

A photograph of a port at dusk. In the foreground, several large gantry cranes are visible, their structures silhouetted against the twilight sky. A large container ship, with "APL" visible on its side, is docked at the pier. The ship is covered in colorful shipping containers. The water in the foreground is calm, reflecting the lights from the port and the sky. The overall atmosphere is quiet and industrial.

Childhood Obesity

November 2023

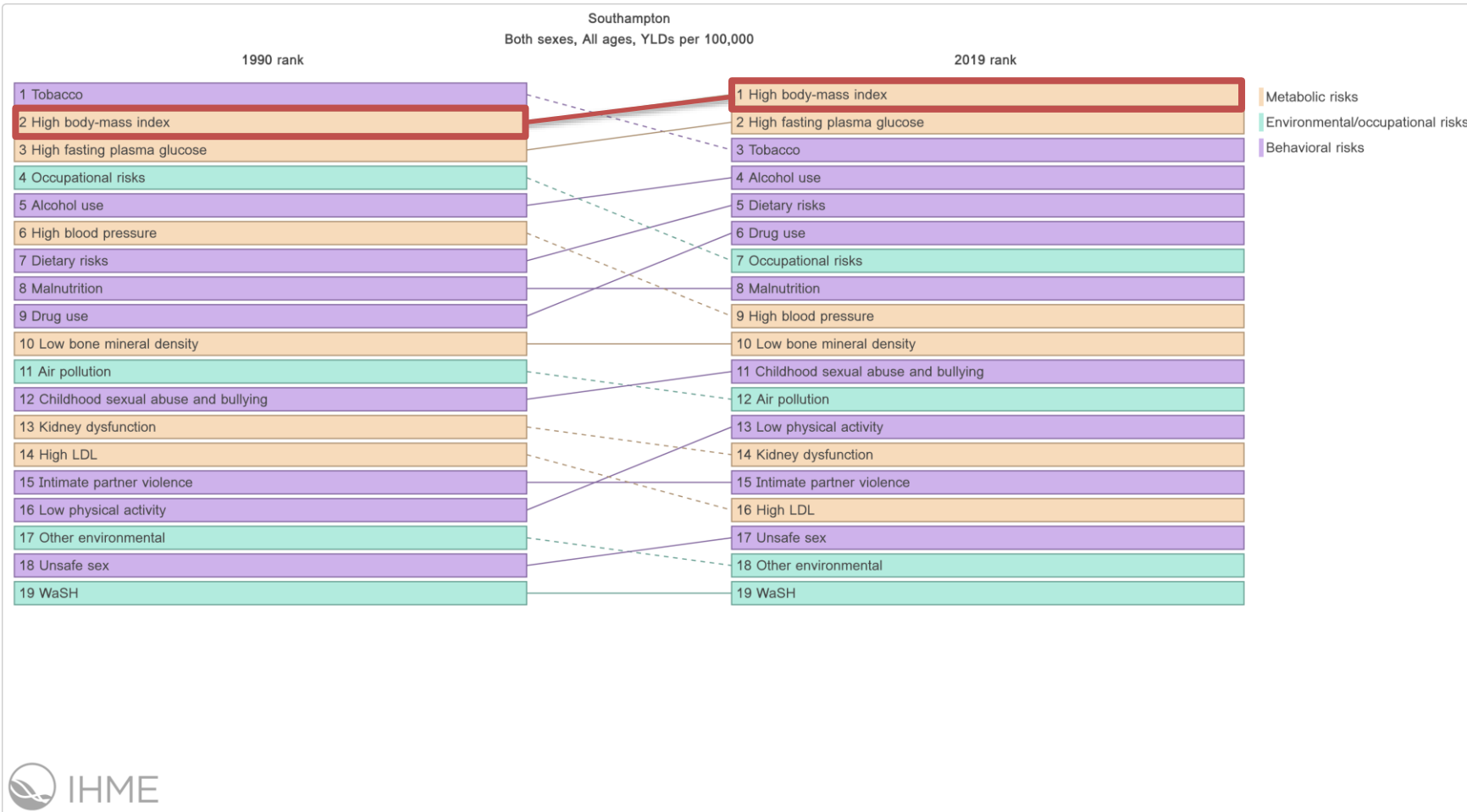
Data, Intelligence & Insight Team



- **In Southampton, high BMI (Body Mass Index) is the biggest cause of YLDs (years of healthy life lost due to disability). 5 of the top 6 risk factors for deaths in Southampton are related to excess weight and dietary risks. Obesity is arguably the city's biggest public health issue.**
- **Obesity in children can cause asthma, poor self-esteem, mental health issues and stigmatisation.** The World Health Organisation also suggests that children with excess weight are **likely to have excess weight as adults** and are **more likely to develop non-communicable diseases like diabetes and cardiovascular diseases** at a **younger age**.
- **Excess weight** (and its related diseases) are **largely preventable**, especially earlier in life. **Prevention of childhood obesity needs to be a top priority.**



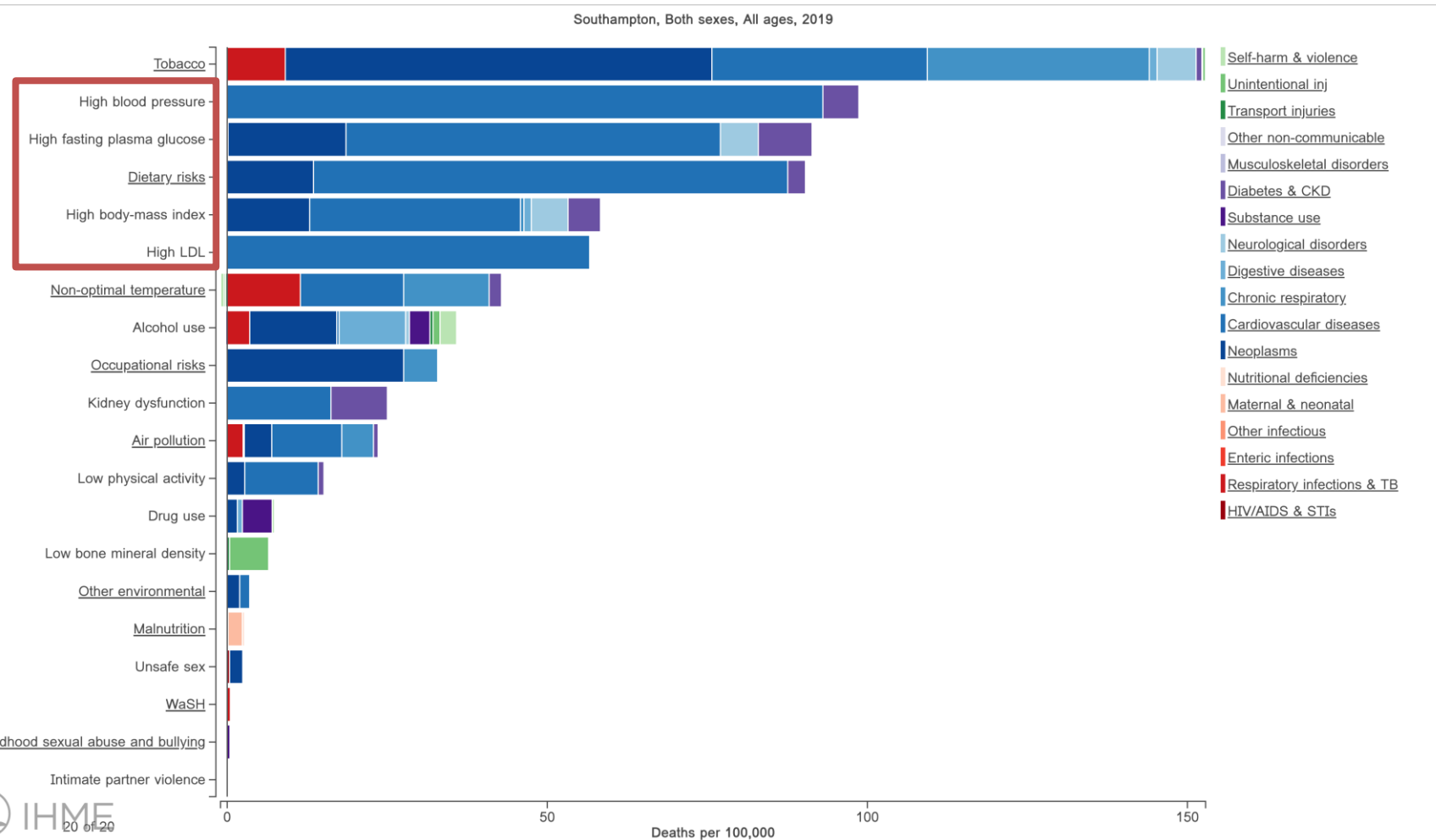
Causes of years of healthy life lost due to disability (YLDs) in Southampton, ranked by total YLDs per 100,000, (1990 vs 2019)



- High body-mass index (BMI) is the **largest** contributor to **years of healthy life lost due to disability (YLDs)** in Southampton.
- **High BMI** accounts for **989.9 YLDs per 100,000** people in Southampton.
- **High BMI** has **overtaken tobacco** as the **biggest risk factor in Southampton** (for YLDs).



