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Changes over time in mental well-being, fruit and vegetable consumption and physical activity in a community-based lifestyle intervention: a before and after study

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ABSTRACT

Objectives: There is a theoretical basis for believing that healthy lifestyle interventions can improve mental well-being and evidence to show that mental well-being is protective of future health. This study contributes to the evidence base by examining changes in mental well-being associated with the One Body One Life (OBOL) healthy lifestyle programme in a community setting in the West Midlands.

Study design: Quantitative, before and after the evaluation.

Methods: We conducted a before and after study of the lifestyle intervention 'OBOL', a multi component intervention that includes exercise and healthy eating education. Mental well-being was measured with the Warwick–Edinburgh Mental Well-being Scale. Physical activity and fruit and vegetable consumption were self-reported. Measures were collected before and after the 12-week intervention and three months post completion. Non-parametric tests were used to assess differences between groups, and linear mixed models were used to assess change over time.

Results: Four hundred and eighty-one (81% of attendees) adult participants completed a valid Warwick–Edinburgh Mental Well-being Scale before starting OBOL; of whom, 63.8% completed the Warwick–Edinburgh Mental Well-being Scale immediately post intervention and 25.2% at three months. Mental well-being levels increased significantly ($P < 0.001$) over the course of the intervention and were sustained at the three-month follow-up (baseline median Warwick–Edinburgh Mental Well-being Scale score = 48 [interquartile range 41–55], completion = 53 [interquartile range 46–57], 3-month follow-up = 52 [interquartile range 46–56]). Change in mental well-being was clinically significant after accounting for age and gender. Changes in both fruit and vegetable consumption and physical activity appeared to explain some but not all of the variation in mental well-being.

Conclusion: We found significant improvements in mental well-being among participants directly after the intervention which were sustained at the three-month follow-up. These

Abbreviations: OBOL, One Body One Life; WEMWBS, Warwick–Edinburgh Mental Well-being Scale.

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findings contribute to a growing body of knowledge on the contribution of lifestyle interventions to promoting and sustaining mental well-being.

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Introduction

The Foresight Report on Mental Capital and Well-being¹ made a powerful case, on economic and health grounds, for the promotion of positive mental health and well-being partly on the grounds that it is protective of future health.^{2,3} This report, coupled with the development of valid and reliable measures of mental well-being,^{4,5} has fuelled the development of UK policy relating to mental well-being⁶ and research to identify effective interventions.

Mental well-being and positive mental health are regarded as synonymous, but the former term has gained more traction in public health practice in the UK because general and clinical populations relate to it more readily than to the term positive mental health. Both terms describe a state of positive affect and psychological functioning. Positive affect includes emotions like happiness, calm, contentment or satisfaction with life; positive functioning includes capabilities like autonomy, motivation, engagement and positive relationships. Self-acceptance and self-confidence are important components of mental well-being which include features of both affect and functioning.^{7,8} The term mental health has been used in many ways; we use it here to refer to the spectrum of mental health from problems and disorders to well-being.

There are strong theoretical reasons to believe that healthy lifestyle programmes, which aim to increase physical activity and improve diet, could improve mental well-being. This perspective is reflected in UK public health outcomes framework.^{6,9} Physical activity has been shown to improve mental health in general and clinical populations,^{10–18} although the majority of the latter studies use measures of mental illness, which may lack sensitivity to detect change in mental well-being^{10,17,18} and limit usefulness for universal, community-based interventions. Several studies have shown a close epidemiological association between fruit and vegetable consumption and mental health (both illness and well-being)^{19,20} and a small number have provided some evidence suggesting causality.^{21,22} In addition, group-based activities and skilled facilitator support could improve mental well-being via reduction in social isolation, increase in peer support, increase in self-acceptance through sharing of problems and acceptance by group, and increase in self-esteem from managing to change.^{23–25} Preliminary research on healthy lifestyle interventions has suggested improvements in mental well-being as measured by the Warwick–Edinburgh Mental Well-being Scale (WEMWBS).²⁶

The evaluation of health promoting interventions offered on an open access basis in community settings can be more complex than evaluation of treatments for illness in clinical settings. Recruitment to programmes can be difficult and

difficulty can be enhanced by the study setting. It is more difficult to achieve complete control over the environment and usually impossible to achieve ‘blinding’ for participants. In addition, interventions which require personal engagement for success may be influenced negatively by the controlled setting of trials.²⁷ Observational studies of interventions in natural settings therefore play a role in the development of public health policy.²⁸

This study aimed to investigate the extent of change in mental well-being associated with the One Body One Life (OBOL) healthy lifestyle programme and to assess the extent to which any change was mediated by lifestyle change. OBOL was offered in Coventry, England, on an open access basis following general publicity, providing the opportunity for a pragmatic observational study. The main components of OBOL are increasing fruit and vegetable consumption and physical activity; recent evaluation has shown significant increases in physical activity and fruit and vegetable consumption, and small but significant decreases in body mass index (BMI)/BMI percentile among adults and children.²⁹

Method

Description of the intervention

OBOL is a 12-week family-based intervention designed to create lifestyle behaviour change through education and activity sessions for any age group.²⁹ The programme was developed by the ‘Be Active Be Healthy’ team within Coventry City Council, using NICE Clinical Guideline 43³⁰ in response to the ‘Choosing Health: Making healthy choices easier’ White Paper.³¹ It is underpinned by the standard tools derived from behaviour change theory for weight management including goal-setting, self-monitoring and relapse prevention.³² The programme maintains a strong emphasis on being ‘fun and interactive’.

Courses were delivered in a community setting by qualified coaches using a behavioural approach to change. Coaches were qualified to Register of Exercise Professionals level 3 on the Exercise Referral Qualification. Each course includes 12 × 90-min weekly sessions divided into a 45-min exercise focussing on gently improving fitness using basketball, netball, football (soccer), rounders, dance and Tai Chi, and a 45-min workshop on healthy eating including healthy eating tips and demonstrations, health checks and motivational coaching to improve expectations and identify readiness for change.²⁹

Participants were recruited from the local population using media publicity (local radio and newsprint), GP ‘referral’ and posters in community centres and gathering places. All those presenting were included provided they had no pre-existing

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