

Title: Optimising a Digital Intervention for Parents, Targeting Multiple Adolescent Health Risk Behaviours: Results from Phase Two of a Multiphase Optimisation Strategy Trial

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Background: Chronic diseases may be prevented by improving six health risk behaviours among adolescents (the 'Big 6'): physical inactivity, poor nutrition and sleep, sedentary screen use, and using alcohol and cigarettes/vapes. The 'Big 6' are particularly prevalent among adolescents experiencing socio-economic disadvantage. While parent-focussed interventions can be effective for improving health risk behaviours among adolescents, few parent-focussed interventions concurrently target multiple health risk behaviours, and even fewer are specific to families experiencing socio-economic disadvantage. This presentation describes the 'Optimisation Phase' of a Multiphase Optimisation Strategy Trial (MOST), in which five components of a parent-focussed digital intervention were tested to assess which components individually and synergistically worked best to improve parental encouragement of adolescents' healthy behaviour in the 'Big 6'.

Methods: A 2⁴ factorial design is currently being implemented among parents (N=298) experiencing socio-economic disadvantage in New South Wales, Australia. Parents are randomised to one of 16 intervention combinations. All parents receive six online modules (one for each of the 'Big 6'). Parents are randomised to receive 1 of 16 combinations of additional components: text messages, tailored feedback, stress management training, and telehealth coaching. Parents complete surveys at baseline and 3-months post-baseline. The primary outcome is change in parental encouragement of adolescent health behaviours at 3-months.

Results: Trial is underway. To date, 254 (of 298; 85%) parents have been randomised, and 3-month follow-up survey completion rate is 74% (N=99 of 134 due). We anticipate recruitment will be complete by late October 2025, data collection complete by late January 2026, and analyses complete by March 2026. Results will guide assembly of an 'optimised intervention package' that achieves greatest improvement in the target outcome, with the least resource burden.

Conclusions: This is the first study to use the MOST framework to co-design a digital intervention targeting multiple health risk behaviours for chronic disease.

Researcher Bio:

Dr Davidson is a postdoctoral research fellow at University of Sydney's Matilda Centre for Research in Mental Health and Substance Use. Lily's current focus is optimising and evaluating 'Health4Life Parents and Teens', aimed at preventing onset of the 'Big 6' health risk behaviours for chronic disease (CIA Dr Katrina Champion).