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Effectiveness of brief nutrition interventions on dietary behaviours in adults: A systematic review

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ABSTRACT

Brief interventions are effective in improving health behaviours including alcohol intake, however the effectiveness of brief interventions targeting nutrition outcomes has not been determined. The aim of this systematic review was to determine the effectiveness of brief nutrition interventions in adults. Seven databases were searched for RCT/pseudo RCT studies published in English to April 2016, and evaluating brief interventions (i.e. single point of contact) designed to promote change in eating behaviours in healthy adults (≥18 years). Of 4849 articles identified, 45 studies met inclusion criteria. Most studies targeted fruit and/or vegetable intake (n = 21) or fat intake (n = 10), and few targeted diet quality (n = 2). Median follow-up was 3.5 months, with few studies (n = 4) measuring longer-term outcomes (≥12 months). Studies aimed to determine whether a brief intervention was more effective than another brief intervention (n = 30), and/or more effective than no intervention (n = 20), with 17 and 11 studies, respectively, reporting findings to that effect. Interventions providing education plus tailored or instructional components (e.g. feedback) were more effective than education alone or non-tailored advice. This review suggests that brief interventions, which are tailored and instructional, can improve short-term dietary behaviours, however evidence for longer-term behaviour change maintenance is limited.

Contents

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1. Introduction

Chronic diseases such as cardiovascular disease and diabetes are a major global health problem, accounting for 70% of annual deaths (World Health Organization, 2014), while 40% of adults worldwide are overweight or obese (World Health Organization, 2016). Poor nutrition, characterised by diets low in nutrient rich foods, such as fruits and vegetables, and high in energy-dense, nutrient poor foods, such as foods high in saturated and trans fats, sugar and salt, are associated with increased chronic disease risk and weight gain (World Health Organization, 2003). Improving dietary behaviours could help to prevent morbidity and mortality from these chronic diseases, however the majority of adults fail to meet dietary guidelines (Australian Bureau of Statistics; National Cancer Institute, 2015; Public Health England, 2014). Therefore, there is a need for effective intervention approaches to improve dietary behaviours, and consequently health outcomes, of adults.

The majority of nutrition interventions provided to adults involve multiple contacts delivered over periods of weeks to months (Afshin et al., 2016; Deliens et al., 2016; Grieger, Wycherley, Johnson, & Golley, 2016; Olson, 2016), essentially taking an intensive approach (Werch et al., 2006). However, a brief or minimal approach may be an effective alternative (Werch et al., 2006). A brief intervention is one *"purposely limited in the number and length of contacts,"* or more specifically an intervention designed to involve the minimum input and contact required to achieve significant and sustainable impact (Werch et al., 2006). In the absence of a standard or specific definition for the number or length of contacts constituting a 'brief' intervention, brief is defined in this review as a single contact. Brief interventions have been employed for a range of health behaviours including alcohol use, tobacco smoking, and drug use, with studies demonstrating largely positive outcomes across behaviours (Dotson, Dunn, & Bowers, 2015; Dunn, Deroo, & Rivara, 2001; Leeman, Perez, Nogueira, & DeMartini, 2015; Patten et al., 2008; Tevyaw & Monti, 2004; Werch et al., 2006). Most extensively evaluated is the application of brief interventions to reduce alcohol use, with several systematic reviews demonstrating significant outcomes to that effect (Dotson et al., 2015; Kaner Eileen et al., 2007; Leeman et al., 2015; Oosterveen, Tzelepis, Ashton, & Hutchesson, 2017). For example, Oosterveen et al. recently conducted a meta-analysis of brief web or computer based alcohol interventions in young adults, showing a significant reduction in weekly alcohol consumption in intervention compared with control participants up to 12 months post the single session interventions (Mean Difference −2.43 drinks/week [-3.54, −1.32], $P < 0.0001$) (Oosterveen et al., 2017).

Brief interventions pose several advantages which may contribute to their effectiveness, as well as increased reach and engagement. Firstly, they may be more cost-effective due to reduced time and expertise required for implementation compared with longer, multi-session interventions (Leeman et al., 2015; Werch et al., 2006). Furthermore, many adults may not be interested in an intensive intervention (Munt, Partridge, & Allman-Farinelli, 2016; Werch et al., 2006), thereby a brief intervention may be more appealing due to the reduced participant burden in terms of time and commitment (Leeman et al., 2015; Werch et al., 2006). A brief intervention is also well suited to a range of delivery modes, including eHealth (e.g. website or smartphone application), print resources, face-to-face (including individual or group sessions), or a combination (Armitage, 2007; Chapman & Armitage, 2012; Sacerdote et al., 2006; Vandelanotte, De Bourdeaudhuij, Sallis, Spittaels, & Brug, 2005; Werch et al., 2006). Conversely, the shorter timeframe of a brief intervention presents some limitations. As brief interventions involve less exposure, they may be unable to include a multitude of behaviour change techniques (BCTs), which may limit their long-term efficacy. With less