



Contents lists available at ScienceDirect

## Patient Education and Counseling

journal homepage: [www.elsevier.com/locate/pateducou](http://www.elsevier.com/locate/pateducou)



### Health Care

# Does evidence support the use of mobile phone apps as a driver for promoting healthy lifestyles from a public health perspective? A systematic review of Randomized Control Trials

L. Covolo<sup>a,\*</sup>, E. Ceretti<sup>a</sup>, M. Moneda<sup>b</sup>, S. Castaldi<sup>c,d</sup>, U. Gelatti<sup>a</sup>

<sup>a</sup> Department of Medical and Surgical Specialties, Radiological Sciences and Public Health, University of Brescia, Italy

<sup>b</sup> Post-graduate School of Public Health, University of Brescia, Italy

<sup>c</sup> Department of Biomedical Sciences for Health, University of Milan, Italy

<sup>d</sup> Quality Unit, Fondazione IRCCS Ca' Granda OMP, Italy

#### ARTICLE INFO

##### Article history:

Received 15 January 2017

Received in revised form 12 July 2017

Accepted 28 July 2017

##### Keywords:

Systematic review

Mobile phone applications

Healthy lifestyles

Efficacy

Public health

#### ABSTRACT

**Objective:** The aim of this systematic review was to find a scientific evidence on the efficacy of apps in promoting healthy lifestyles.

**Methods:** The research was carried out according to PRISMA Statement. Pubmed, Embase and Google Scholar searches were carried out up to September 2016 focusing on randomized control trials (RCTs).

**Results:** Forty RCTs were selected. Most of the studies targeted weight management, PA and healthy eating (N = 35). A few RCTs focused on apps designed to sun protection, smoking cessation and alcohol consumption (N = 5). Only 10 RCTs (25%) found statistical difference between intervention and control groups for all the outcomes measured. Most of the studies had a short follow-up (65%, less than 6 months) and half of them a very small sample size (fewer than 100 subjects).

**Conclusion:** Overall, the evidence so far showed a modest efficacy of apps in health promotion.

**Practice implications:** There is a need to improve the overall quality of intervention studies focused on mobile apps in order to understand if they could become a valuable tool in support of health professionals and their efforts to promote education and health.

© 2017 Elsevier B.V. All rights reserved.

## 1. Introduction

It is well established that unhealthy lifestyles are associated with an increased risk of mortality [1]. Adherence to at least four healthy lifestyle factors (e.g. no smoking, physical activity, healthy diet, moderate alcohol intake) has shown to be associated with a reduction of all causes of mortality by 66% [2]. On the other hand changing unhealthy behaviour is difficult to achieve and maintain in the long term [3] and behavioural health interventions seem to have a marginal impact [4,5,6]. Health interventions have been implemented through a variety of channels and smartphones may represent one of these channels due to their increasing availability and ease of use. Even the European Commission, in a recent report on mobile health [7] states that, mHealth solutions may be a useful tool to change “the role of patients from a rather passive to a more participative role, while enhancing their responsibility over their own

health through apps that encourage them to adhere to diet and medication.” In fact, with regard to public health, the use of mobile phone applications (apps) to promote healthy lifestyles behaviours is promising for various reasons. First of all, they are free or low cost and can reach a large number of individuals even in remote places. They can be used at any time, so people do not necessarily have to schedule an appointment with their health care practitioner. They can be a useful tool to deliver health messages and record self-observations, generating feedback and support in real time, and above all they can be tailored to the user’s preferences and even context [8].

It is worth noting that there is a great interest in mHealth also from an economic point of view. The global mHealth market accounted for an estimated revenue of 13,674 million USD in 2015, and it is expected to grow at a rate of 34% from now to 2022, thanks also to increased access of mobile platforms [9]. It is interesting to note that apps focused on wellness management represent approximately two thirds of all available mHealth apps [10].

Despite these good premises for mHealth apps, the question is if they really are effective health promotion tools. Several systematic reviews addressed this issue from different points of views. A

\* Corresponding author at: Department of Medical and Surgical Specialties, Radiological Sciences and Public Health Unit of Hygiene, Epidemiology and Public Health University of Brescia, Italy.

E-mail addresses: [loredana.covolo@unibs.it](mailto:loredana.covolo@unibs.it), [covolo@med.unibs.it](mailto:covolo@med.unibs.it) (L. Covolo).

recent systematic review was carried out to evaluate the efficacy of interventions that use mobile apps to improve diet and physical activity (PA) [11]. Two systematic reviews [12,13] focused on the role of mobile apps in changing health related behaviours considering both lifestyle improvements and disease management. Other authors focused on specific target behaviours such as PA increase [14] and weight loss [15] or healthy diet and nutrition [16]. An overview of review evidence [17] summarized the evidence on mobile and web 2.0 interventions on weight management examining a large number of reviews. There is evidence for some positive effects of mobile technologies, however, all the authors agree that the magnitude of the intervention is modest and there is a need for more rigorous research in terms of methodology and study design.

