



Review Article

Factors that influence the implementation of dietary guidelines regarding food provision in centre based childcare services: A systematic review



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ABSTRACT

Children attending centre based childcare services consume as much as two thirds of their daily dietary requirements while in care. However, such services often fail to provide foods that are consistent with guideline recommendations. Developing strategies to improve childcare service adherence to menu dietary guidelines requires a comprehensive understanding of factors that may impede or promote implementation. The primary aim of this systematic review is to describe factors (barriers and facilitators) that may influence the implementation of menu dietary guidelines regarding food provision in centre-based childcare services and to map these factors to a theoretical framework.

Over 7000 citations were identified from all sources. Duplicate abstracts were removed and selection criteria applied. Twelve studies (1994–2015) were included in the review. Dual data extraction was conducted and the reported factors were synthesised using the theoretical domains framework (TDF).

Barriers and facilitators identified in qualitative studies were classified into 8 and 10 of the 14 TDF domains. Barriers and facilitators reported in quantitative studies covered 6 and 3 TDF domains respectively. The most common domain of which both barriers and facilitators to the implementation of menu dietary guidelines were identified was ‘environmental context and resources’.

This is the first study that comprehensively assesses literature to identify factors that influence the implementation of menu dietary guidelines in childcare services utilising a theoretical framework. Findings provide guidance to support researchers and policy makers design strategies to improve menu dietary guideline implementation and, as such have the potential to improve food provision in care.

1. Introduction

Poor dietary intake is a leading modifiable risk factor for non-communicable diseases including obesity, cardiovascular disease, stroke, type 2 diabetes and some cancers (World Health Organisation, 2004). For children, good nutrition is essential to support healthy growth and development (Australian Government, 2013). Furthermore, dietary patterns, food habits and food preferences developed in childhood track into adulthood and can prevent the onset of non-communicable disease (Huybrechts et al., 2008). As such, interventions to

improve dietary intake in children are recommended by the World Health Organization (World Health Organisation, 2004).

Centre based childcare services, which include pre-schools and long day care services (open for greater than 8 h per day) represent an opportunistic setting to improve the dietary intake of children as they provide access to large numbers of children during a key developmental period (Mikkelsen et al., 2014). In the United States (US) and United Kingdom (UK) approximately one third of children aged five years or younger attend centre based childcare services (Laughlin, 2013). In Australia, over 80% of children aged four to five years attend centre

Abbreviations: TDF, theoretical domains framework

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based childcare (Australian Bureau of Statistics, 2015). Furthermore, many centre based childcare services are responsible for providing meals to children while in care. Children attending such services consume as much as two thirds of their daily dietary requirements while in this setting (Radcliffe et al., 2002). The implementation of dietary guidelines in centre based childcare services therefore, have considerable potential to improve children's dietary intake (World Health Organisation, 2004).

A number of countries have developed specific recommendations to support the provision of healthy foods to children in centre based childcare. In the US, the American Dietetic Association recommends that centre based childcare services provide meals and snacks make up 50% to 70% of the child's recommended daily allowance (RDA) during eight hours of care (Benjamin Neelon et al., 2011). The UK Food Standards Agency (Crawley, 2006) recommends centre based childcare services provide 70% of children's daily dietary requirements while in 8 h of care, via two main meals and two snacks. In Australian states, such as New South Wales (NSW), childcare sector guidelines (NSW Ministry of Health N, 2014) recommend services provide at least 50% of children's recommended daily dietary intake, during 8 h of care, based on the national dietary guidelines (Australian Government, 2013).