Risk factors for deaths in Southampton ranked by total deaths per 100,000 for each risk factor, (2019)



- **5 of the top 6 risk factors for deaths in Southampton are related to excess weight and/or dietary risks.**
- **High blood pressure, high fasting plasma glucose and high BMIs were linked to deaths from cardiovascular disease, cancer, diabetes and neurological diseases (Alzheimer’s/dementia).**



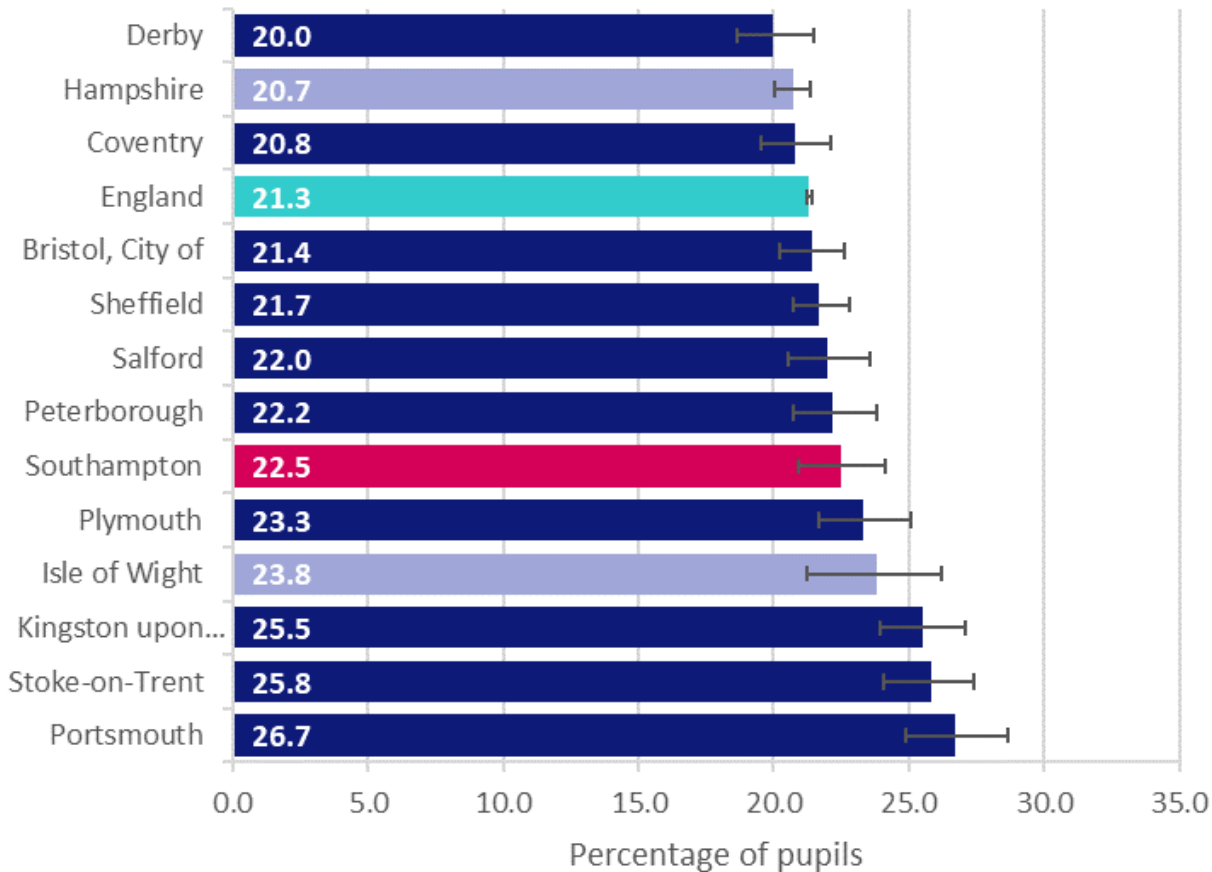
- **Body Mass Index (BMI)** is the accepted way of measuring obesity divides a person's **weight in kilograms by their height in metres squared**.
- **Adults** are classified as overweight or obese if their BMI is above specified levels.....
overweight > 25; **obesity** > 30.
- However, **such levels are not appropriate for children as their BMI changes considerably with age and gender**.
- Therefore, **children's BMI is standardised for their age and sex by comparing against a recognised standard – known as the 1990 UK standard**.
- Our primary source of information on childhood obesity comes from the **National Child Measurement Programme (NCMP)** introduced in 2005/06.
- **Children are measured** when they start and leave primary school **Year R** (4-5 year olds) and **Year 6** (10-11 year olds).



- **Height** and **weight** is measured by **Public Health school nurses** and recorded along with various demographic information.
- BMI adjusted for age and sex by calculating standard deviation scores (z-scores) using the 1990 UK reference and then converted to centiles (p-scores):
 - **Underweight:** 2nd centile or below
 - **Healthy weight:** 2nd to 85th centile
 - **Overweight:** 85th centile and above
 - **Obese / very overweight:** 95th centile and above
- Each child's NHS number is recorded to allow records to be linked between time points.
- NCMP measurements in **2019/20** and **2020/21** were **disrupted** by the **COVID-19** pandemic. **2021/22** NCMP was the **first data collection since the COVID-19 pandemic that was unaffected by school closures and other public health measures.**
- **Excess weight** is the **combination of overweight and obese** BMI classifications.



NCMP Year R Overweight and living with obesity combined (by postcode of school) - Southampton and Children's Statistical Neighbours: 2022/23



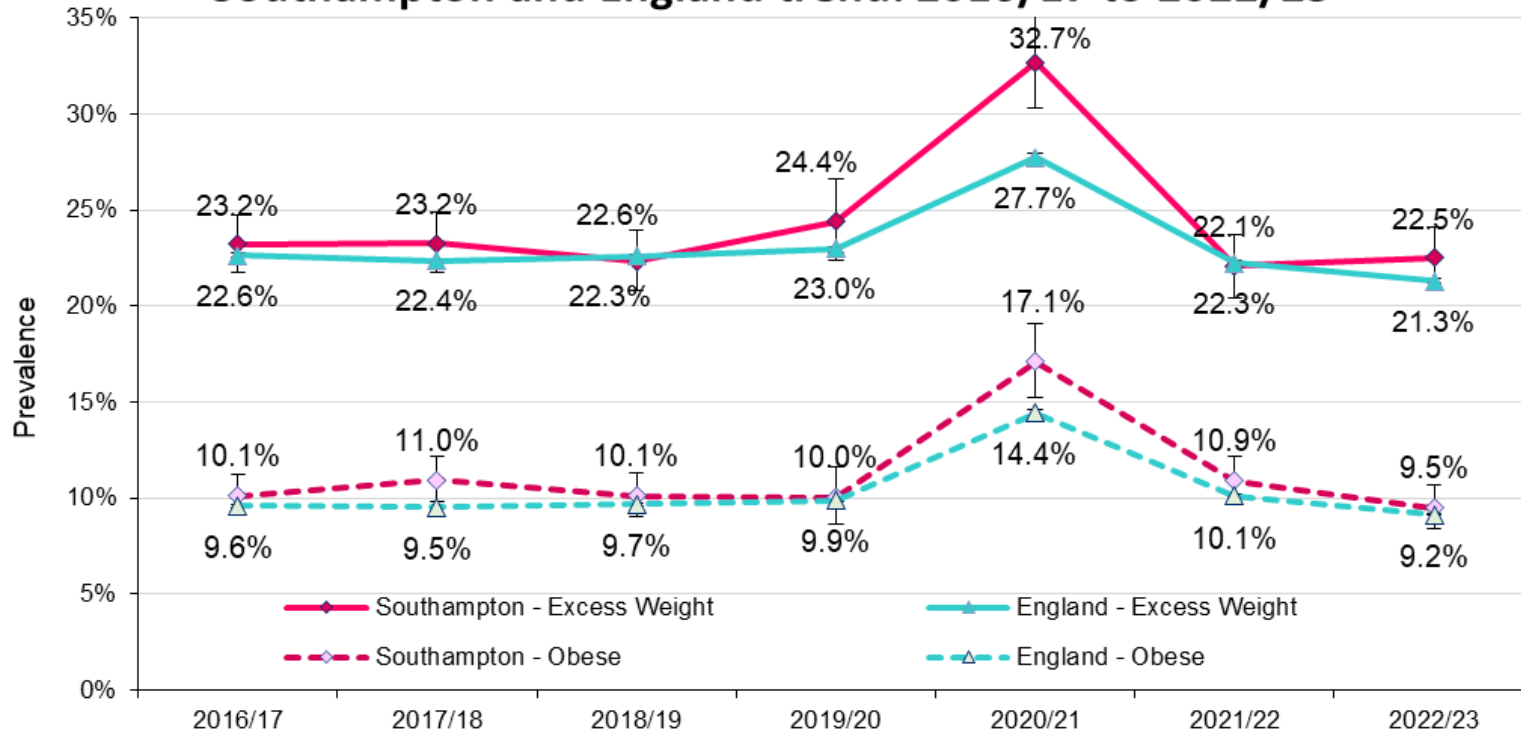
Source: NCMP Dataset, NHS England

- **22.5% of Year R children** measured in **Southampton** had **excess weight** in 2022/23.
- This rate is **similar to the England average** and **most of our Children's Services statistical comparator cities**.
- **Southampton's rate increased** in 2022/23 (vs the year prior) while the **England average reduced**, **Southampton** is on track to be **significantly higher than England next year**.