The aim of this systematic review were to analyse the effectiveness of mobile phone apps in promoting healthy lifestyles through a comprehensive bibliographic search of randomized control trials (RCTs), as they are the most suitable study design to provide evidence in medicine [18] and to examine in detail the outcomes and quality of the studies on this topic.

## 2. Methods

The systematic review was carried out according to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines [19].

### 2.1. Information sources

The literature search covered the period up to September 2016 and was carried out using electronic databases (PubMed, Embase) in addition to Google Scholar.

We included all the results obtained from PubMed and Embase and the first 500 results for each keyword found in Google Scholar.

### 2.2. Search strategies

We conducted the bibliographic search using the following keyword combinations as key terms for each database: “primary prevention”, “prevention”, “health promotion”, “mobile phone”, “cell phone”, “smartphone”, “iPhone”, “mHealth”, “application” and “app/s”. The reference lists of all articles assessed for eligibility were checked for any other relevant paper.

### 2.3. Study selection and eligibility criteria

We selected only studies with an RCT design, clearly defined in the title and abstract or in the methods section. We included studies according to the following criteria: written in English, full text available, key terms found anywhere in the paper, articles with original data.

When more articles referred to the same RCT protocol, only the last published was included and its completed results reported.

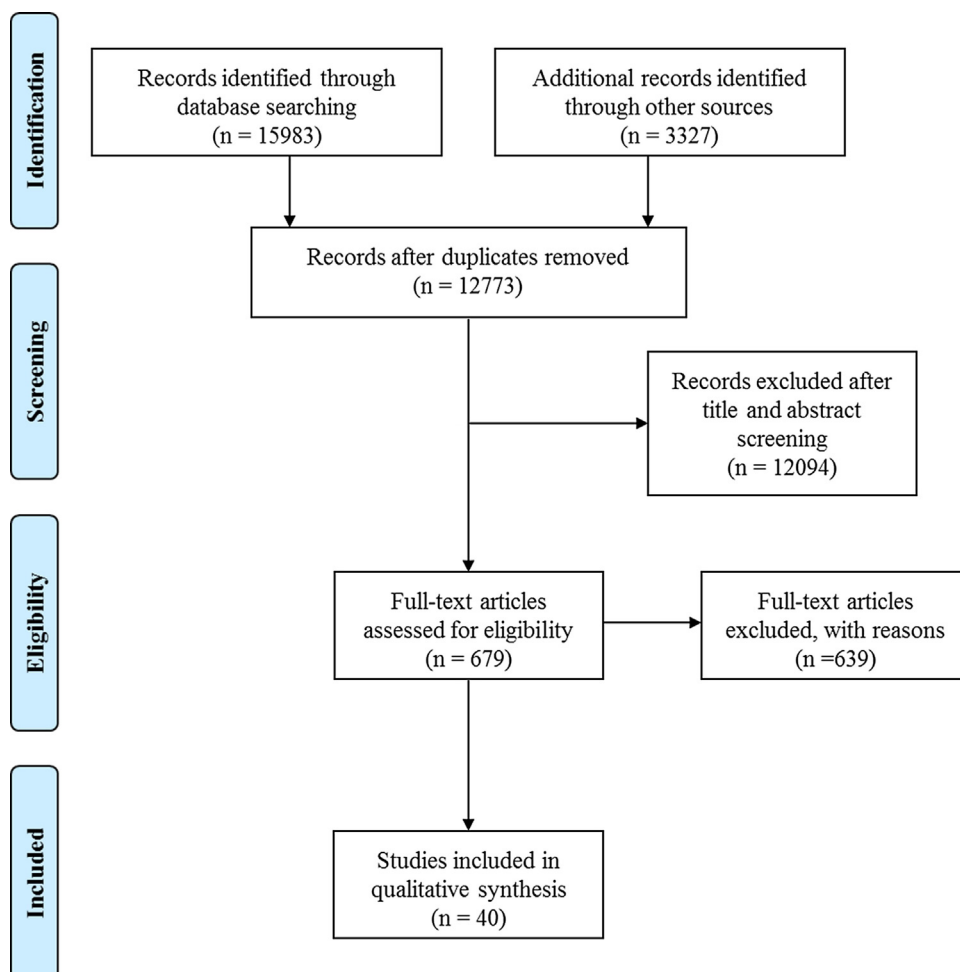


Fig. 1. PRISMA Study Selection Process Flow Diagram.

Download English Version:

<https://daneshyari.com/en/article/8945137>

Download Persian Version:

<https://daneshyari.com/article/8945137>

[Daneshyari.com](https://daneshyari.com)