



Technology to Support Motivational Interviewing



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ABSTRACT

Purpose: This paper reports the findings of motivational interviewing (MI) training with and without technology support on school-based health center (SBHC) providers' satisfaction with MI training, providers' self-report of behavioral counseling related to childhood overweight/obesity, and parents' perception of care after training.

Design and Methods: The effects of training and technology on MI is part of a larger comparative effectiveness, cluster randomized trial. Twenty-four SBHCs in six states received virtual training on MI. Half the sites received HeartSmartKids™, a bilingual (English/Spanish), decision-support technology. The technology generated tailored patient education materials. Standard growth charts were plotted and health risks were highlighted to support MI counseling. The results of the MI training included provider satisfaction with MI training and parent assessment of the components of MI in their child's care. Providers and parents were surveyed at baseline, after training, and six months after training.

Results: Providers were satisfied with training and reported improvements in counseling proficiency ($p < 0.0007$) and psychological/emotional assessment ($p = 0.0004$) after training. Parents in the technology group reported significant improvement in provider support for healthy eating ($p = 0.04$).

Conclusion: Virtual training has the potential of preparing providers to use MI to address childhood obesity. Technology improved parent support for healthy eating. Future research should evaluate the impact of technology to support MI on patient outcomes.

Practice Implications: Childhood obesity guidelines emphasize that MI should be used to promote healthy weight in children. Training providers on MI may help more providers incorporate obesity guidelines in their practice.

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Introduction

Motivational interviewing (MI) is an evidence-based intervention to promote health behavior change (Lundahl, Kunz, Brownell, Tollefson, & Burke, 2010). It has been successfully used in over 1000 studies spanning >30 years, for behavior problems ranging from alcohol and drug use (Barnett et al., 2004), to smoking cessation (Stanton & Grimshaw, 2013), to medication adherence (Cooperman & Arnsten, 2005; McCracken & Corrigan, 2008), to exercise and diet (Armstrong et al.,

2011; Resnicow et al., 2015). Recent studies have shown positive effects of MI specifically for children (Cook, Richardson, & Wilson, 2013; Ismail, Ondersma, Jedele, Little, & Lepkowski, 2011; Weinstein, Harrison, & Benton, 2006), including prevention of pediatric obesity (Lozano et al., 2010; Schwartz et al., 2007). MI involves active listening to draw out reasons for changing behavior, and then supporting the child and family's self-efficacy in order to actually make a change (Miller & Rose, 2009). This approach can be differentiated from standard health promotion methods based on education and persuasion, and MI appears to work by increasing patients' engagement in health care (Markland, Ryan, Tobin, & Rollnick, 2005). Evidence also indicates that MI is an appropriate and effective intervention among ethnically diverse populations (Lasser et al., 2011; Villanueva, Tonigan, & Miller, 2007). Studies have not evaluated the efficacy of MI in poor, underserved geographically diverse youth seen in SBHCs, the focus of this study.

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The use of MI in healthcare has improved treatment adherence as well as treatment outcomes. In the last several years, medical clinicians, scientists, psychologists, and MI scholars have partnered to address the rapidly increasing rate of pediatric overweight/obesity and the co-occurring diagnoses (e.g., diabetes, hypertension, and cardiovascular risk). These early partnerships resulted in the release of expert guidelines and continue to guide current practice and recommendations.

The guidelines developed by expert scientists and clinicians are aimed at the prevention, assessment, and treatment of childhood overweight and obesity (Barlow, 2007; National Association of Pediatric Nurse Practitioners, 2006; National Heart Lung and Blood Institute (NHLBI), 2012). Over 33% of children in the United States are overweight or obese, with rates disproportionately higher among ethnically diverse and underserved populations (Gance-Cleveland et al., 2015b; Ogden, Carroll, Kit, & Flegal, 2014). Childhood overweight and obesity have significant health implications and are also associated with compromised health in adulthood (McCrinkle, 2015; Pulgaron, 2013; Wang et al., 2015). The guidelines all emphasize that a family-centered approach, including MI, should be used to promote healthy weight in children. Gee, Mirkin, Howell, and Eckroad (2006) reported that pediatric providers improved their assessment of overweight youth with the team approach to quality improvement, and patients' body mass index (BMI) decreased after provider training on MI. A systematic review conducted by Whitlock, O'Connor, Williams, Beil, and Lutz (2010) for the United States Preventive Services Task Force reported six studies on MI, mostly with small sample sizes and mixed results. More recently, Resnicow et al. (2015) reported significant improvements in BMI percentile with MI by both pediatricians alone and in conjunction with registered dietitians in pediatric primary care. A survey by our research team indicated that providers wanted training on obesity guidelines, especially MI (Anderson-Gifford, 2006).

