

Prevalence of micronutrient deficiency in adults with class 3 obesity

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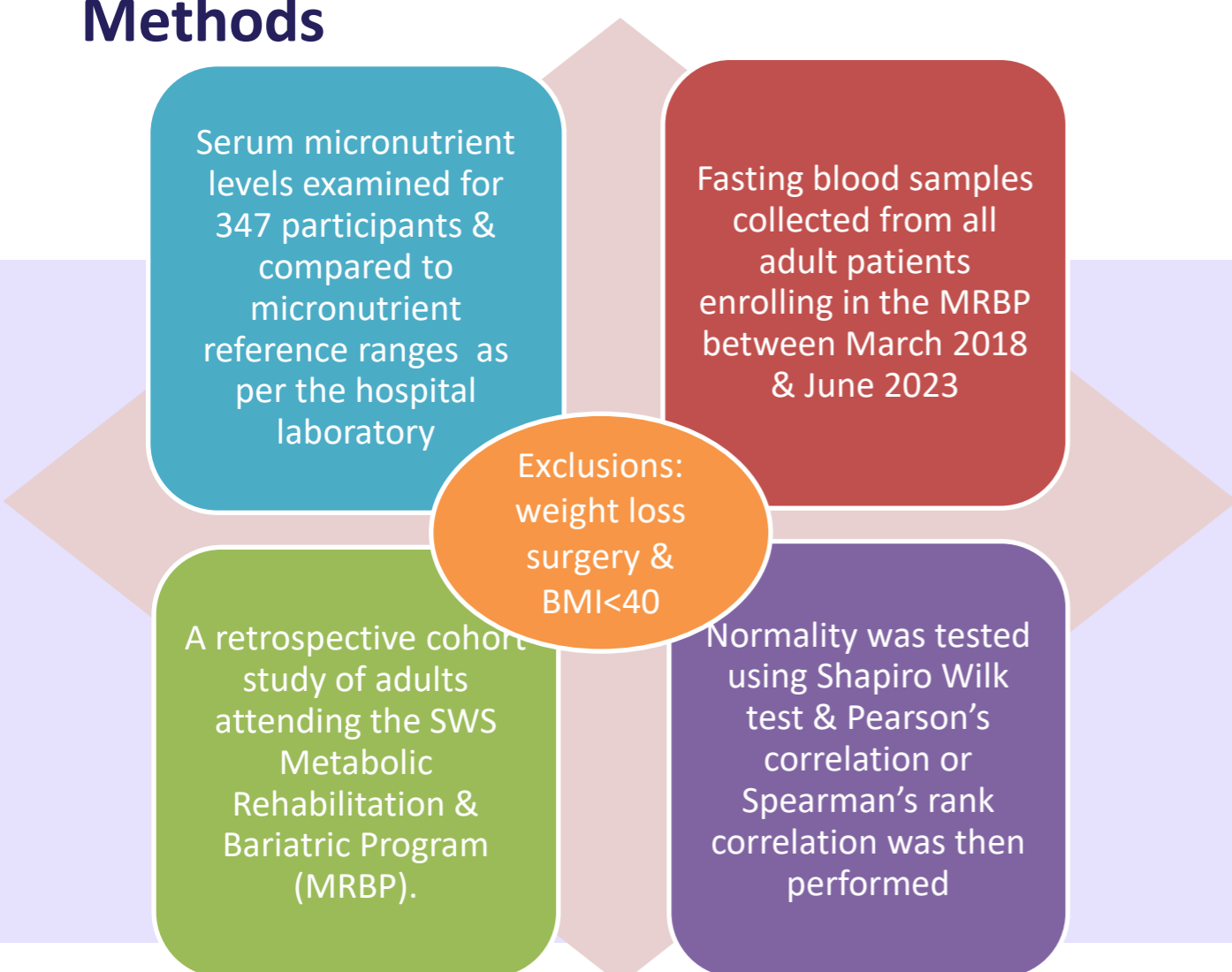
Introduction

- 66% of adults in South Western Sydney (SWS) live with overweight or obesity.
- Class 3 obesity is defined by a body mass index (BMI) of ≥ 40 kg/m². In Australia, 4.6% of adults lived with Class 3 obesity in 2022-23.
- There is a higher incidence of micronutrient deficiency in people with overweight and obesity. Micronutrients are essential to support the body's metabolic and physiological processes.
- There is lack of data on micronutrient status in people with class 3 obesity & in SWS.