Internationally, however, centre based childcare services fail to provide foods that are consistent with such guideline recommendations. An analysis of menus from 83 childcare centres in the US reported that the menus did not provide the recommended amount of carbohydrates, dietary fibre, iron, vitamin D and Vitamin E; and provided excessive amounts of sodium (Frampton et al., 2014). Similar findings also have been reported in the UK. One study audited 118 menus from nurseries (enrolling children under 5 years of age) and reported that none complied with nutrition guidelines (Local Authorities Coordinators of Regulatory Services, 2010). In Australia, a 2012 audit of 46 menus from centre based childcare services within NSW found that no service provided food that was compliant with nutritional guideline recommendations (Yoong et al., 2014). Such findings indicate that children's nutrition requirements are not being met while in care and highlight the need for interventions to improve the implementation of dietary guidelines in this setting (Landers et al., 1994; Gelissen et al., 1992).

Developing strategies to improve centre based childcare services' compliance with menu dietary guidelines requires a comprehensive understanding of factors that may impede or promote guideline implementation. A number of studies have identified that a lack of formal training and professional development opportunities for childcare service cooks, lack of time, and the limited availability of practical and up to date menu-planning resources impede the implementation of dietary menu guidelines (Pollard et al., 1999; Moore et al., 2005; Lyn et al., 2014; Romaine et al., 2007). The application of theoretical frameworks, such as the theoretical domains framework (TDF), to assess factors that influence implementation, ensures a broad range of implementation factors are considered. However, to our knowledge, there has been no previous systematic review, that utilised a theoretical framework to describe factors that may influence the implementation of menu dietary guidelines by centre based childcare services. Given this evidence gap, the primary aim of this systematic review is to describe factors (barriers and facilitators) that may influence the implementation of dietary guidelines regarding food provision in centre based childcare services and to map these factors to the TDF. Given the extensive range of factors considered within the TDF, use of this theoretical framework will reduce the likelihood that any factors influencing guideline implementation are inadvertently missed.

2. Methods

2.1. Types of studies

Non-experimental studies, of any design, which qualitatively and/or quantitatively examined factors (barriers or facilitators) that influence the implementation of dietary menu guidelines regarding food provision in centre based childcare services were included. Such factors could include those that impede or facilitate guideline implementation. Centre based childcare services included pre-schools, nurseries, long day care services and kindergartens that enroll children prior to compulsory schooling (typically up to the age of five to six years). To be eligible, studies needed to be conducted in or with staff reporting on centre based childcare services that provide at least one main meal to children while in care. Manuscripts or reports not published in English were excluded as were studies of childcare services provided in the home.

2.2. Types of participants

Study participants could include managers, cooks, or other staff involved in the operation of centre based childcare services. Participants also included officials from other government or non-government organisations or regulatory agencies that may influence food provision in such services.

2.3. Types of measures

Any factors (barriers and facilitators) that were reported to influence the implementation of dietary menu guidelines were included. Data collected via a variety of methods, including childcare service records, interviews, questionnaires or surveys completed by childcare services cooks, managers and other staff or stakeholders that may influence guideline implementation were included. For this review, a barrier was defined as "a circumstance or obstacle that keeps people or things apart or prevents communication or progress" (Oxford U, n.d.), whereas a facilitator was defined as "a person or thing that makes something possible" (Oxford U, n.d.).

3. Search methods for identification of studies

3.1. Electronic searches

We searched the following electronic databases: Medline, Medline in Process, PsycINFO, ERIC, Embase and CINAHL. The search strategy included filters for the setting (childcare) as well as terms for barriers or facilitators and dietary menu guidelines using terms from previous reviews and relevant studies (Wolfenden et al., 2016). We adapted the Medline search strategy for the other databases (see Appendix 1). An experienced librarian assisted with developing search terms and mapping across electronic databases.

3.2. Searching other resources

We searched the reference lists of all included studies for citations of other potentially relevant studies. We conducted hand searches of all publications in the past five years in the journal 'Implementation Science'. To identify published government reports and other grey literature we searched the web-engine 'Google' using the phrase 'barriers or enablers to dietary guideline implementation in childcare'. The first 200 google citations were examined. We also contacted the authors of all included trials (n = 12), and experts in the field of implementation science to identify any relevant ongoing or unpublished studies, or grey literature publications.

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