

The Heterogeneity of MI Interventions Studies for Treatment of Obesity

Ken Resnicow, PhD,^{a,b} Kendrin R. Sonneville, ScD, RD,^a Sylvie Naar, PhD^c

In this issue of *Pediatrics*, Vallabhan et al¹ report the results of a rigorous meta-analysis examining the efficacy of motivational interviewing (MI) on adiposity and cardiometabolic outcomes among overweight adolescents. They conclude “MI alone does not seem effective for treating overweight and obesity in adolescents.”¹

The authors appropriately note several mitigating factors that temper their conclusions including the relatively low dose of the active interventions in which MI was used (the core interventions were generally far less than the US Preventive Services Task Force guideline of 26 contact hours²), as well as the lack of information on MI fidelity to allow comparison of outcomes based on practitioner competency. In addition to these concerns, we propose a few other issues that may impact the validity of their analyses and corresponding conclusions. The 3 issues all relate to study design: in particular, the composition of the MI intervention and comparison arms.

Perhaps the most salient issue is the nature of the intervention arms in these studies. To determine the effectiveness of MI, the most internally valid design would arguably entail using an evidence-based efficacious program as the comparison group and then adding MI on top of that program or integrating MI within that program. For example, the same intervention could be delivered by counselors with or without MI training, holding constant all other treatment elements such as target behaviors and dose. By

using such a design, the addition of MI would represent the only difference between arms, experimentally isolating the independent effects of adding MI to an active intervention. As indicated in Table 1 of the meta-analysis reported in the Vallabhan et al¹ article, it appears that only 1 or 2 of the studies isolated MI experimentally, and none used the precise approach noted above. Instead, the MI condition differed from the comparison group in numerous ways beyond the inclusion of MI, such as total dose and/or contact time, intervention content, and the inclusion of parents. Thus, the conclusions from this meta-analysis should be tempered by the fact that few of the studies were designed to purely test the effects of adding MI to a standardized evidence-based program. As we elaborate on below, the null results could be attributed to failure of other aspects of the “active” interventions in addition to or instead of MI. This design concern would be equally, if not more apropos if the results of the meta-analysis were positive but is also relevant to a null conclusion. This is not a criticism of the authors but simply a limitation of the raw data with which they had to work.

Our second concern relates to the “active” interventions used in the active MI arms. The behavioral intervention in several of the studies appeared to rely heavily on health education regarding diet and physical activity, an intervention approach that has not been shown to impact weight outcomes in adolescents. Thus, even if investigators used the recommended additive design noted above, using MI to increase engagement in or adherence to a



^aSchool of Public Health and ^bSchool of Medicine, University of Michigan, Ann Arbor, Michigan; and ^cCollege of Medicine, Florida State University, Tallahassee, Florida

DOI: <https://doi.org/10.1542/peds.2018-2471>

Accepted for publication Aug 22, 2018

Address correspondence to Ken Resnicow, PhD, Department of Health Behavior and Health Education, School of Public Health, University of Michigan, 3867 SPH I, 1415 Washington Heights, Ann Arbor, MI 48109-2029. E-mail: kresnic@umich.edu

PEDIATRICS (ISSN Numbers: Print, 0031-4005; Online, 1098-4275).

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FINANCIAL DISCLOSURE: The authors have indicated they have no financial relationships relevant to this article to disclose.

FUNDING: Supported by NIH grant R01 HL128231 to Dr. Resnicow. Funded by the National Institutes of Health (NIH).

POTENTIAL CONFLICT OF INTEREST: The authors have indicated they have no potential conflicts of interest to disclose.

COMPANION PAPER: A companion to this article can be found online at www.pediatrics.org/cgi/doi/10.1542/peds.2018-0733.

To cite: Resnicow K, Sonneville KR, Naar S. The Heterogeneity of MI Interventions Studies for Treatment of Obesity. *Pediatrics*. 2018;142(5):e20182471

fundamentally ineffective behavior change intervention may not be a fair test of the efficacy of MI; increasing adherence to a placebo is unlikely to improve outcomes. For example, it is unclear what target behaviors were emphasized, what intensity of change was recommended, what choice parents and teens had in selecting their target behaviors, and what other behavior change strategies were used. It is possible that strategies that could theoretically cancel out autonomous motivation, such as incentives or extrinsic rewards, were used or that change was prescribed in a way that was inconsistent with MI. This may be important because MI for adolescents may work only when used in conjunction with programs that support autonomy in all aspects of the intervention (eg, providing choice regarding what target behavior to address and what behavior change strategies to employ). Similarly, adolescents may not respond well to being prescribed behavior changes or even self-monitoring activities.³

The final issue relates to how MI was used in the intervention arm. There are several ways that MI could be combined with behavior change programs.⁴ It could serve as a prelude to standardized treatment, with the primary aim of increasing initial engagement and/or attending sessions and adhering to treatment plans. Alternatively, MI can serve as an integrative framework through which other interventions are delivered, or MI could be the primary or core intervention strategy. This last approach was employed in our work using MI with parents of

younger overweight children.^{5–7} Practitioners in our studies were trained to use MI-consistent strategies to encourage and structure change in diet and activity behaviors, including MI-consistent ways to employ goal setting and self-monitoring as well as how to provide advice in an autonomy-supportive manner. Given the studies included in the meta-analysis were generally not coded with regard to these functional variations, it is difficult to discern whether any of these approaches may be more or less effective. It may be that MI only works when it is deeply ingrained throughout a behavior change intervention. In addition, evidence from our work also suggests that specific MI strategies may be particularly effective for increasing motivation among overweight adolescents,⁸ and the sequence of behavioral strategies may also impact efficacy of MI used within a weight control intervention.⁹

In closing, we applaud the rigor and equipoise evident throughout this meta-analysis. Our goal was to offer some potential considerations that might temper their conclusions, as well as guide the design of future randomized controlled trials and meta-analyses of MI studies among adolescents. In particular, we encourage researchers to experimentally isolate MI, as well as precisely define how MI was added to or infused into other aspects of treatment.

ABBREVIATION

MI: motivational interviewing

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