Year R Obesity and Excess Weight

Southampton and England trend: 2016/17 to 2022/23



Source: NHS Digital NCMP Enhanced data sets 2016/17 to 2021/22 with 95% Confidence Intervals (Wilson), 2022/23 data via NHS Digital Table

2022/23 England - Year R: Obese 9.2% Excess Weight 21.3%
 Southampton - Year R: Obese 9.5% Excess Weight 22.5%

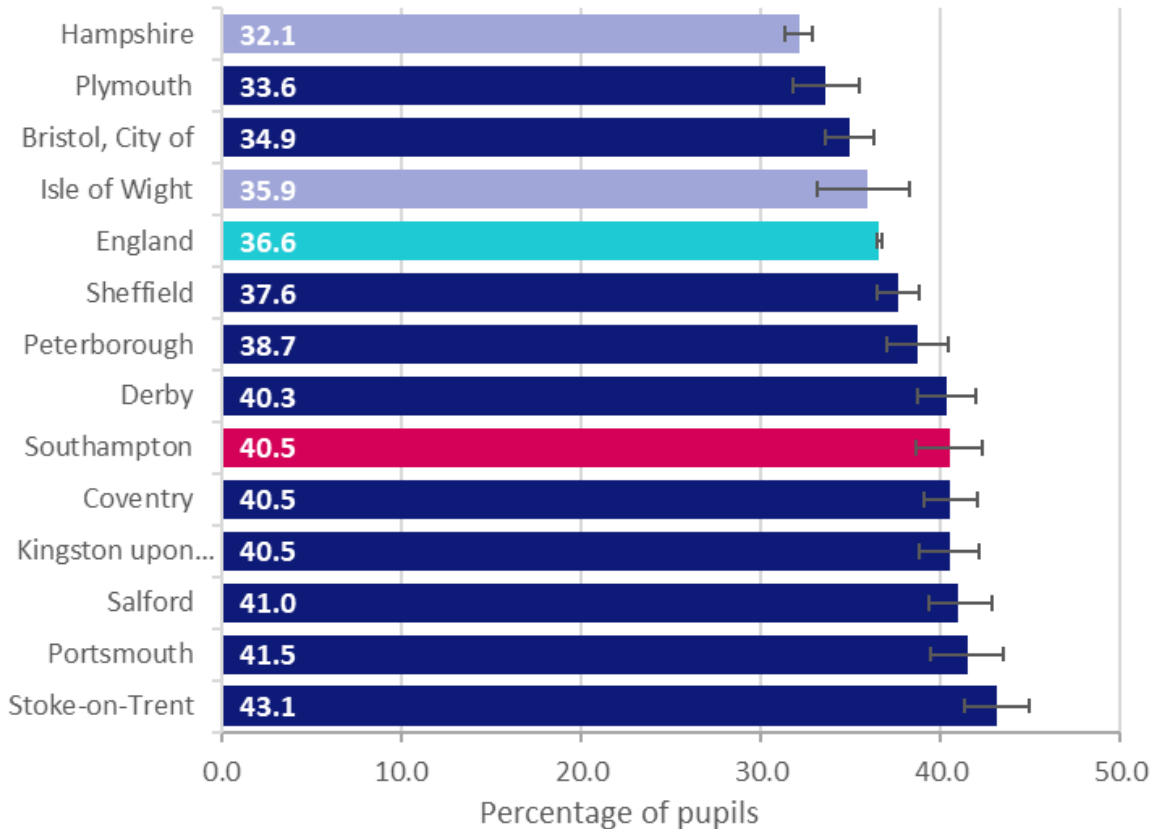
- **Historic prevalence of Year R overweight and obesity** in Southampton have been **similar** to the England average. (Excess weight combines overweight and obese)
- Year R **overweight and obesity** prevalence are **lower now than they were in 2016/17** for **Southampton and England**.
- **However, in 2022/23 Southampton's excess weight prevalence increased by 0.4%** (percentage points vs the year prior) while **England continued to decline**. This was driven by 1.9% percentage point increase in the prevalence of overweight Year R (13.0% in 2022/23 vs 11.1% in 2021/23).



NCMP measurements in 2019/20 and 2020/21 were disrupted by the COVID-19 pandemic. 2021/22 NCMP was the first data collection since the COVID-19 pandemic that was unaffected by school closures and other public health measures.



NCMP Year 6 Overweight and living with obesity combined (by postcode of school) - Southampton and Children's Statistical Neighbours: 2022/23

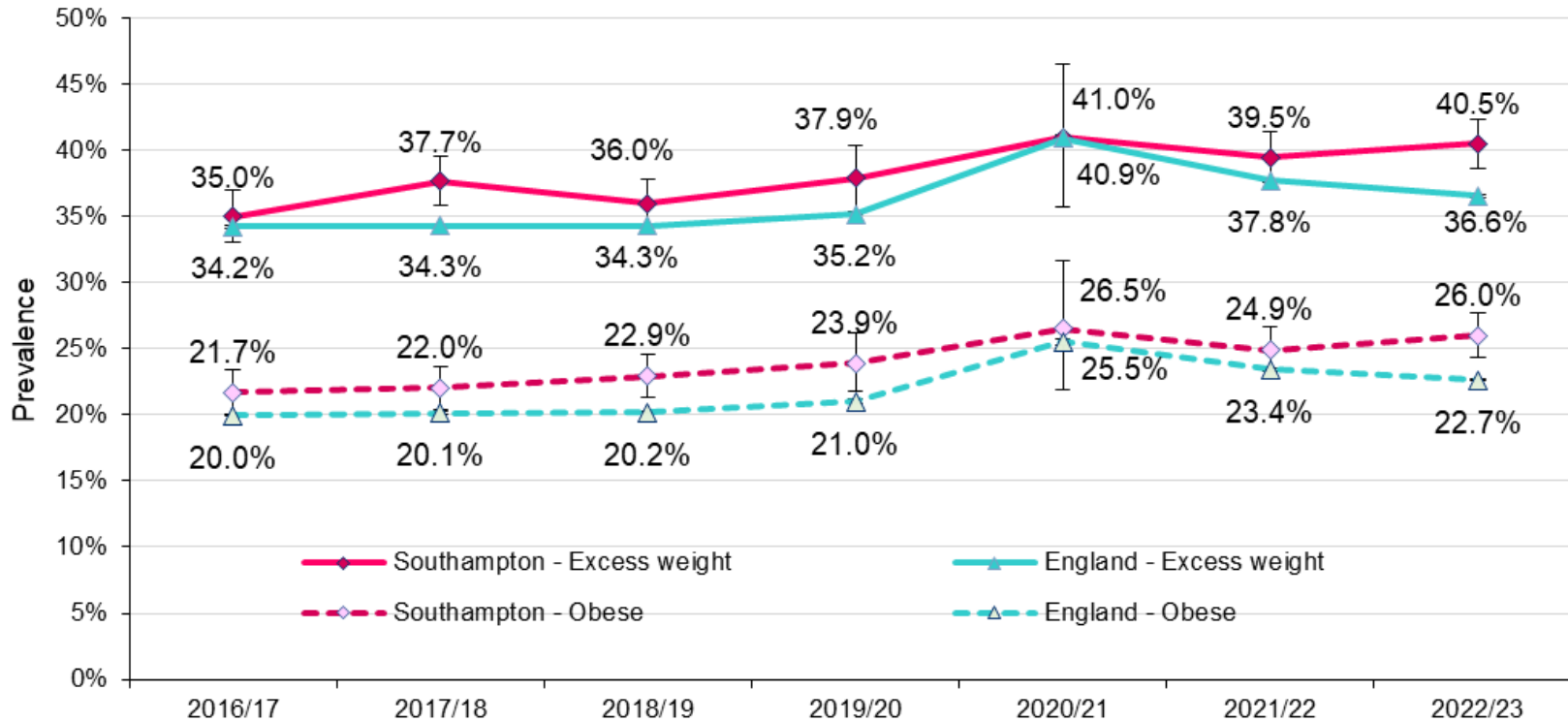


Source: NCMP Dataset, NHS England

- **40.5% of Year 6 children** measured in Southampton were **overweight** in 2022/23. This is **significantly higher than the England average**, as well as Isle of Wight and Hampshire.
- The **Hampshire average (32.1%) is significantly lower than Southampton**. **Urban areas** are more likely to have **higher levels of overweight and obesity** due to **easier access to high-calorie foods, more passive transport, less open space and more mass media / advertising**.



Year 6 Obesity and Excess Weight Southampton and England trend: 2016/17 to 2022/23



- **Historic rates** of Year 6 excess weight in Southampton have been **similar** or **significantly higher** than the England average since 2016/17. In 2022/23 this **gap grew wider**. The percentage point gap of **3.9%** is the **widest** seen in this period.

- **Southampton** has seen a **16% increase** in Year 6 excess weight rates **since 2016/17**. Rates in **England** have increased by **7%** over the same period. And have been on a **downward trajectory** for the **last 2 years**.

Source: NHS Digital NCMP Enhanced data sets 2016/17 to 2021/22 with 95% Confidence Intervals (Wilson), 2022/23 data via NHS Digital Table 3a_6

2022/23 England - Year 6: Obese 22.7% Excess Weight 36.6%
 Southampton - Year 6: Obese 26.0% Excess Weight 40.5%



NCMP measurements in 2019/20 and 2020/21 were disrupted by the COVID-19 pandemic. 2021/22 NCMP was the first data collection since the COVID-19 pandemic that was unaffected by school closures and other public health measures.







Southampton children in Year R 2015/16



The NCMP records of **2,664 Southampton school students** who were measured in **Year R** and **Year 6** have been **linked by their NHS number** to show how their **BMI changed** between these 2 measurements. (Year 6 class of 2021/22*).

