



Review Article

A systematic review of eHealth behavioral interventions targeting smoking, nutrition, alcohol, physical activity and/or obesity for young adults



Emilie Oosterveen^{a,b}, Flora Tzelepis^{c,d,e}, Lee Ashton^a, Melinda J Hutchesson^{a,*}

^a School of Health Sciences, Faculty of Health and Medicine, and Priority Research Centre in Physical Activity and Nutrition, Hunter Building (HA12), University of Newcastle, Callaghan, NSW 2308, Australia

^b Division of Human Nutrition, Wageningen University, The Netherlands

^c School of Medicine and Public Health, Faculty of Health and Medicine, University of Newcastle, Callaghan, NSW 2308, Australia

^d Hunter Medical Research Institute, New Lambton Heights, NSW 2305, Australia

^e Hunter New England Population Health, Wallsend, NSW 2287, Australia

ARTICLE INFO

Article history:

Received 2 September 2016

Received in revised form 17 January 2017

Accepted 19 January 2017

Available online 25 January 2017

Keywords:

Smoking

Nutrition

Alcohol

Physical activity

Obesity

eHealth

Young adults

Intervention

Systematic review

ABSTRACT

A systematic review of randomized control trials (RCT) was undertaken to evaluate the effectiveness of eHealth behavioral interventions aiming to improve smoking rates, nutrition behaviors, alcohol intake, physical activity levels and/or obesity (SNAPO) in young adults. Seven electronic databases were searched for RCTs published in English from 2000 to April 2015 and evaluating eHealth interventions aiming to change one or multiple SNAPO outcomes, and including young adult (18–35 years) participants. Of 2,159 articles identified, 45 studies met the inclusion criteria. Most interventions targeted alcohol ($n = 26$), followed by smoking ($n = 7$), physical activity ($n = 4$), obesity ($n = 4$) and nutrition ($n = 1$). Three interventions targeted multiple behaviors. The eHealth interventions were most often delivered via websites (79.5%). Most studies ($n = 32$) compared eHealth interventions to a control group (e.g. waiting list control, minimal intervention), with the majority ($n = 23$) showing a positive effect on a SNAPO outcome at follow-up. Meta-analysis demonstrated a significantly lower mean number of drinks consumed/week in brief web or computer-based interventions compared to controls (Mean Difference -2.43 [$-3.54, -1.32$], $P < 0.0001$, $n = 10$). Sixteen studies compared eHealth delivery modes, with inconsistent results across target behaviors and technology types. Nine studies compared eHealth to other modes of delivery (e.g. in person) with all finding no difference in SNAPO outcomes between groups at follow-up. This review provides some evidence for the efficacy of eHealth SNAPO interventions for young adults, particularly in the short-term and for alcohol interventions. But there is insufficient evidence for their efficacy in the longer-term, as well as which mode of delivery is most effective.

Crown Copyright © 2017 Published by Elsevier Inc. All rights reserved.

Contents

1.	Introduction	198
2.	Methods	198
2.1.	Eligibility criteria	198
2.2.	Literature search	199
2.3.	Study selection	199
2.4.	Risk of bias	199
2.5.	Data extraction and result synthesis	199
3.	Results	199
3.1.	Description of included studies	199
3.2.	Risk of bias	199
3.3.	eHealth interventions	200

Abbreviations: BAC, Blood alcohol concentration; CVD, Cardiovascular disease; RCT, Randomized controlled trials; SNAPO, Smoking, nutrition, alcohol, physical activity and obesity.

* Corresponding author.

E-mail address: Melinda.hutchesson@newcastle.edu.au (M.J. Hutchesson).

3.4.	Effectiveness of eHealth smoking cessation interventions	200
3.4.1.	eHealth interventions versus control	200
3.4.2.	eHealth interventions versus another delivery mode	201
3.4.3.	Comparison of eHealth delivery mode	201
3.5.	Effectiveness of eHealth nutrition interventions	201
3.5.1.	eHealth interventions versus control	201
3.6.	Effectiveness of eHealth alcohol interventions	201
3.6.1.	eHealth interventions versus control	201
3.6.2.	eHealth interventions versus another delivery mode	202
3.6.3.	Comparison of eHealth delivery mode	202
3.7.	Effectiveness of eHealth physical activity interventions	202
3.7.1.	eHealth interventions versus control	202
3.7.2.	eHealth interventions versus another delivery mode	203
3.8.	Effectiveness of eHealth obesity interventions	203
3.8.1.	eHealth interventions versus control	203
3.8.2.	eHealth interventions versus another delivery mode	203
3.8.3.	Comparison of eHealth delivery mode	203
3.9.	Effectiveness of eHealth multiple behavior interventions	203
4.	Discussion	203
4.1.	Study quality and characteristics	204
4.2.	Strengths and limitations	204
5.	Conclusion	204
	Transparency document	204
	Acknowledgements	204
	References	

