Title: Identifying theory- and evidence-based components of a chronic illness self-management app for Sjogren’s syndrome

Introduction: Sjogren’s syndrome (SS) is a chronic autoimmune condition with multiple symptoms (dryness, fatigue, pain, and sleep disturbances). Behavioural approaches improve quality of life and delivery through smartphone apps may support self-management. To address the complexity and diversity of SS symptoms, multiple behavioural interventions are available. Novel optimisation and evaluation methods, namely Multiphase Optimisation Strategy (MOST), can help determine which intervention components to deliver in-app to maximise acceptability, engagement and effectiveness.

Aim: To select theory- and evidence-based components for MOST testing of a self-management app designed to improve quality of life in those living with SS.

Methods: An initial set of theory-based behaviour change interventions for dryness, fatigue, pain, and sleep disturbance symptoms were identified through literature searches and a focus group with clinicians. To select and refine theory-based components, the first round involved: mapping the content of all interventions to BCTs; identifying BCTs that were repeated across interventions (and likely to impact the greatest number of symptom self-management behaviours); and collating content associated with these BCTs to generate individual components. The second refinement round was informed by acceptability data collected using app content analysis methods and focus groups.

Analysis: App descriptions of Apple app store apps for each symptom were collected and coded using BCTs. Relevant operationalised BCTs (i.e. features of existing apps) were then presented and explored in 14 focus groups with those living with SS, followed by prototypes developed by the research team, using think aloud. Thematic analysis of qualitative data informed the use of APEASE criteria to select final components.

Results: Final app components (and BCTs) included: (i) SS psychoeducation (information on antecedents/consequences) (ii) relaxation techniques (body changes, instruction on performing a behaviour) (iii) activity pacing and goal setting (self-monitoring of behaviour/outcomes, action planning, goal setting, graded exercise) (iv) assertiveness and communication (demonstrating a behaviour, restructuring social environment) (v) sleep and dryness tips (associative learning, restructuring physical environment).

Conclusions: Candidate components for an SS app were identified using behaviour change theory and acceptability evidence. The developed app should be tested in a feasibility study to further refine components using engagement data and an optimisation trial to optimise effectiveness.