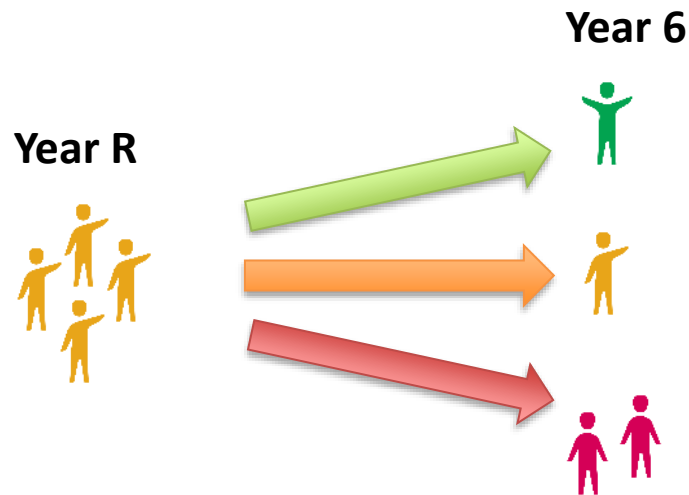
Southampton children in Year 6 2021/22



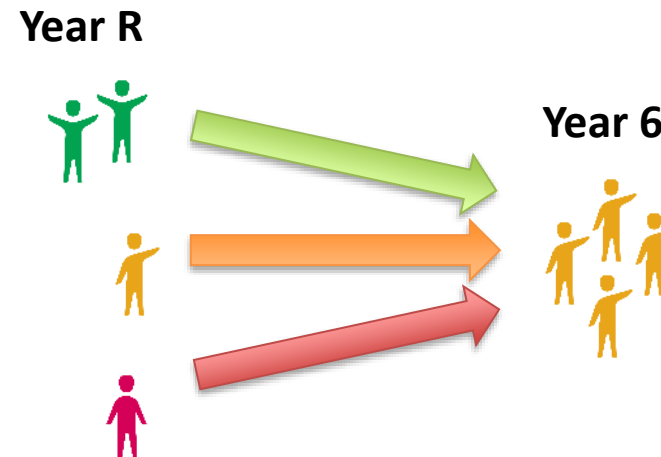
	Underweight	1% → 2%
	Healthy weight	77% → 59%
	Overweight	11% → 14%
	Very overweight	11% → 25%



We can use the linked analysis to see how each Year R BMI group progressed over the next 6 years...



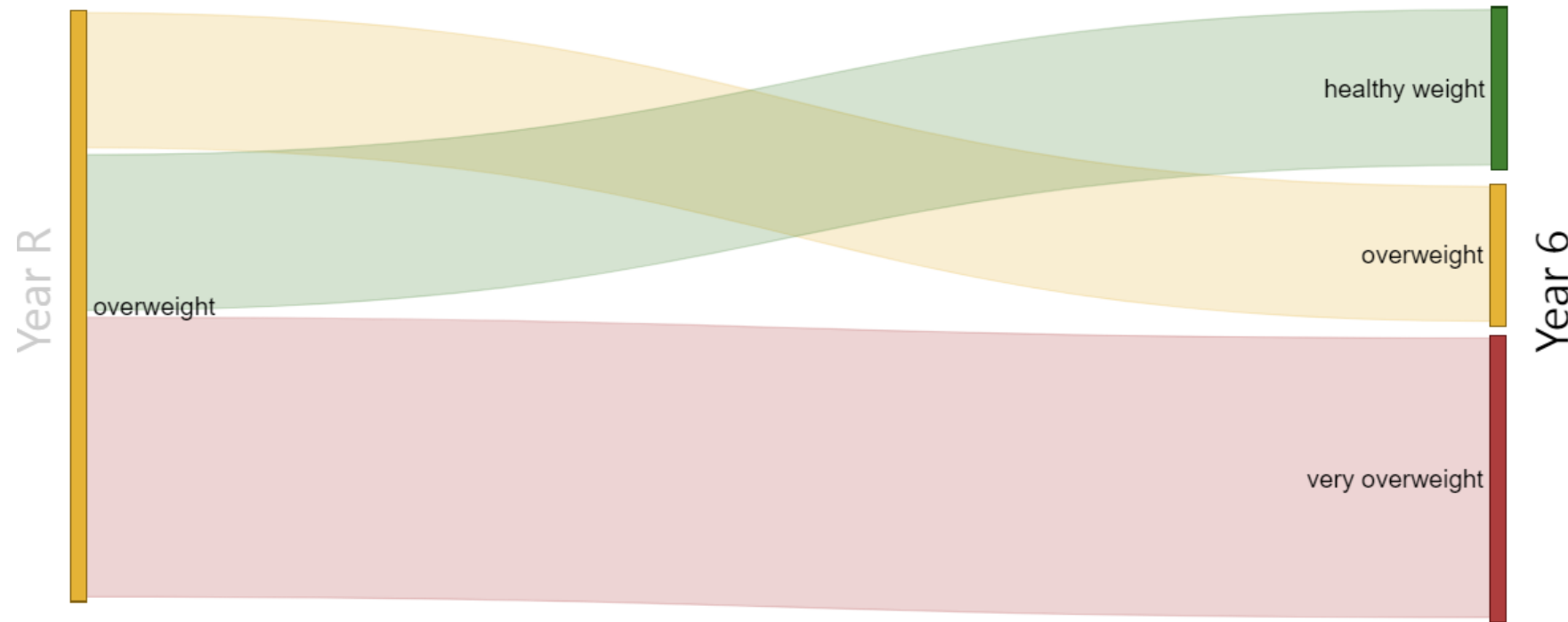
...or to see the origins of each Year 6 BMI category.





Southampton

Year 6 BMI of students who were overweight in year R (school year 2021/22)



298

Year R Students

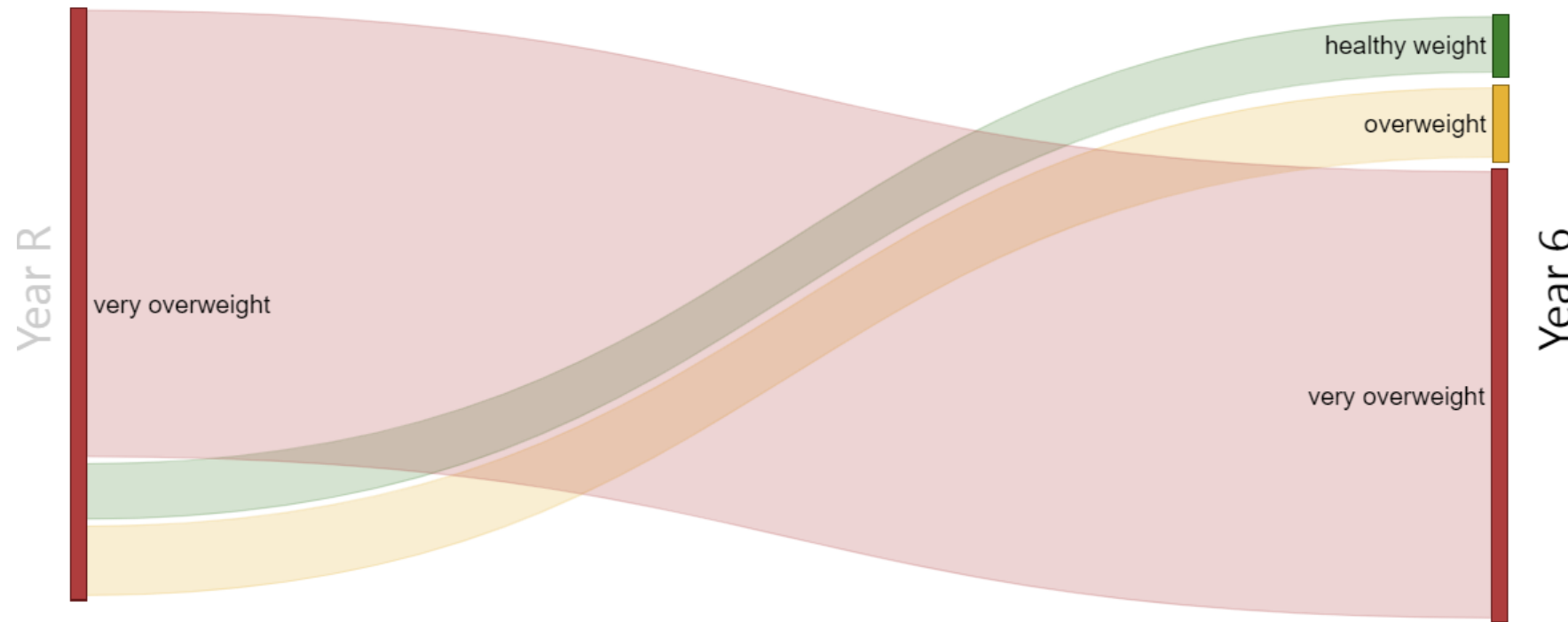
Year 6 BMI Category	Students	%
very overweight	147	49.3%
healthy weight	81	27.2%
overweight	70	23.5%

- **298 Year 6 children** measured in 2021/22 were **overweight** when they were measured in **Year R**.
- **67.9%** of them were **very overweight** (clinically obese) by the time they were in **Year 6**.