1. Introduction

Smoking, risky alcohol use, poor diet quality, physical inactivity and obesity are modifiable risk factors of chronic conditions such as cardiovascular disease (CVD), stroke, cancer and diabetes (Hozawa et al., 2006; Liu et al., 2012; Parker et al., 2007; Pereira et al., 2005). Occurrence of these modifiable risk factors during young adulthood can influence chronic disease morbidity in later life. For example, the Coronary Artery Risk Development in Adults (CARDIA) study examined five healthy lifestyle factors (healthy weight, non-smoker, low alcohol intake, high diet quality and high physical activity levels) in young adulthood (18–30 years) and their cumulative association with CVD risk profile in middle-age (38–50 years). A low CVD risk profile in middle-age was highest among young adults with all five healthy lifestyle behaviors (60.7%), and lowest (3.0%) among individuals with no healthy behaviors (Liu et al., 2012).

Many young adults' lifestyle behaviors are adverse. Approximately 34% of men and 22% of women aged 20–24 years from developed countries are current smokers (Ng et al., 2014b). Globally, 76% of young adults consume fewer than five servings of fruit and vegetables daily (Hall et al., 2009) and up to 38% are physically inactive (Hallal et al., 2012). Young adults are more likely to drink to intoxication, for example in the US 43% of 21–25 year-olds report a heavy episodic drinking occasion in the previous month (Substance Abuse and Mental Health Services Administration (SAMHSA), 2014). Lastly, approximately 35% of women and 46% of men aged 25–29 years in developed countries are overweight or obese (Ng et al., 2014a). Therefore, effective interventions that improve young adults' lifestyle behaviors could have a considerable public health impact.

Most systematic reviews (e.g. Broekhuizen et al., 2012; Lemmens et al., 2008; Li et al., 2015; Lombard et al., 2009; Patnode et al., 2015) that have examined the effectiveness of interventions targeting smoking, nutrition, alcohol intake, physical inactivity, and/or obesity (SNAPO), have been in the general adult population. Systematic reviews that have focused on interventions for young adults targeting SNAPO (e.g. Ashton et al., 2015; S. R. Partridge et al., 2015a; Tanner-Smith and Risser, 2016; Villanti et al., 2010) typically consider only one individual SNAPO. It is important to consider SNAPO collectively due to the interlinked nature of these in relation to chronic disease risk and

mortality. Among young adults SNAPO often cluster together (Kang et al., 2014), therefore interventions that target multiple SNAPO outcomes may have a larger impact on chronic disease risk. To our knowledge there is only one review that has considered all SNAPO outcomes, but it only included studies with young men (Ashton et al., 2015). Therefore, there are no comprehensive systematic reviews of all SNAPO interventions for young adults, including both interventions targeting individual and multiple behaviors.

eHealth is defined as “the combined use of electronic communication and information technology in the health sector” (Orlikoff and Totten, 2000). Therefore, eHealth combines the use of technologies, such as the Internet and Smartphones to facilitate behavior change and improve health. Previous research has demonstrated the effectiveness of eHealth behavioral interventions (Broekhuizen et al., 2012; Hutchesson et al., 2015; Webb et al., 2010). eHealth interventions have particular potential among young adults due to their high level of use of technology. For example, in the US, among adults aged 18–29 years, 96% are internet users, 86% use a smartphone, 89% access social networking sites, 50% own a tablet computer and 56% a game console (Pew Research Center, 2014). Young adults are also known to access health information using technology (Sadah et al., 2016). Therefore, due to its wide reach and appeal to young adults, the effectiveness of eHealth to improve SNAPO outcomes among young adults should be examined.

Therefore, this systematic review evaluated the effect of eHealth behavioral interventions compared to any comparator or control group on young adults' (aged 18–35 years) SNAPO outcomes.

2. Methods

This systematic review adheres to the PRISMA statement (Moher et al., 2009) and was completed as per the protocol registered with PROSPERO (http://www.crd.york.ac.uk/PROSPERO/display_record.asp?ID=CRD42015019462).

2.1. Eligibility criteria

1. *Participants:* Young adulthood was defined as being aged 18 to 35 years, as per the National Institute of Health's definition (National Institute of Health, 2010).

Download English Version:

<https://daneshyari.com/en/article/5635653>

Download Persian Version:

<https://daneshyari.com/article/5635653>

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