

3.S. Poster walk: Monitoring population health: surveillance and responses

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Long-term trends in central obesity in England: An age-period cohort approach

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Background: Central obesity measures, such as waist circumference (WC), waist-to-hip ratio (WHR), and waist-to-height ratio (WHtR) have been found to outperform, body mass index (BMI) in predicting health risks. In particular, BMI has been shown to underdiagnose obesity in older adults due to muscle loss.

Methods: We used data from the Health Survey for England (2005-2021) to analyse WC, WHR, WHtR, and BMI in individuals aged 11-89 years (birth cohorts 1919-2008). High-risk classifications were defined using established thresholds. Age, period, and cohort effects were assessed using logistic regression with grouped variables to address the identification problem inherent in age-period-cohort (APC) models.

Results: The prevalence of high-risk increased over time for all obesity measures. Central obesity measures showed a consistent linear increase with age until around 70 years of age. BMI exhibited an inverted U-shaped age trend. Period effects showed a modest increase in high-risk prevalence across measures, while there was little evidence for a cohort effect. WHtR trends closely mirrored BMI at the population level but identified different high-risk individuals. The odds of high-risk WHtR increased with age, with odds ratios (OR) reaching 4.91 (95% CI: 1.95 to 12.39) for females and 6.15 (95% CI: 2.24 to 16.89) for males in the 85-89 age group. Period effects for WHtR showed ORs of 1.41 (95% CI: 1.16 to 1.72) for females and 1.25 (95% CI: 1.01 to 1.55) for males in 2019-2021 compared to 2005-2006.

Conclusions: Central obesity measures, particularly WHtR, could provide a more consistent reflection of age-related increases in obesity risk compared to BMI. The linear increase in high-risk prevalence with age for central obesity measures aligns better with known age-related increases in obesity-related comorbidities. Age plays a significant role in driving obesity trends meaning an aging population could leading to a further increase in the prevalence of obesity.

Key messages:

- Central obesity measures, particularly WHtR, could provide a more consistent reflection of age-related increases in obesity risk compared to BMI.
- Age plays a significant role in driving obesity trends meaning an aging population could leading to a further increase in the prevalence of obesity.