

Barriers and Enablers to Implementation of Dietary Guidelines in Early Childhood Education Centers in Australia: Application of the Theoretical Domains Framework

Alice Grady, PhD^{1,2,3,4}; Kirsty Seward, BND^{1,2}; Meghan Finch, PhD^{1,2,3}; Alison Fielding, PhD^{1,2}; Fiona Stacey, BAppSc^{1,2,3,4}; Jannah Jones, BND^{1,2,3,4}; Luke Wolfenden, PhD^{1,2,3,4}; Sze Lin Yoong, PhD^{1,2,3,4}

ABSTRACT

Objective: To identify perceived barriers and enablers to implementation of dietary guidelines reported by early childhood education center cooks, and barriers and enablers associated with greater implementation based on assessment of center menu compliance.

Design: Cross-sectional telephone interview.

Setting: Early childhood education centers, New South Wales, Australia.

Participants: A total of 202 cooks responsible for menu planning; 70 centers provided a menu for review of compliance with dietary guidelines.

Main Outcome Measure: Barriers and enablers to dietary guideline implementation were determined using a tool assessing constructs of the Theoretical Domains Framework (TDF). Higher scores (≥ 6) for each construct indicated enablers to guideline implementation; lower scores (< 6) suggested barriers.

Analysis: Multivariable linear regression identified TDF constructs associated with greater guideline implementation.

Results: Scores were lowest for reinforcement (mean, 5.85) and goals (mean, 5.89) domains, and highest for beliefs about consequences (mean, 6.51) and social/professional role and identity (mean, 6.50). The skills domain was positively associated with greater implementation of guidelines based on menu review ($P = .01$).

Conclusions and Implications: Cooks perceived social/professional role and identity, and beliefs about consequences to be enablers to dietary guideline implementation; however, only the skills domain was associated with greater implementation. There are opportunities to target the incongruence in perceptions vs reality of the barriers and enablers to implementation. Future research could examine the utility of the TDF to identify barriers and enablers to implementation to inform intervention development and for evaluating interventions to examine intervention mechanisms.

Key Words: nutrition policy, child care, barriers, enablers, Theoretical Domains Framework (*J Nutr Educ Behav.* 2018;50:229–237.)

Accepted September 26, 2017. Published online November 21, 2017.

¹School of Medicine and Public Health, University of Newcastle, Callaghan, New South Wales, Australia

²Hunter New England Local Health District, Population Health, New Lambton, New South Wales, Australia

³Hunter Medical Research Institute, University of Newcastle, Newcastle, New South Wales, Australia

⁴Priority Research Centre for Health Behaviour, University of Newcastle, Newcastle, New South Wales, Australia

Conflict of Interest Disclosure: The authors' conflict of interest disclosures can be found online with this article on www.jneb.org.

Address for correspondence: Alice Grady, PhD, Hunter New England Population Health, Locked Bag 10, Wallsend, New South Wales 2287, Australia; Phone: (612) 49246064; E-mail: Alice.Grady@hnehealth.nsw.gov.au

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<https://doi.org/10.1016/j.jneb.2017.09.023>

INTRODUCTION

Poor diet is a modifiable risk factor for the development of noncommunicable diseases.^{1,2} As dietary patterns developed in early childhood are maintained into adulthood,³ establishing healthy eating behaviors in children was recommended by the World Health Organization⁴ and Australian Government⁵ as a strategy to improve diet and prevent chronic disease. However, national and international research indicates that young children do not meet dietary guidelines.⁶

Provision of foods in line with dietary guidelines in early childhood

education (ECE) settings is recommended as a cost-effective strategy to reduce the burden of noncommunicable diseases.⁴ Early childhood education settings provide a valuable opportunity to improve dietary intake as they offer access to a substantial proportion of children at an important developmental period. In 2014, 55% of children in Australia attended child care,⁷ where children can obtain up to 67% of their daily energy intake from foods provided by these centers.⁸ Evidence suggests that interventions to improve food provision in ECE centers are effective in improving diet.⁹

Poor compliance with dietary guidelines among ECE centers has been documented nationally and internationally.^{10,11} A US observational study with 96 centers found that none were compliant with guidelines; all centers provided non-recommended sweet snacks, and 71% did not provide recommended daily servings of vegetables.¹¹ In 2014, an audit of Australian ECE center menus found that no menu met recommendations of the dietary guidelines for the sector.^{10,12} None of the ECE centers provided the recommended number of servings of vegetables and all provided discretionary foods high in fat, sodium, and sugar.¹⁰ Menu planning within these centers is typically undertaken by a service cook who does not necessarily have formal qualifications in nutrition. Given this, there is a need to identify strategies to support dietary guideline implementation in ECE centers to improve children's nutritional intake and prevent diet-related diseases.

