Improving Preconception Health and Lifestyle Behaviours through Digital Health Intervention: The OptimalMe Program

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Abstract : Introduction: Reproductive aged women are at high-risk for accelerated weight gain and obesity development, with pregnancy recognised as a critical contributory life phase. Healthy lifestyle interventions during the preconception and antenatal period improve maternal and infant health outcomes. Yet, interventions from preconception through to postpartum and translation and implementation into real-world healthcare settings remain limited. OptimalMe is a randomised, hybrid implementation effectiveness study of evidence-based healthy lifestyle intervention. Here, we report engagement, acceptability of the intervention during preconception, and self-reported behaviour change outcomes as a result of the preconception phase of the intervention. Methods: Reproductive aged women who upgraded their private health insurance to include pregnancy and birth cover, signalling a pregnancy intention, were invited to participate. Women received access to an online portal with preconception health and lifestyle modules, goal-setting and behaviour change tools, monthly SMS messages, and two coaching sessions (randomised to video or phone) prior to pregnancy. Results: Overall n=527 expressed interest in participating. Of these, n=33 did not meet inclusion criteria, n=8 were not contactable for eligibility screening, and n=177 failed to engage after the screening, leaving n=309 who were enrolled in OptimalMe and randomised to intervention delivery method. Engagement with coaching sessions dropped by 25% for session two, with no difference between intervention groups. Women had a mean (SD) age of 31.7 (4.3) years and, at baseline, a self-reported mean BMI of 25.7 (6.1) kg/m^2, with 55.8% (n=172) of a healthy BMI. Behaviour was sub-optimal with infrequent self-weighing (38.1%), alcohol consumption prevalent (57.1%), sub-optimal pre-pregnancy supplementation (61.5%), and incomplete medical screening. Post-intervention 73.2% of women reported engagement with a GP for preconception care and improved lifestyle behaviour (85.5%), since starting OptimalMe. Direct pre-and-post comparison of individual participant data showed that of 322 points of potential change (up-to-date cervical screening, elimination of high-risk behaviours [alcohol, drugs, smoking], uptake of preconception supplements and improved weighing habits) 158 (49.1%) points of change were achieved. Health coaching sessions were found to improve accountability and confidence, yet further personalisation and support were desired. Engagement with video and phone sessions was comparable, having similar impacts on behaviour change, and both methods were well accepted and increased women's accountability. Conclusion: A low-intensity digital health and lifestyle program with embedded health coaching can improve the uptake of preconception care and lead to self-reported behaviour change. This is the first program of its kind to reach an otherwise healthy population of women planning a pregnancy. Women who were otherwise healthy showed divergence from preconception health and lifestyle objectives and benefited from the intervention. OptimalMe shows promising results for population-based behaviour change interventions that can improve preconception lifestyle habits and increase engagement with clinical health care for pregnancy preparation.

Keywords : preconception, pregnancy, preventative health, weight gain prevention, self-management, behaviour change, digital health, telehealth, intervention, women's health