



4th Global Conference on Psychology

21 - 23 August 2026

Oxford, United Kingdom

Psychological Mechanisms of Youth Engagement in A Family-Centric School Health Intervention: Self-Efficacy, Self-Perception, And Digital Tool Acceptance in A Multi-Site Cluster RCT

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Abstract

Psychological processes such as self-efficacy, self-perception, and trust in intervention tools may shape how children engage with healthy lifestyle programs in school settings. This abstract presents the study protocol of the BIO-STREAMS school pilot intervention, a multi-site European cluster randomized controlled trial designed to promote healthy lifestyle behaviours among approximately 2000 schoolchildren aged 9 to 14 years across five pilot sites across Europe, i.e., the Netherlands, Portugal, Greece, Slovenia and Denmark. Schools are allocated to intervention or control conditions, and participants are assessed at baseline and after a 6-month intervention delivered within one school year. Both groups receive four classroom workshops focused on topics relating to healthy lifestyles, more specifically (healthy) breakfast, healthy and balanced meals, hydration, and physical (in)activity, while the intervention

group additionally receives access to a mobile application with a lifestyle recommendation feature and a serious games suite. Planned self-reported outcomes include lifestyle habits, food and nutrition literacy, self-efficacy, self-perception, as well as body weight and height, while intervention-group participants also evaluate usability, user experience, trust, and acceptance of the digital tool. By focusing on child

agency, engagement, and psychologically informed behaviour change within school and family contexts, the study contributes to current discussions in health, developmental, and educational psychology on ethically sensitive and scalable youth health promotion.

Keywords: behaviour change; food literacy; healthy lifestyles; prevention; usability