School-based health centers (SBHCs) provide health services to vulnerable children with a high prevalence of obesity-related conditions who otherwise have limited or no access to healthcare. SBHCs are health clinics that are located in, or linked to, schools and provide comprehensive health services to underserved youth, which can include medical, mental health, social services, and dental care (Council on School Health, 2012). With nearly 2000 SBHCs across the United States (Lofink et al., 2013), this is a growing method of health care delivery for these at-risk populations. A chart audit conducted in a nationally-distributed sample of SBHCs revealed a higher than national prevalence of overweight/obese children aged 5–12 years, with 37.7% of non-Hispanic whites, 42.0% of Hispanics, and 49.5% of non-Hispanic blacks having a BMI above the 85th percentile (Gance-Cleveland et al., 2015b). Data show that SBHCs have positively impacted health outcomes in areas such as improved immunization rates, asthma care, and health promotion (Keeton, Soleimanpour, & Brindis, 2012). Data on the use of MI for overweight youth in SBHCs are inconsistent. An obesity study with adolescents seen in school-based health centers revealed that additional visits with a health educator using MI lead to no significant decrease or maintenance of BMI (Love-Osborne, Fortune, Sheeder, Federico, & Haemer, 2014). Conversely, a feasibility study of a SBHC weight management program using MI compared to standard care reported significant improvements in BMI percentile ($p = 0.04$) and waist circumference ($p = 0.04$) (Kong et al., 2013).

This comparative effectiveness trial evaluated virtual training on the obesity guidelines including MI with and without technology decision support. The purpose of this paper is to report findings on providers' satisfaction with MI training, providers' self-report of behavioral counseling for childhood obesity, and parents' report of care after training.

Methods

Design

A comparative effectiveness randomized clinical trial was conducted with 24 SBHCs, four from each of six states: Arizona,

Colorado, Michigan, New Mexico, New York, and North Carolina. Providers were recruited in partnership with the National Assembly of School-based Health Centers (now called the School-Based Health Alliance) and the National Association of Pediatric Nurse Practitioners School-based Health Center Special Interest Group. A nationally dispersed sample was recruited to include SBHCs from across the United States. States with four SBHCs interested in participating from diverse parts of the country were included. All sites participated in the virtual training and half the sites, two from each state, received the decision-support technology. SBHCs were randomized based upon size and rural versus urban location. Institutional Review Board approval was obtained from the sponsoring university and each SBHC site as needed (Gance-Cleveland, Dandreaux, Aldrich, & Kamal, 2015c) (Fig. 1).

Virtual Training

The virtual training consisted of 17 modules divided into four learning sessions as previously described (Gance-Cleveland, Aldrich, Dandreaux, Oetzel, & Schmiede, 2015a). MI training consisted of two hours of content with four training modules: *Introduction*, *Assessing Readiness*, *Values Exploration and Identification*, and *Implementing MI in Practice*. See Table 1 for components of training. The *Introduction* module provided an overview of MI, including the principles of MI, Stages of Change, and integrating MI into healthcare visits. An introduction to strategies for implementing MI tailored to the patients' stage of readiness was provided with video vignettes demonstrating the strategies with overweight/obese clients. The remaining three modules covered extensive training on MI via case-based video vignettes and the opportunity to practice and receive feedback from trainers via conference calls.

Assessing Readiness expanded upon Prochaska and DiClemente's Stages of Change Model (Prochaska et al., 1994), including assessing readiness to change, and understanding the role of the provider when patients are in precontemplation and ambivalent about change. Having an understanding of the Stages of Change model allows practitioners to better understand why some patients are ready to change, why others are not, and why some patients say they are ready and then ultimately decide that now is not the best time to make a change.

Values Exploration and Identification included eliciting and listening for change talk (preparatory and mobilizing), which is a critical component of MI. Preparatory change talk is identified by desires, abilities, reasons, and needs for change (e.g., "I don't want my back and knees to hurt when I carry my backpack"). Mobilizing change talk includes commitment to change (e.g., "I will start putting water in my water bottle instead of soda"). Exploring values is also an effective way of gaining an understanding of patient's ideas about change (or even about the status quo) (e.g., "Tell me how you make decisions around health and well-being in your family") with the intention of finding true empathy, understanding, and appreciation for the context which our patients bring to us. Using reflective and empathic statements reinforces to the patient that you have listened to them.

Implementing MI in Practice focused on specific, concrete, and doable skills that practitioners can easily use within a busy practice including using the readiness ruler to help youth talk about change, asking permission before advice giving and sharing information, using the elicit/provide/elicited approach to balance counseling, rolling with resistance, as well as using "and" instead of "but" in conversations. While these few skills only amount to a very small portion of the whole MI framework, they are skills that demonstrate to patients that the providers are interested in communicating differently, listening with intention, and understanding the concepts of partnership, respect, and autonomy inherent within the practice of MI.

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