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[McGuire, Amanda Mary, Seib, Charrlotte, Porter-Steele, Janine, & Anderson, Debra J.](#)

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Abstract

TITLE: OVERCOMING BARRIERS TO PHYSICAL ACTIVITY IN MIDLIFE AUSTRALIAN WOMEN: A WEB BASED MULTI-MODAL LIFESTYLE INTERVENTION FOR THE PRIMARY PREVENTION OF CHRONIC DISEASE.

Authors: Amanda McGuire¹, Charlotte Seib¹, Janine Porter-Steele¹, Debra Anderson¹

¹ Institute of Health and Biomedical Innovation, Queensland University of Technology, Brisbane, QLD, Australia.

Background: Chronic diseases such as cardiovascular disease and type 2 diabetes are an increasing cause of death and disability globally (WHO, 2011). These diseases are largely preventable and are related to modifiable lifestyle risk factors including physical inactivity (WHO, 2008). There is evidence that midlife women perceive a range of benefits and barriers to exercise (Adams & McCrone; McGuire et al., 2014; McGuire, 2015). A 12 week multimodal web-based lifestyle intervention was developed incorporating health education, goal setting and nurse consultations targeting health behaviours including exercise and healthy eating. The purpose of this study was to examine the effect of the intervention (*The Women's Wellness Program®: WWP*) (Anderson et al., 2013) on perceived benefits and barriers to exercise and actual physical activity, in participants receiving the intervention in three different modes.

Methods: In 2013, 225 women aged 40 to 65 were recruited from across Australia. Blocks of participants were allocated at random to undertake the intervention either online independently (Group A), face to face group with nurse consultations at 0, 4, 8 and 12 weeks (Group B) or online with virtual nurse consultations at 0, 4, 8 and 12 weeks (Group C). A total of 157 participants completed the intervention. Participants completed online surveys on socio-demographic characteristics, perceived exercise benefits and barriers (Sechrist et al., 1987) and physical activity (Woods & Mitchell) at two time points (Time 1 at 0 weeks, and Time 2 at 12 weeks). Analyses were performed using SPSS (IBM) version 22 using descriptive and inferential statistics. Bivariate correlation explored the relationship between observed variables at baseline. Paired *t*-tests and ANCOVA was used to investigate change in benefits/barriers and physical activity within and between groups over time. Effect size was determined using Cohen's *d* formulas (Cohen, 1988; Kazis et al., 1989) to calculate the magnitude and meaning of pre/post changes and the difference in effect between groups at Time 2.

Results: The average age of participants was 51 years (SD = 5.9). Most were born in Australia (79%), married (82%), employed either full- or part-time (82%), and reported annual income above \$AUD 80,000 (88%). Results showed women reported significant increases in perceived benefits to exercise, actual physical activity and exercise in all groups post intervention ($p < .01$), with moderate to large effect sizes for exercise measures ($r = .5 - .87$). When comparing the effect size between groups over time, the groups receiving support from a health professional had a higher magnitude of change in perceived benefits/barriers and physical activity measures.

Conclusion: Despite understanding the benefits of physical activity, midlife women report a range of barriers to exercise. The study provides evidence that women participating in the *Women's Wellness Program®* in all three modes, had increased positive perceptions of exercise and increased physical activity and exercise levels at completion of the program. Results also confirm that a flexible web-based program for the prevention of chronic disease can be effectively delivered in a range of modes to overcome barriers to exercise. The inclusion of nurse consultations in the multi-modal program is also important to further enhance positive lifestyle behaviour change in midlife women.

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