



# A retrospective and explorative analysis of dietary and behavioural factors on weight loss and well-being following a 12-week lifestyle education program promoting anti-inflammatory dietary principles

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It is estimated that one-quarter of the world's population has Metabolic Syndrome (MS)<sup>(1)</sup>, a key driver of growth in healthcare expenditure. Traditional approaches to treating MS through the application of standard dietary recommendations and caloric restriction have had limited success. More recent evidence suggests that novel, anti-inflammatory approaches such as replacing refined carbohydrates and ultra-processed food with unprocessed or minimally processed, lower carbohydrate foods and adapting meal timing and frequency may be more effective<sup>(2)</sup>. The aim of the study was twofold: 1) To determine the effectiveness of anti-inflammatory dietary strategies for long-term weight loss and improvement in metabolic health and 2) To examine the relationships between eating behaviours and long-term weight loss. Twelve-month audit data from a UK based 12-week lifestyle program that focuses the principles of consuming an anti-inflammatory diet was analysed using repeated-measures ANOVA to examine the effects of the program on changes in weight and waist circumference. A quantitative, survey-based research design was used to retrospectively identify relationships between eating behaviours and both anti-inflammatory and pro-inflammatory dietary patterns. Multivariate regression using stepwise method was used to examine differences in weight change based on eating patterns and behaviours. Six hundred and forty-two ( $N = 642$ ) participants (age =  $50.4 \pm 12.5$  years, female 63.6%, weight =  $96.1 \text{ kg} \pm 22.1$ , BMI  $35.2 \text{ kg/m}^2 \pm 7.5$ ) demonstrated a weight loss average of  $4.49 \text{ kg} \pm 3.78$  post-lifestyle program (12 weeks). Survey respondents ( $N = 64$ ) reported a maximum long term weight loss of  $13.9 \text{ kg} \pm 11.9$ . Weight loss and percentage weight loss after the program was significantly predicted by daily consumption of sweet drinks and grain-based foods. The model predicted one unit increase in daily serving consumption of these foods resulted in less weight lost [2.3 kg (4.5%)]. Seventy one percent of survey respondents had maintained most or all their weight loss for more than 6 months. The model predicted change in consumption of grain-based foods, TFEQ-emotional eating score, consumption of savoury ultra-processed foods, and following an alternative dietary approach after the program were statistically significant in predicting weight loss maintenance ( $R^2 = 0.803$ ,  $F(4, 20) = 20.376$ ,  $p < 0.001$ ). The preliminary findings suggest that anti-inflammatory dietary approaches are effective and sustainable for weight loss. Eating behaviour may both support and hinder long term changes in eating patterns and whilst there are significant relationships between eating behaviour and eating patterns, the extent to which dietary patterns drive eating behaviour remains unclear.

**Keywords:** metabolic syndrome; weight loss; anti-inflammatory diet; eating behaviour

## Ethics Declaration

Yes

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## References

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