Southampton

Year 6 BMI of students who were very overweight in year R (school year 2021/22)



234

Year R Students

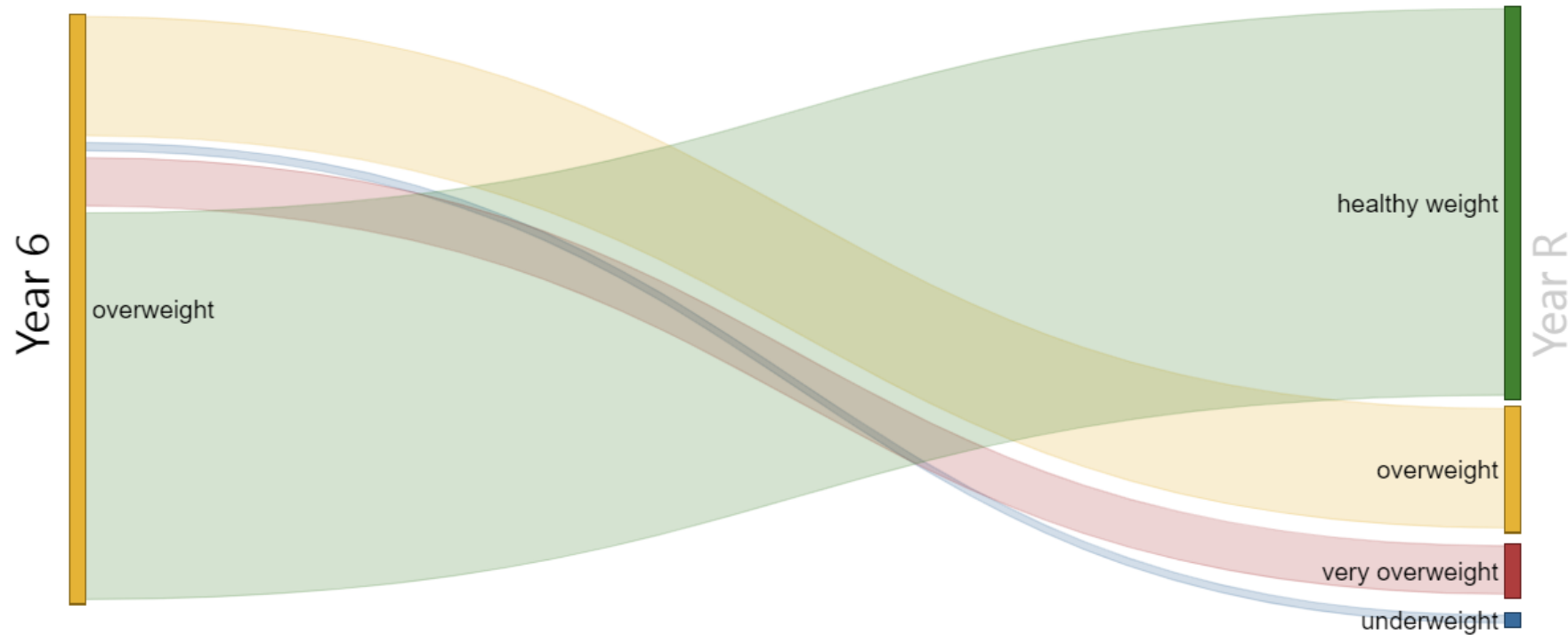
Year 6 BMI Category	Students	%
very overweight	188	80.3%
overweight	26	11.1%
healthy weight	20	8.5%

- **234 Year 6 children** measured in 2021/22 were **very overweight** when they were measured in **Year R**.
- **80.3%** of them were still **very overweight** in **Year 6**.
- **91.5%** of them had **excess weight** by the time they were in **Year 6**.
- **Year R obesity is a clear predictive factor for obesity in Year 6. However...**



Southampton

Year R BMI of students who were overweight in Year 6 (school year 2021/22)



384

Year 6 Students

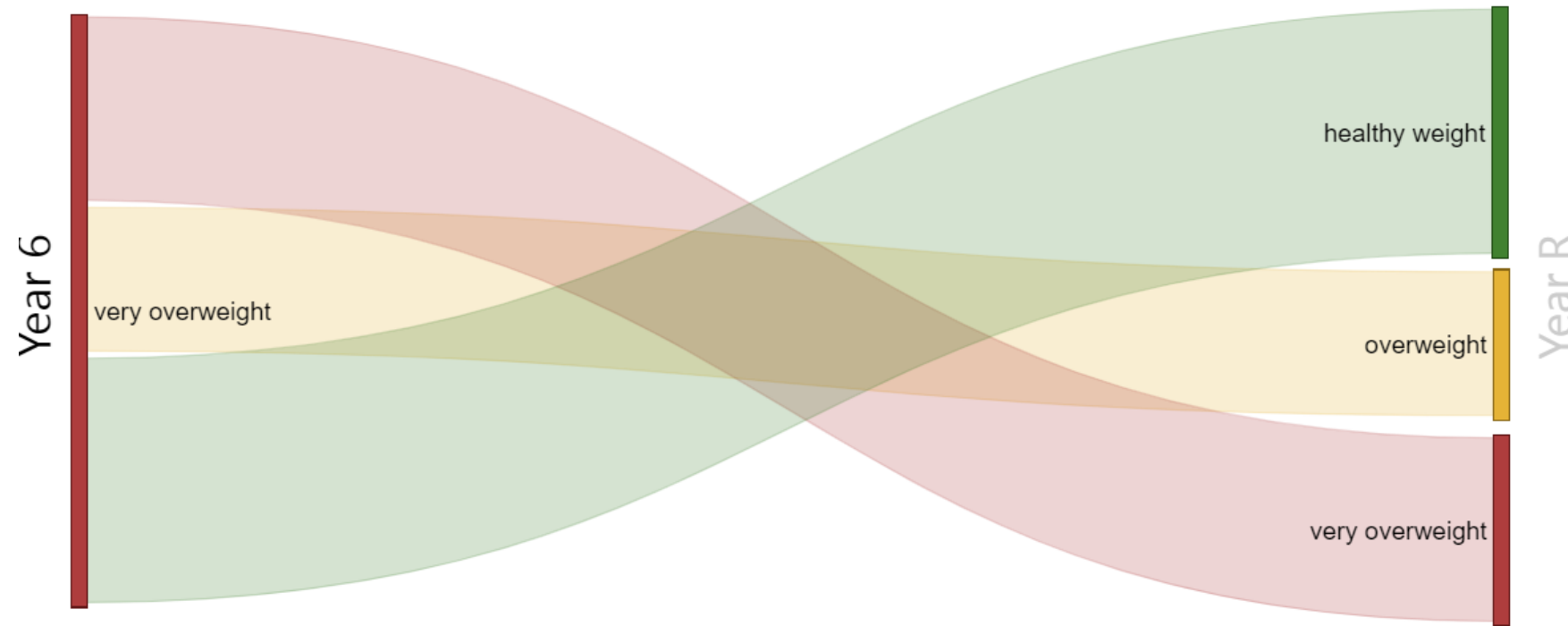
Year R BMI Category	Students	%
healthy weight	236	70.9%
overweight	70	21.0%
very overweight	26	7.8%

- **When looking at this the other way...**
- **384 Year 6 children** measured in 2021/22 were **overweight**.
- **70.9%** of them were originally a **healthy weight** when they were measured in **Year R**.



Southampton

Year R BMI of students who were very overweight in Year 6 (school year 2021/22)

