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Review Article

A systematic review of children's dietary interventions with parents as change agents: Application of the RE-AIM framework

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ABSTRACT

Introduction. Interventions targeting children's dietary behavior often include strategies that target parents as implementation agents of change, though parent involvement on intervention effectiveness is unclear. The present study systematically assessed (1) reporting of reach, effectiveness, adoption, implementation and maintenance (RE-AIM) of child dietary intervention studies with parents as change agents and (2) evaluated within these studies the comparative effectiveness of interventions with and without a parent component.

Methods. The search was conducted in PubMed, PsycINFO, and Cochrane Library. Eligible studies were required to include a condition with a parental component, a comparison/control group, and target a child dietary behavior outcome. Forty-nine articles met criteria. Raters extracted RE-AIM and parent implementation information for each study.

Results. Effectiveness (72.5%) was the highest reported RE-AIM element, followed by reach (27.5%), adoption (12.5%), implementation (10%), and maintenance (2.5%). Median reporting of parent implementation was highest for adoption and enactment (20%), followed by receipt (7.5%), and maintenance (2.5%). Six studies tested comparative effectiveness of parental involvement on child dietary outcomes.

Conclusion. Current RE-AIM reporting among children's dietary interventions is inchoate. The contribution of parental involvement on intervention effectiveness remains unclear. Increased focus should be placed on reporting of external validity information, to enable better translation of research to practical applications.

Contents

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1. Introduction

The overall diet of Americans is generally poor in quality and not compliant with dietary guidelines (Guenther et al., 2006; Kirkpatrick et al., 2012; Hiza et al., 2013). Children aged 4–13 years eat about half of the amount of fruits and vegetables recommended (Guenther et al., 2006). Average consumption of sugar-sweetened beverages constitutes around 15–17% of dietary energy (Hiza et al., 2013) and older American children consume about one 12-ounce can per person/day (Han and Powell, 2013). Dietary habits established in youth have been shown to track throughout the lifespan (Craigie et al., 2011; Kelder et al., 1994), suggesting that youth dietary interventions should be pursued as a strategy to improve diet, and thereby combat obesity and decrease the risk of developing cancer, cardiovascular disease, and other chronic diseases (Ness et al., 2005; World Health Organization, 2003).

To date, interventions targeting dietary behavior among youth have shown large variability in their effectiveness to impact dietary behavior and health-related outcomes (Collins et al., 2006). To reach children and impact their home settings, parents are often targeted as the agents of change (Golan and Crow, 2004), though effectiveness of parental involvement in interventions is unclear. In a previous systematic review, Hingle et al. (2010) determined whether parental involvement increased dietary intervention effectiveness and which types of parent intervention strategies were most effective. The authors were limited in evaluating effectiveness of parental involvement due to the low quality of reporting, and the small number of studies that evaluated the comparative effectiveness of interventions with and without parental intervention components (Hingle et al., 2010). In addition, the review only assessed the internal validity of the intervention without consideration to parent implementation of the intervention and other factors important for the translation of research to practice. This review provides a novel application of the RE-AIM framework (described below) to child dietary interventions that use parents as agents of change. Though Hingle et al. (2010) attempted to determine the extent of parental involvement on child dietary intervention effectiveness, they neglected to consider parent implementation and external validity components in their assessment, thus this paper fills a gap in the literature.

Reporting of external validity elements in interventions can help eliminate gaps in the causal process of behavior change in multiple component interventions [Fig. 1]. One way these gaps can be closed is by transparency in implementation reporting. Lichstein et al. (1994) proposed a three-stage individual-level implementation science model: delivery (i.e., Was the treatment delivered as intended?), receipt (i.e., Did the patient receive the treatment?), and enactment (i.e., Did the patient take the treatment?). A problem at any of these stages could result in a difference between treatment intended and treatment received, which could alter treatment outcomes. The same model can be applied to explain intervention outcomes for interventions using parents as change agents, such as whether the parent received the intended intervention [Fig. 1; Gap 1] (e.g., Did the child bring the newsletter home?) or whether the parent enacted the intervention [Fig. 1; Gap 2] (e.g., Did the parent offer more fruits and vegetables at home?). Without reporting of this information, unsuccessful intervention outcomes may be unduly blamed on intervention components, rather than implementation.

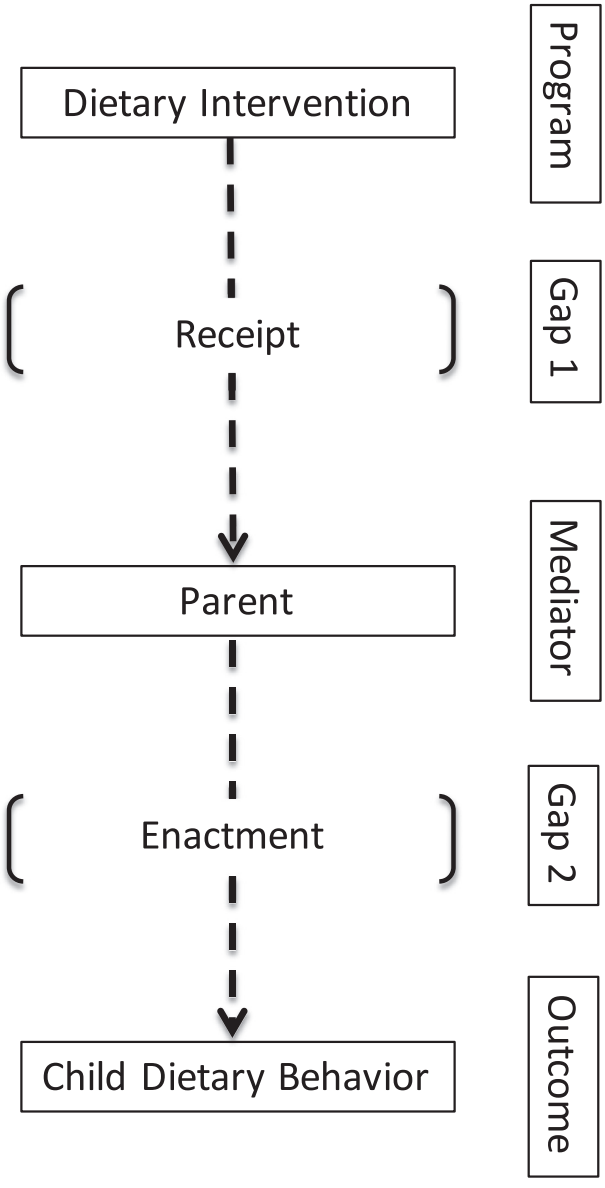

Fig. 1. The causal process of child dietary behavior change in interventions that use parents as implementers of change. Note: "Gap 1" represents a possible disconnect between a program delivered and whether a program was received by a mediator. "Gap 2" represents a possible disconnect between a mediator receiving a program and a mediator enacting on a program.