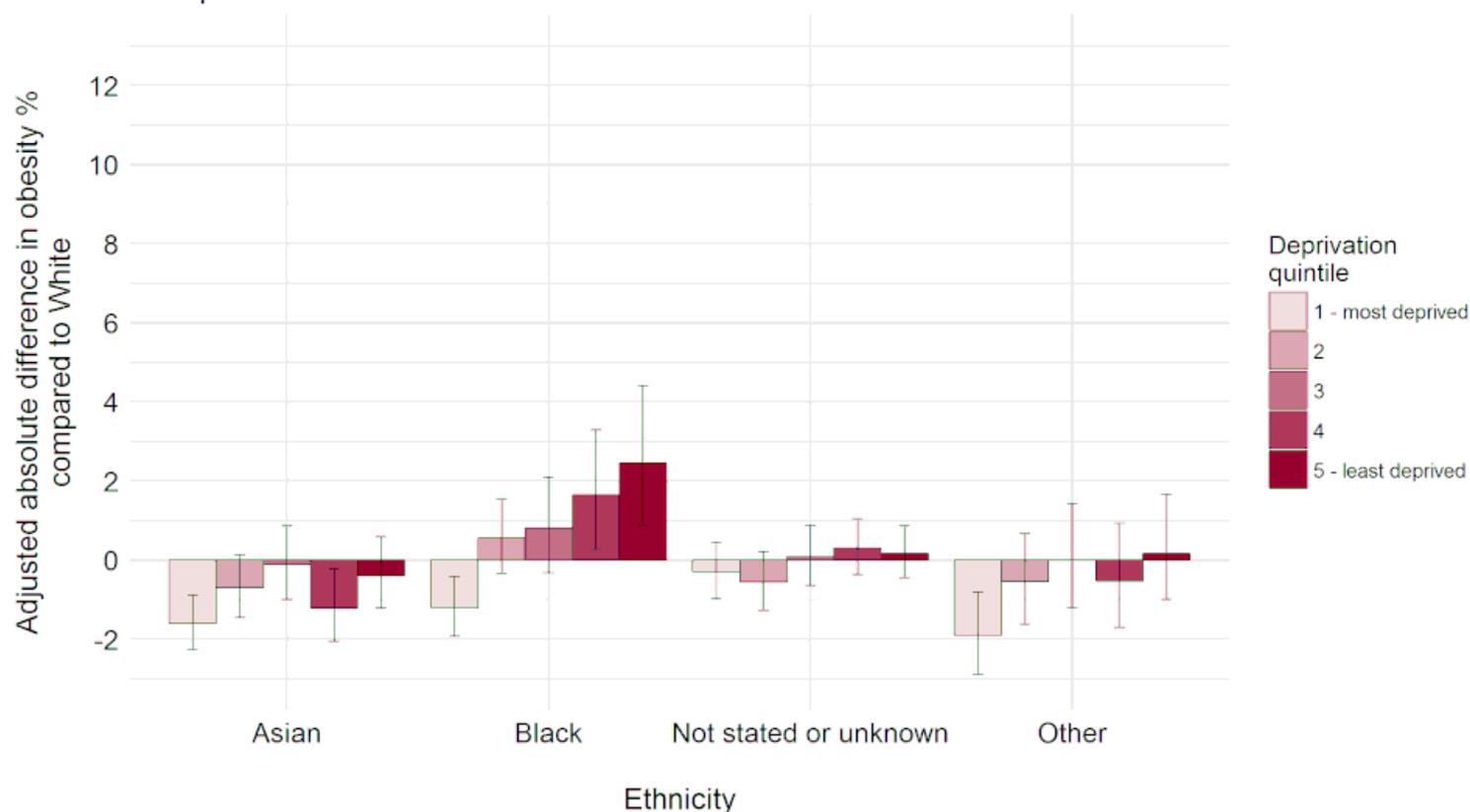
Table 10. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile: Reception girls

Reference ethnicity	Reference IMD quintile	Contrast ethnicity	Contrast IMD quintile	Adjusted prevalence of obesity of reference ethnicity and IMD	Absolute disparity in adjusted prevalence of obesity of contrast ethnicity and IMD	Disparity lower 95% confidence limit	Disparity upper 95% confidence limit
White	1	Asian	1	10.5%	-1.6%	-2.3%	-0.9%
White	1	Black	1	10.5%	-1.2%	-1.9%	-0.4%
White	1	Other	1	10.5%	-1.9%	-2.9%	-0.8%
White	1	Not stated or unknown	1	10.5%	-0.3%	-1.0%	0.4%
White	2	Asian	2	8.8%	-0.7%	-1.5%	0.1%

Differences in child obesity by ethnic group - GOV.UK

White	2	Black	2	8.8%	0.6%	-0.3%	1.5%
White	2	Other	2	8.8%	-0.6%	-1.6%	0.7%
White	2	Not stated or unknown	2	8.8%	-0.6%	-1.3%	0.2%
White	3	Asian	3	7.4%	-0.1%	-1.0%	0.9%
White	3	Black	3	7.4%	0.8%	-0.3%	2.1%
White	3	Other	3	7.4%	0.0%	-1.2%	1.4%
White	3	Not stated or unknown	3	7.4%	0.1%	-0.6%	0.9%
White	4	Asian	4	6.2%	-1.2%	-2.0%	-0.2%
White	4	Black	4	6.2%	1.6%	0.3%	3.3%
White	4	Other	4	6.2%	-0.5%	-1.7%	0.9%
White	4	Not stated or unknown	4	6.2%	0.3%	-0.4%	1.0%
White	5	Asian	5	4.9%	-0.4%	-1.2%	0.6%
White	5	Black	5	4.9%	2.5%	0.9%	4.4%
White	5	Other	5	4.9%	0.2%	-1.0%	1.7%
White	5	Not stated or unknown	5	4.9%	0.2%	-0.5%	0.9%

Figure 8. Adjusted difference in obesity prevalence by ethnicity and deprivation quintile:
Reception Girls



In addition to ethnicity and deprivation, model also adjusted for age at measurement, month of measurement, government office region, urban/rural residence and height

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