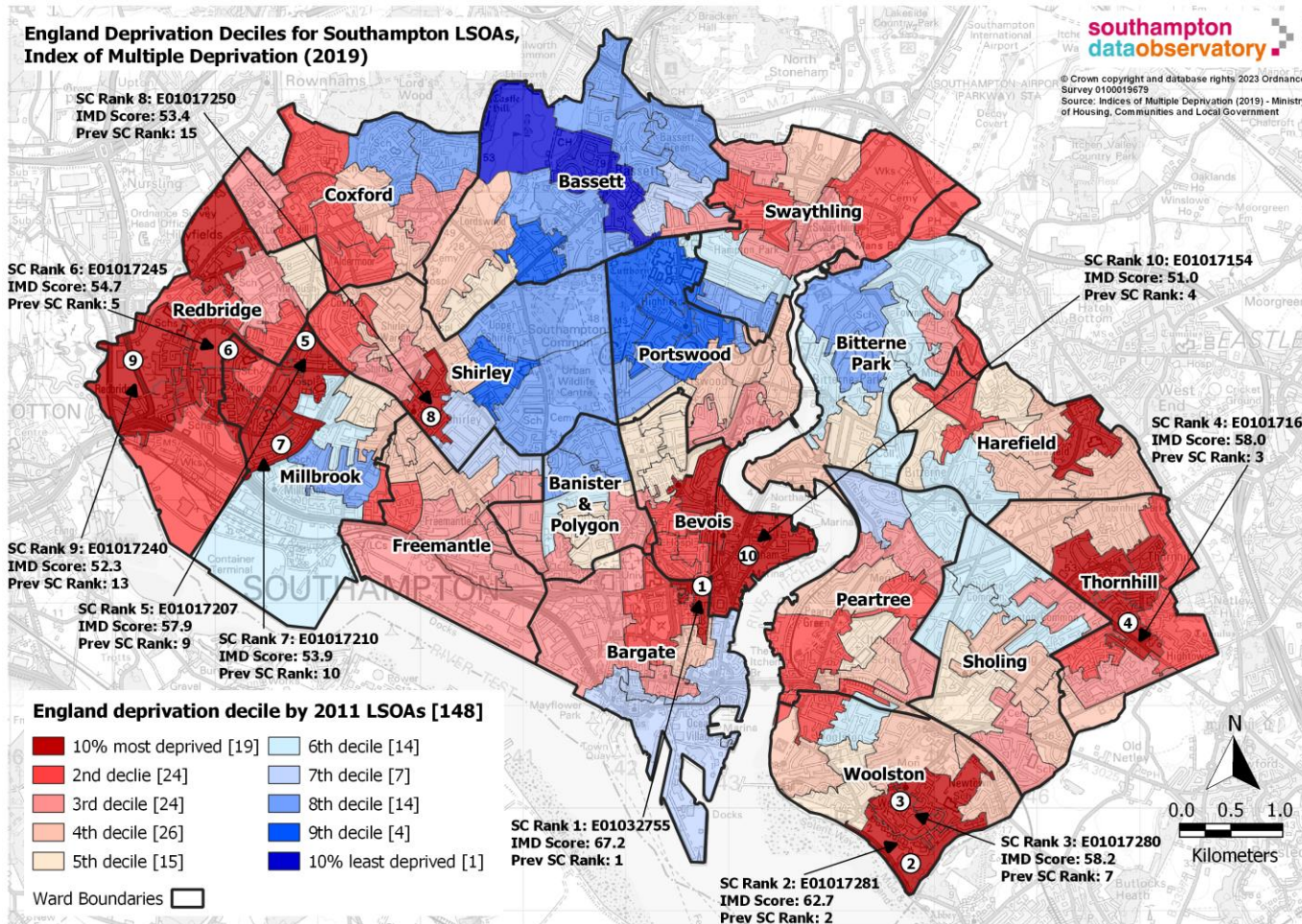


664

Year 6 Students

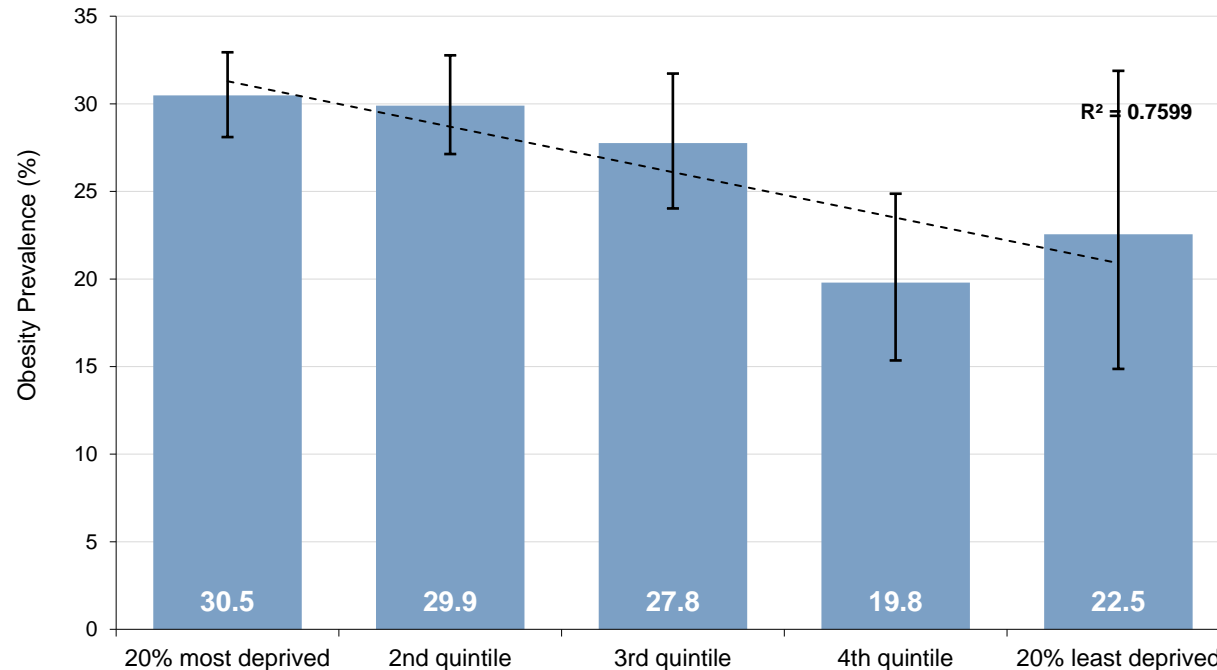
Year R BMI Category	Students	%
healthy weight	251	42.8%
very overweight	188	32.1%
overweight	147	25.1%

- **664 Year 6 children** measured in 2021/22 were **very overweight**.
- **42.8%** of them were a **healthy weight** when they were measured in **Year R**.
- While **Year R obesity** is a **predictive factor for obesity** in **Year 6**, **interventions** targeted at **obese children** in **Year R** will only have the potential to reduce Year 6 obesity by a **maximum of one third** (as **two thirds of obese Year 6 children were not obese in Year R**).



- The relationship between **deprivation and health** is well documented (**Marmot, 2010**).
- **Southampton** is a relatively deprived city. Its average deprivation is ranked **55th** out of England's **317 local authorities** (IMD 2019).
- Around **12%** of Southampton's population live in neighbourhoods within the **10% most deprived** nationally; this rises to **18%** for the **under 18 population**, suggesting deprivation disproportionately impacts young people in the city.
- There are **vast disparities** in Southampton as some neighbourhoods are among the **least deprived** in England.

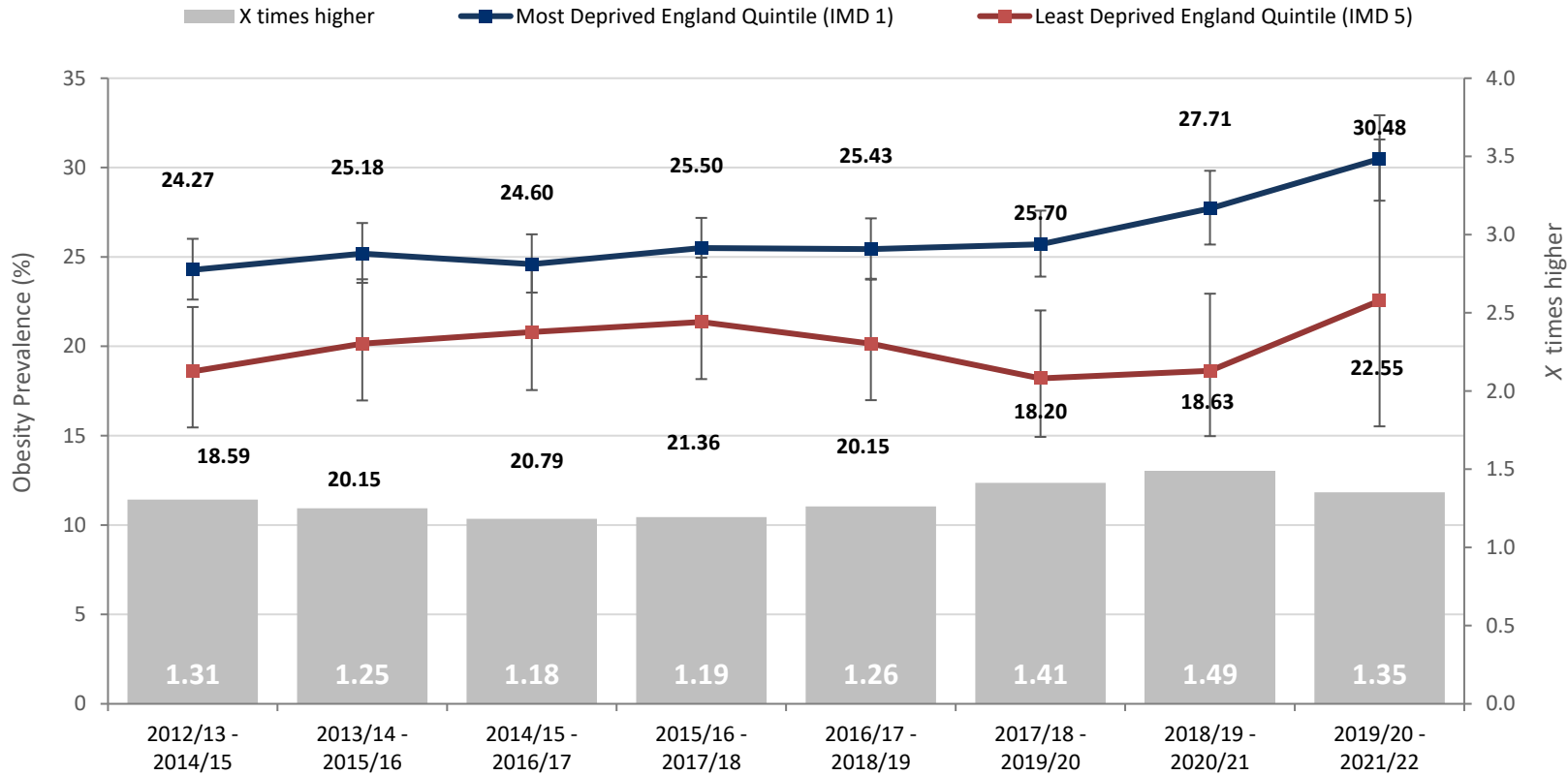
Percentage of children considered to be overweight or obese in Year R by England deprivation quintile (IMD 2019): 2019/20 to 2021/22 (pooled)



Source: National Child Measurement Programme Pupil Enhanced Data Set, NHS Digital - Lifestyle Statistics

