

Review



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Motivational Interviewing for Pediatric Obesity: Conceptual Issues and Evidence Review

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ABSTRACT

Counseling by health care professionals represents a potentially important intervention for the prevention and treatment of pediatric obesity. One promising approach to weight-control counseling in pediatric practice is motivational interviewing. This article explores conceptual issues related to the application of motivational interviewing for the prevention and treatment of pediatric obesity. Given the paucity of studies on motivational interviewing and pediatric obesity, we examine what is known about the application of motivational interviewing to modify diet, physical activity, and other behaviors in children and adolescents. We begin with a brief overview of motivational interviewing, describe some nuances of applying this approach to pediatric overweight, and conclude with research and clinical recommendations.

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Obesity and its medical and economic sequelae have risen dramatically among America's youth over the past 30 years (1-4). Although ameliorating childhood obesity in the United States will require concerted effort at multiple levels of intervention, counseling by health care professionals represents an important component of the public health response. However, there are formidable barriers to counseling overweight children among pediatric practitioners, and, as a result, both the

efficacy and reach of clinical interventions have been substantially limited.

Pediatric health care practitioners report low confidence in their ability to counsel overweight children or adolescents, and they also question the efficacy of behavioral counseling (5-7). In one study (5), for example, only 30% of pediatricians felt their efficacy for obesity counseling was "good to excellent," and only 10% felt obesity counseling was effective (5). In another study (8), only 26% of pediatricians felt "quite" to "extremely" competent to counsel overweight youth, and only 37% felt "quite" to "extremely" comfortable providing such treatment (8). Almost 80% of pediatricians report feeling "very frustrated" treating pediatric obesity (8). Low practitioner confidence and perceptions of treatment futility might stem from frustration over what practitioners perceive as low patient motivation and poor behavioral adherence (5,6). Perceived patient indifference likely decreases practitioner efficacy as well as perceived treatment utility, which act synergistically to discourage practitioners from attempting to intervene. Importantly, these factors appear to be even more cogent inhibitors than lack of time or reimbursement, and they might be more amenable to intervention. Yet, despite low confidence in their counseling abilities, pediatricians and food and nutrition professionals are interested in improving their behavioral skills (6,7).

One promising approach to weight-control counseling that might address both clinician confidence and treatment efficacy is motivational interviewing. As originally described by Miller (9) and more fully discussed in a seminal text by Miller and Rollnick (10), motivational interviewing has been used extensively in the addiction field (9,11-13). Numerous randomized trials have demonstrated its clinical efficacy for addictive behaviors (14,15). Over the past 10 years, there has been considerable interest from public health, medical, and dietetics practitioners in adapting motivational interviewing to address various chronic disease behaviors (15-25). Although motivational interviewing has been used to modify diet and physical activity behaviors in adults, the evidence base for obesity prevention and treatment in children is just beginning to emerge.

This review will explore conceptual issues related to the application of motivational interviewing for the pre-

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vention and treatment of pediatric obesity. Given the paucity of studies on motivational interviewing and pediatric obesity, we will examine what is known about the application of motivational interviewing to modify diet and activity behaviors in children, adolescents, and adults. We begin with a brief overview of motivational interviewing and describe some nuances of applying this approach to pediatric overweight.

OVERVIEW OF MOTIVATIONAL INTERVIEWING

Motivational interviewing is an egalitarian, empathetic “way of being” that manifests through specific techniques and strategies, such as reflective listening, shared decision making, and agenda setting. One of the goals of motivational interviewing is to assist individuals in working through their ambivalence about behavior change. Motivational interviewing appears to be particularly effective for individuals who are initially less ready to change (10,12,24,26,27). The tone of motivational interviewing is nonjudgmental, empathetic, and encouraging. Counselors establish a nonconfrontational and supportive climate in which clients feel comfortable expressing both the positive and negative aspects of their current behavior. Ambivalence is fully explored and at least partially resolved prior to moving toward change. Many counseling models rely heavily on therapist insight, whereas traditional patient and nutrition education emphasize information exchange. In contrast, a motivational interviewing approach requires patients themselves to do much of the psychological work. A motivational interviewing counselor generally makes no direct attempt to dismantle denial, confront irrational or maladaptive beliefs, or convince or persuade. Instead, the counselor helps clients think about and verbally express their own reasons for and against change and how their current behavior or health status affects their ability to achieve their life goals or fulfill core values. Motivational interviewing encourages clients to make fully informed and deeply contemplated life choices, even if the decision is not to change.

