

Integrating health behavioural change theories in the design of prediabetes self-care applications: a systematic literature review

ABSTRACT

Type 2 diabetes is a lifelong metabolic disorder caused by high levels of glucose in the blood which can result in serious health conditions such as neuro-, nephro-, retino- and cardiopathy. Enormous on-going research efforts and interventions are focussed on diabetes management but less on prediabetes which is associated with the prevention of or progression to Type 2 diabetes. Health behavioural change theories are important contributors to the effectiveness of interventions. However, they are rarely integrated systematically in the design of self-care applications for empowerment. In this paper, a Systematic Literature Review (SLR) is presented to evaluate the effectiveness of existing health behavioural change theories in managing prediabetes and to determine the effectiveness of self-care applications that incorporates these theories in their design. A total of four hundred and thirty-six papers were found in this regard. After careful study and the removal of duplicate papers and studies exclusion, 14 papers which met the inclusion criteria were selected for the review. On the whole, the review shows favorable impact of the integration of health behavioural change theories on prediabetics to better manage their prediabetes in changing behaviours, reducing blood glucose level, promoting healthier lifestyle habits, better body weight management and adoption of self-care behaviours. The commonly used theories were then identified to be incorporated into novel web and mobile self-care applications. This review will help application developers to integrate health behavioural change theories in designing impactful prediabetes self-care interventions. The results of this SLR show two clear gaps in this research field: 1) a lack of studies focussing on the integration of health behavioural change theories in prediabetes management and 2) a lack of studies contributing to the design of self-care applications for prediabetes. On a broader perspective, the review reveals that prediabetes self-care applications designed using health behavioural change theories have great potential in enabling prediabetics to take control of their health in preventing Type 2 diabetes.

Keyword: Prediabetes; Health behavioural change theories; Effectiveness; Self-care applications; Self-care, Diabetes prevention