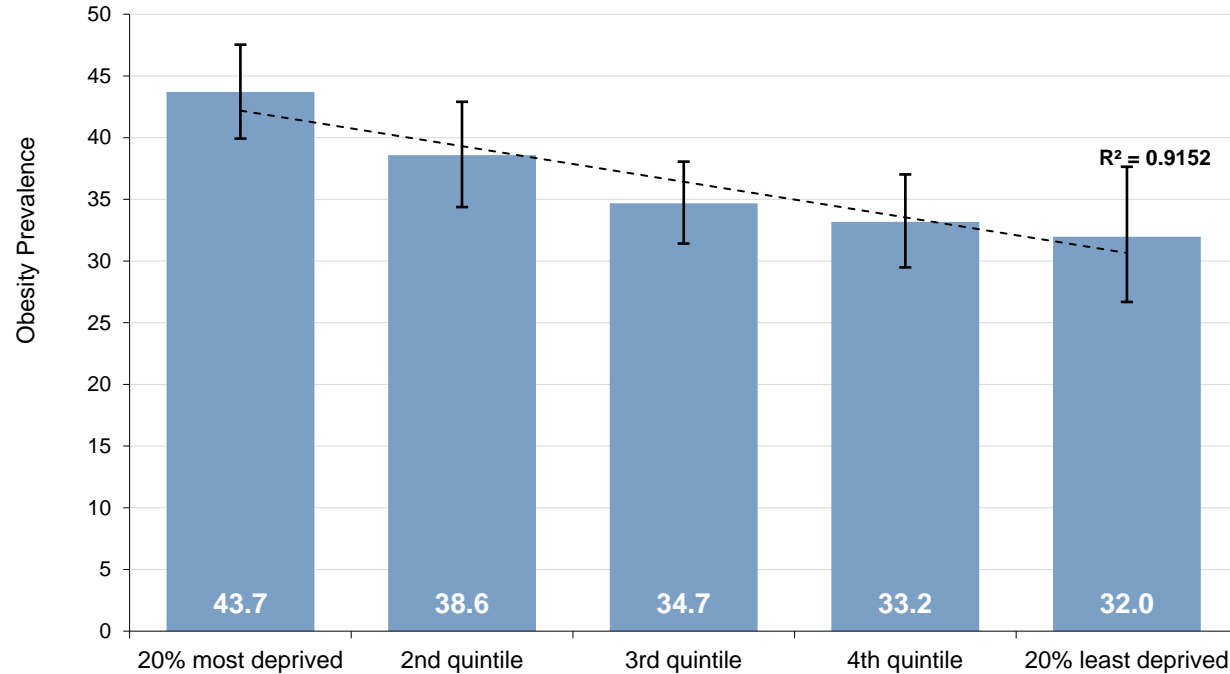
- **Overweight and obesity in Year R is more prevalent in the most deprived quintile (30.5%) than the least deprived quintile (22.5%).**
- **However, a robust statistical comparison cannot be made for this period (2019/20 to 2021/22) due to the large confidence intervals shown on the chart (a result of the smaller numbers of children measured during COVID-19).**

Percentage of children considered to be overweight or obese in Year R
 Inequalities Trend - Most Vs Least Deprived IMD England Quintiles:
 2012/13-2014/15 to 2019/2021/22 (pooled)



- For the period 2019/20 to 2021/22 the **Year R rate of overweight and obesity** in Southampton's **most deprived quintile** was **1.35x higher** than the least deprived.
- The **deprivation gap** had been **widening consistently** since **2014/15 – 2016/17**, as the prevalence increased in the **most deprived neighbourhoods** whilst remaining lower in the **least deprived**. However, the **gap closed** slightly in **2019/20 – 2021/22** as prevalence started to **increase sharply** in the **least deprived** areas.

Percentage of children considered to be overweight or obese in Year 6 by England deprivation quintile (IMD 2019): 2019/20 to 2021/22 (pooled)



- **Overweight and obesity in Year 6 children is statistically significantly more prevalent in the most deprived quintile (43.7%) than the least deprived quintile (32.0%) (2019/20 to 2021/22 pooled).**

Source: National Child Measurement Programme Pupil Enhanced Data Set, NHS Digital - Lifestyle Statistics

Percentage of children considered to be overweight or obese in Year 6
 Inequalities Trend - Most Vs Least Deprived IMD England Quintiles:
 2012/13-2014/15 to 2019/2021/22 (pooled)



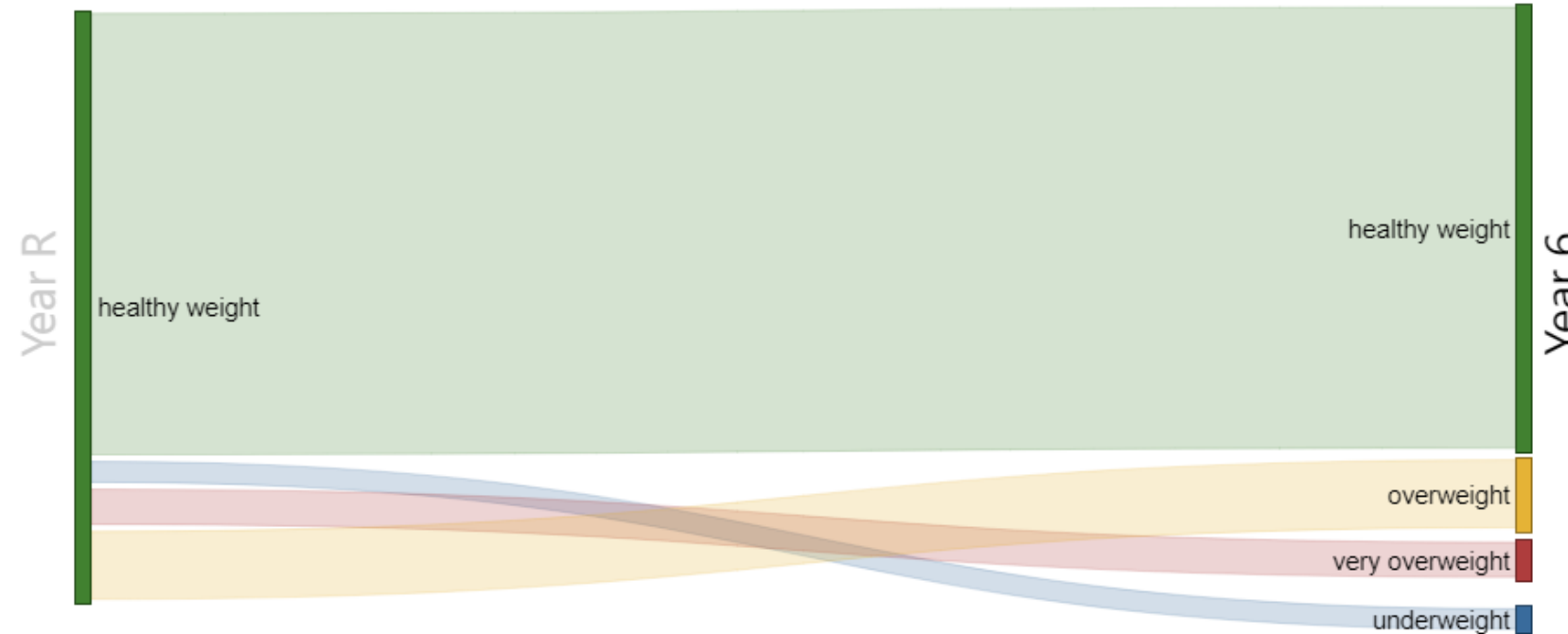
- For the period 2019/20 to 2021/22 the **Year 6 rate of overweight and obesity in Southampton's most deprived quintile was 1.37x higher** than the least deprived.
- The **deprivation gap had been widening**, as the **prevalence increased in the most deprived neighbourhoods** whilst remaining lower in the least deprived. However, the gap closed slightly in **2019/20 – 2021/22** as prevalence started to **increase sharply in the least deprived areas**.

Sources: National Child Measurement Programme Pupil Enhanced Data Set, NHS Digital - Lifestyle Statistics



Southampton

Year 6 BMI of students who were healthy weight in year R (school year 2021/22)



259

Year R Students

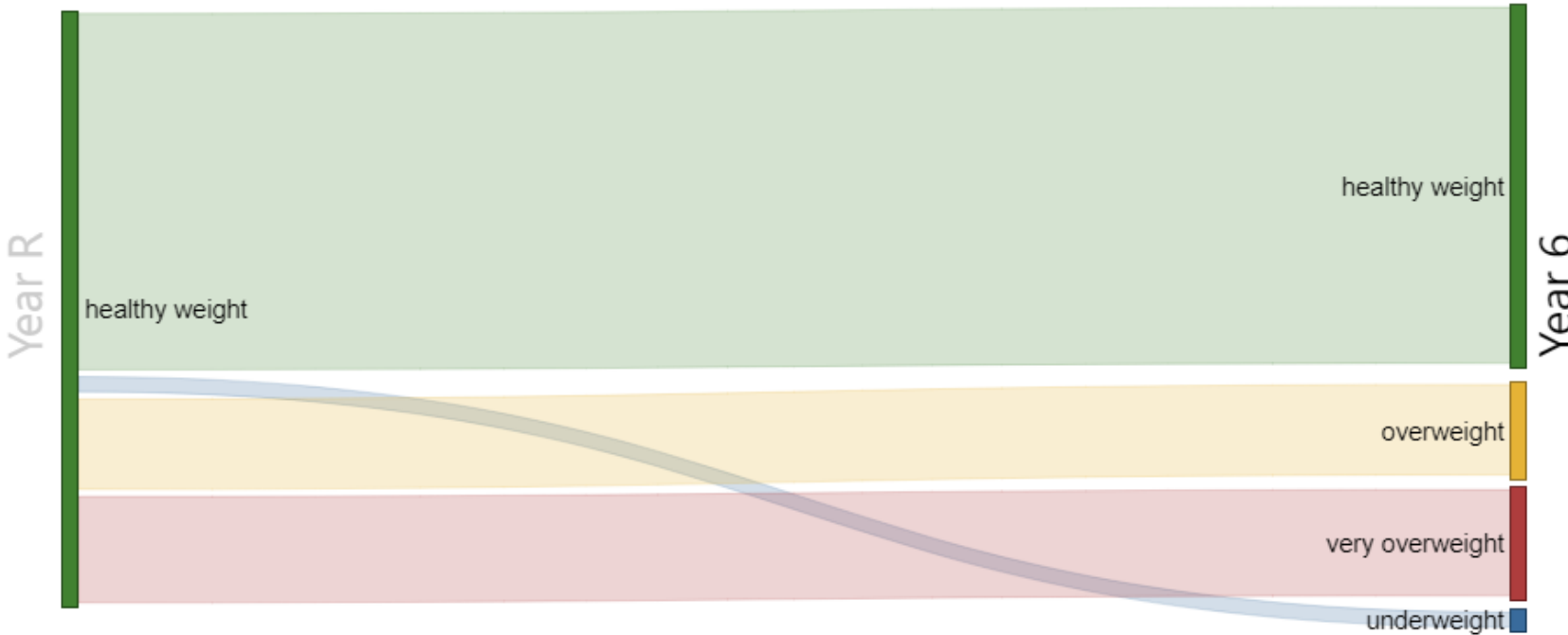
Year 6 BMI Category	Students	%
healthy weight	211	81.5%
overweight	29	11.2%
very overweight	13	5.0%
underweight	6	2.3%

- **81.5%** of children who were a healthy weight in Year R and lived in Southampton's **least deprived quintile were still a healthy weight** by the time they reached **Year 6** (school year 2021/22).