Use of a multilevel, theoretically based implementation framework to identify barriers and enablers to the implementation of guidelines is recommended to inform the development of effective interventions.¹³ Few studies have assessed barriers and enablers to the implementation of dietary guidelines in the ECE setting.¹⁴⁻¹⁷ Those studies identified a perceived cost of providing healthier options and perceived lack of parent engagement and support, resources, and training materials,¹⁸ as well as understanding how to apply dietary guidelines, as barriers.¹⁹ Previous studies examining barriers and enablers have not

used a comprehensive guiding framework or theory to inform their assessments.¹⁴⁻¹⁷ Therefore, they may have inadvertently failed to assess pertinent barriers or enablers to implementation. Furthermore, previous studies focused on perceived barriers and enablers without examining their association with implementation outcomes.¹⁴⁻¹⁷ Previous research suggested some discrepancies between perceived and actual barriers to implementation²⁰; therefore, research to identify such barriers and enablers is needed to inform the implementation of evidence-based guidelines.

The Theoretical Domains Framework (TDF)²¹ represents a framework to synthesize behavior change factors that may enable or impede the implementation of evidence-based practice.^{13,21} The TDF was developed via a rigorous consensus and validation process, and systematically summarizes an extensive number of behavior change constructs within 33 theoretical models and frameworks.²¹ Measures developed to assess constructs examined within the TDF have been shown to be valid and reliable,^{22,23} and have been previously used across various health care settings to explore factors related to compliance with recommended practices, and to inform implementation intervention development.²⁴ Application of the TDF in the ECE setting has the potential to provide a theoretical assessment of the barriers and enablers to implementing dietary guidelines and to identify behavioral change factors to guideline implementation.

Using a validated tool examining TDF constructs, this study aimed to identify perceived barriers and enablers to implementing dietary guidelines reported by ECE center cooks, and barriers and enablers associated with greater implementation based on assessment of center menu compliance.

METHODS

Institutional Review Board

Approval for this study was obtained from the Hunter New England (12/08/15/5.01) and University of Newcastle (H-2012-0321) Human Research Ethics Committees.

Participants

A cross-sectional survey was undertaken with ECE centers in New South Wales (NSW), Australia. A list of daylong care centers was supplied by the government regulating agency ($n = 2,304$). Cooks from a sample of daylong care centers ($n = 994$) were randomly selected (by an independent statistician using a computer-generated random sequence) and invited to participate between June and September, 2015. Eligible ECE centers were located within NSW Australia (excluding the Hunter New England region), open for >8 h/d, had a center cook who played a role in menu planning, provided 2 mid-meals (morning and afternoon tea) and 1 main meal to children across 8 hours in care, and did not outsource catering of food.

Procedures

An information letter was mailed to cooks approximately 2 weeks before a phone call to assess eligibility, invite participation, and obtain verbal consent.

A scripted telephone interview was developed by the research team, and consisted of standardized items assessing demographic characteristics, menu planning practices, and perceived barriers and enablers to dietary guideline implementation via the TDF. To ensure content validity, the interview was pilot-tested with 2 ECE center cooks. Trained interviewers administered the telephone interview. Each interviewer received a 1-day training session and conducted 1 mock interview to ensure standardized delivery. Early child education centers that completed the interview were asked to provide a copy of their current 2-week menu. Implementation of dietary guidelines was assessed via menu review undertaken by a dietitian, which was consistent with best-practice protocols.²⁵

Measures

Cooks' demographic and menu-planning practices. Cooks reported their age, sex, how long they had been working as a cook in the center and working overall, qualifications in food and nutrition, and how many hours they

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