



Lifestyle & Prevention

Effectiveness of smartphone apps for lifestyle improvement

Are smartphones and e-health applications the future of interventions for NCD's?

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Noncommunicable diseases (NCDs) account for 70% of all deaths in a year globally. The 4 main NCDs (cardiovascular diseases, cancers, chronic pulmonary diseases, and diabetes mellitus) all share the same behavioral risk factors: physical inactivity, an unhealthy diet, tobacco use, and harmful use of alcohol.

Fifty percent of persons with NCDs do not adhere to the prescribed treatment; in fact, adherence to lifestyle interventions in particular is considered a major challenge. Feedback seems to be essential for success in behavioral change. Smartphone apps permit structured monitoring of health parameters, as well as the opportunity to receive feedback.

This review of 9 high-quality studies assessed the effectiveness of app-based lifestyle interventions.

Lifestyle outcomes were physical activity, physical fitness, body weight/waist circumference, modification of dietary habits, glycated hemoglobin (HbA1c) and quality of life. Patients in all studies monitored themselves for at least 3 months on lifestyle factors (exercise, diet) and clinical measurements (blood glucose, weight, blood pressure etc). In some studies, patients were monitored by researchers as well.



As exercise is an important aspect in self-management; it is interesting that none of the studies included in this review objectively measured physical activity or physical fitness.

A statistical significant effect was shown in HbA1c in 5 of 8 studies, as well in body weight in 1 of 5 studies and in waist circumference in 1 of 3 studies evaluating these outcomes.

Statistical significant improvements between groups on lifestyle factors were reported in 6 of 9 studies (67%). For diabetes, the use of apps seems to improve lifestyle factors and especially decrease HbA1c.

More research with long-term follow-up (over a year, as NCD patients need to handle their diseases for the rest of their lives) should be performed to assess the effect of smartphone apps for NCDs other than diabetes.

Expert opinion

The use of e-Health applications (web-based, telemonitoring or app-based) is promising and developing quickly. 1588 studies were identified on the topic, and only 9 met the criteria for inclusion, indicating that building and implementing a useful tool is complex and needs a clear underlying theory of behaviour change.

Possibly, blended care (face-to-face combined with self-management tools to provide feedback) with a long term follow-up is the way forward for behavioral change.

> From: Lunde et al., *J Med Internet Res* 20 (2018) e162. All rights reserved to The Author(s). [Click here for the online summary.](#)

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