Southampton

Year 6 BMI of students who were healthy weight in year R (school year 2021/22)



487

Year R Students

Year 6 BMI Category	Students	%
healthy weight	312	64.1%
very overweight	90	18.5%
overweight	76	15.6%
underweight	9	1.8%

- **64.1%** of children who were a healthy weight in Year R and lived in Southampton's **most deprived** quintile were **still a healthy weight** by the time they reached **Year 6** (school year 2021/22).

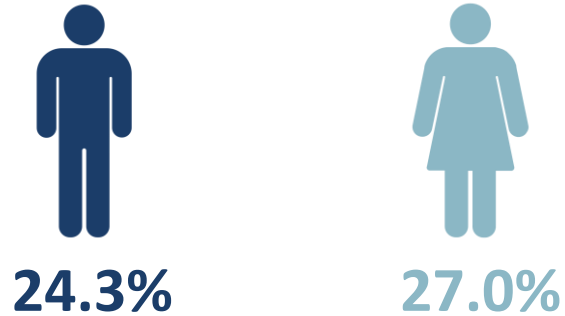


Year R

2019/20 to 2021/22

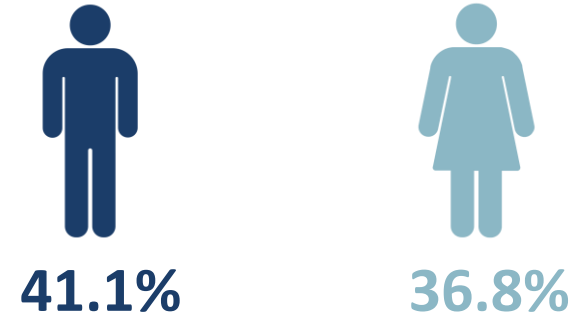
Year 6

Overweight including obese



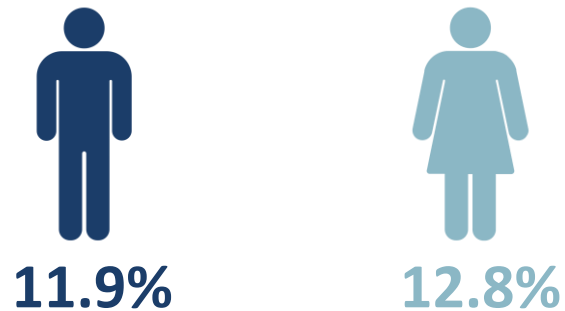
% Point gap
2.6%
Statistically similar

Overweight including obese



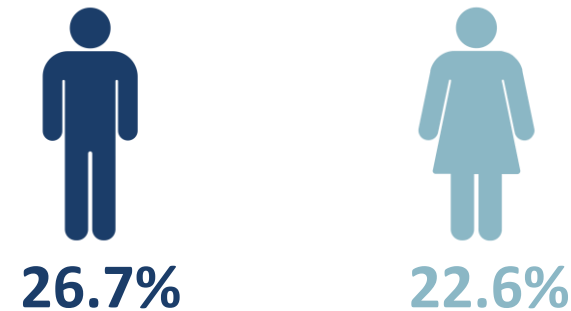
% Point gap
4.3%
Males significantly higher

Obese



% Point gap
0.8%
Statistically similar

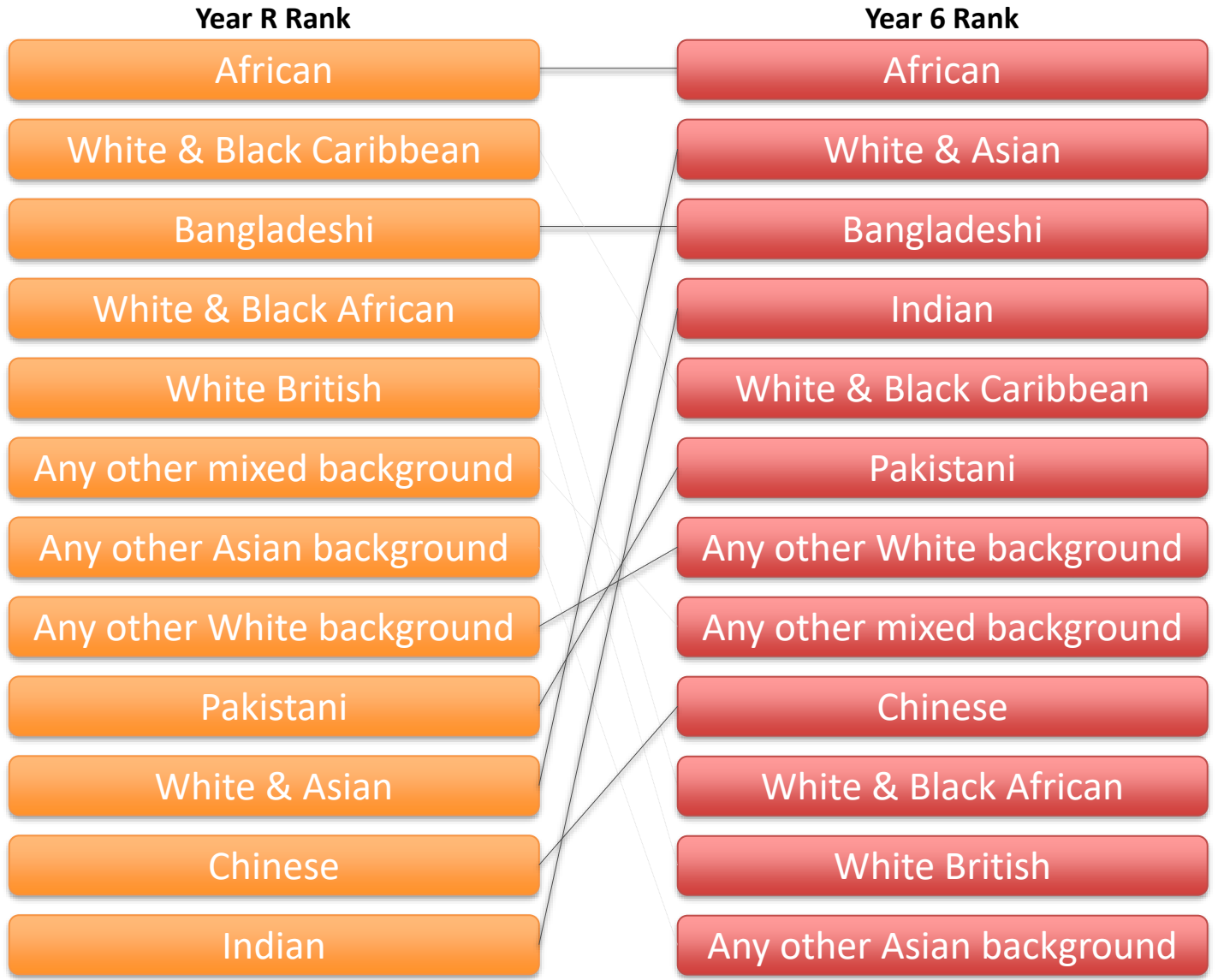
Obese



% Point gap
4.2%
Males significantly higher

Prevalence of obesity and overweight including obesity is significantly higher in Year 6 males compared to Year 6 females but statistically similar between the sexes in Year R.

Prevalence of Southampton children with excess weight by ethnicity, ranked highest to lowest (2019/20 - 2021/22 pooled)



- **53.3% of children with African ethnicity had excess weight in Year R.** This group also had the **highest prevalence of excess weight in Year 6 (51.4%).**
- Children with **Bangladeshi** ethnicity are among the **most likely** to have **excess weight in Year R (46.7%) and Year 6 (44.4%).**
- Children with **White & Asian** or **Indian** ethnicity were among the **least likely** to have **excess weight in Year R** but are among the **most likely in Year 6.**
- Children with **White British** ethnicity had one of the **lowest rates of year 6 excess weight (37.3%).**



- **Year 6 overweight and obesity rates in Southampton** are now **significantly higher** than **2016/17** (increased by **16%** while England is declining). **Year R overweight** rates **increased** in **2022/23** while **England declined**, **Southampton on track to be significantly higher next year**.
- Children in Southampton are **likely to become a less healthy weight** in the time between **Year R** and **Year 6**. **Especially in more deprived areas**. More than **1 in 4 healthy weight** Year R students will have **excess weight** by **Year 6**. More than **1 in 10 healthy weight** Year R students will be **obese in Year 6** (based on 2021/22).
- While **Year R obesity** is a **predictive factor** for **obesity** in **Year 6**, **interventions** targeted at **obese children** in **Year R** will only have the potential to reduce Year 6 obesity by a **maximum of one third** (as **two thirds of obese Year 6 children were not obese in Year R** (2021/22)).
- Southampton has **significant differences** in childhood overweight and obesity rates **between deprivation quintiles, ethnicities** and **sexes**. **Males**, children living in **more deprived areas** and children with **African ethnicity** have the **highest rates** of Year 6 overweight and obesity.