Aims

- To examine the prevalence of micronutrient deficiency in adults with class 3 obesity
- To investigate the association between BMI and micronutrient status in class 3 obesity.

Methods



Conclusion

There was a high prevalence of vitamin D and iron deficiency in people with class 3 obesity, and lower vitamin D and folate levels with increasing BMI. This highlights the need to consider micronutrient status in people with class 3 obesity and when making dietary recommendations and recommending supplements.

Results

- Serum micronutrient levels were below the reference intervals in 51.0% vitamin D, 10.2% iron, 3.8% vitamin B12, 3.6% Folate, 4.3% magnesium and 1.9% phosphate.
- Other micronutrient levels did not correlate with BMI.

Table 1 Baseline Characteristics of participants

| | Mean \pm SEM | Median |
|--------------------------|------------------|--------|
| Age (years) | 49.1 \pm 13.4 | 49 |
| Females (%) | 69.5 | |
| Weight (kg) | 148.4 \pm 33.9 | 142 |
| BMI (kg/m ²) | 52.9 \pm 10.4 | 51.4 |

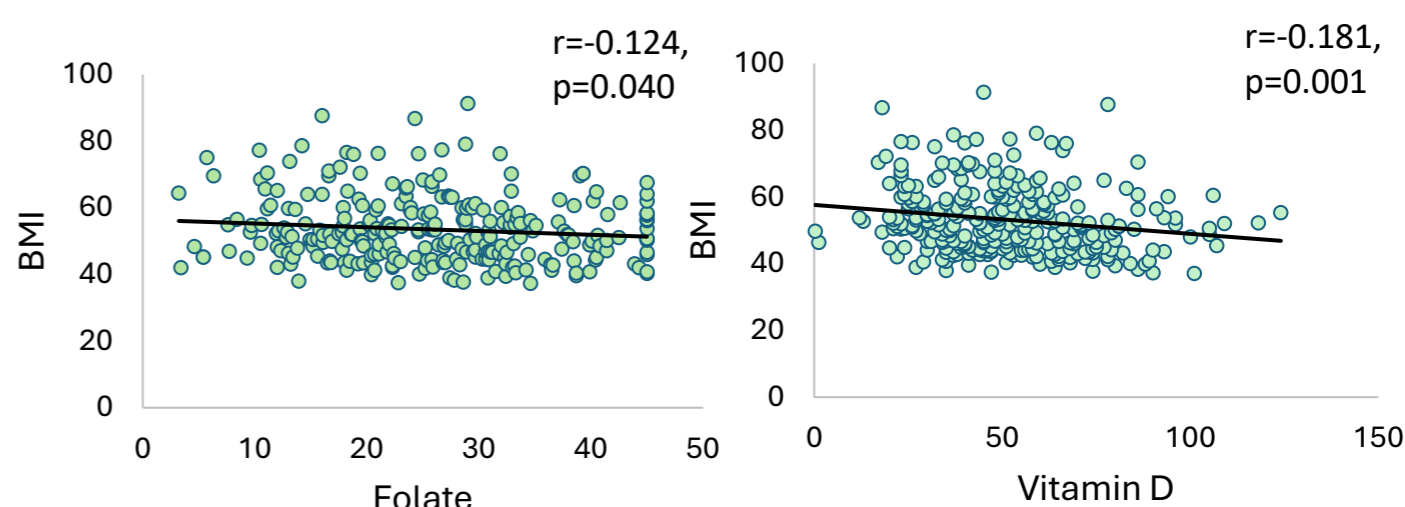


Fig. 1a Correlation between BMI & Folate **Fig. 1b** Correlation between BMI & Vit D

Table 2 Correlation between BMI & serum micronutrients

| | n | Correlation Coefficient (r) | p value |
|-------------------|-----|-----------------------------|---------|
| Corrected Calcium | 314 | 0.098 | 0.083 |
| Magnesium | 303 | 0.074 | 0.202 |
| Phosphate | 311 | -0.011 | 0.844 |
| Iron | 293 | -0.051 | 0.385 |
| Active B12 | 286 | -0.110 | 0.064 |
| Folate | 278 | -0.124 | 0.040 |
| Vitamin D | 304 | -0.181 | 0.001 |



References

- Australian Bureau of Statistics. National Health Survey, 2022.
- Australian Institute of Health and Welfare (AIHW) report on overweight and obesity, 2024.
- <https://www.healthstats.nsw.gov.au>
- McKay et al. BMC Nutrition, 2020.

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