Motivational interviewing assumes that behavior change is affected more by motivation than information. Whereas the essence of motivational interviewing lies in its spirit, there are specific techniques and strategies that, when used effectively, help ensure that such a spirit is evoked. To achieve these ends, motivational interviewing counselors rely heavily on reflective listening and positive affirmations. Other core motivational interviewing techniques include allowing the client to interpret information, setting an agenda, rolling with resistance, building discrepancy, and eliciting “change talk.” As noted recently by Rollnick and colleagues (28), motivational interviewing can be considered a form of guiding, as opposed to more directive methods that focus on advice and persuasion.

Reflective listening can be conceptualized as a form of hypothesis testing. The hypothesis can be stated in generic terms as, “If I heard you correctly, this is what I think you are saying . . .” or “Where you are going with this. . . .” Reflections, particularly by counselors who are new to the technique, often begin with the phrase “It sounds like. . . .” More skilled counselors often phrase their reflections as more direct statements such as “You

are having trouble with . . .”, leaving off the assumed “It sounds like. . . .” The goals of reflecting include demonstrating that the counselor has heard and is trying to understand the client, affirming the client’s thoughts and feelings, and helping the client continue the process of self-discovery. One of the most important elements of mastering motivational interviewing is suppressing the instinct to respond with questions or advice. Questions can be biased by what the counselor may be interested in hearing about rather than what the client wants or needs to explore. Reflecting helps ensure that the direction of the encounter remains client-driven. Reflections involve several levels of complexity or depth (29). The simplest level tests whether the counselor understood the content of the client’s statement. Deeper levels of reflection explore the meaning or feeling behind what was said. Effective deeper-level reflections can be thought of as the next sentence or next paragraph in the story (ie, “where the client is going with it”). A high level of reflective listening involves selectively reinforcing positive change talk that might be embedded in a litany of barriers. Similarly, skilled motivational interviewing counselors selectively reflect statements that build efficacy by focusing on prior successful efforts or reframing past unsuccessful attempts as practice rather than failure.

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In standard medical and dietetics practice, practitioners often provide information about the risks of continuing a behavior or the benefits of change with the intent of persuasion. With regard to the parent of an overweight child, a traditional counseling statement might be “It is very important that your child get control of his/her weight now before it becomes a bigger problem.” In this style of communication, the practitioner often attempts to “push” motivation by increasing perceived risk. In contrast, information is discussed through motivational interviewing by first *eliciting* the person’s understanding and information needs, then *providing* new information in a more neutral manner, followed by *eliciting* what this means for them with a question like, “How do you make sense of all this?” Motivational interviewing practitioners avoid persuasion with “predigested” health messages and instead allow clients to process information and find their own personal relevance. To this end, the guideline “elicit-provide-elic” has been proposed as a framework for exchanging information in the spirit of motivational interviewing.

Confronting clients can lead to defensiveness, rapport breakage, and, ultimately, poor outcomes (9). Therefore, motivational interviewing counselors avoid argumentation and instead “roll with resistance.” A motivational interviewing encounter resembles a dance more than a wrestling match (30). For example, a parent might raise doubts that their child’s weight is a problem or suggest that the child’s weight will improve on its own as the child ages. Rather than stating facts to counter such beliefs, a

Values for your child	Values for you	Values for your family
Be healthy	Good parent	Cohesive
Be strong	Responsible	Healthy
Have many friends	Disciplined	Peaceful meals
Be fit	Good spouse	Getting along
Have high self-esteem	Respected at home	Spending time together
Not being teased	On top of things	Be able to communicate feelings
Not feeling left out	Spiritual	Fulfill our potential

Figure. Values list for counseling parents of overweight children used in the Healthy Lifestyles Pilot Study.

motivational interviewing practitioner would reflect the parent's doubt and then provide opportunities for the parent to voice any concerns they might have about the child remaining overweight or gaining weight. In cases where a parent's resistance is severe, the practitioner might use an amplified negative reflection, such as "It appears that you see no real problem with your child's weight" or "Having your child watch TV most of the afternoon really works for you and your family." This potentially risky strategy is designed to "unstuck" the entrenched client by short-circuiting the "yes-but" cycle.

A core principle of motivational interviewing is that individuals are more likely to accept and act upon those opinions and plans that they voice themselves (31). The more a person argues for a position, the greater his or her commitment to it often becomes. Therefore, clients are encouraged to express their own reasons and plans for change (or lack thereof). This process is referred to as eliciting change talk. One technique to elicit change talk is the use of importance/confidence rulers (26,30,32). This strategy begins with two questions: (a) "On a scale from zero to ten, with ten being the highest, how important is it to you to change your child's/family's (insert target behavior)?" and (b) "On a scale from zero to ten, with ten being the highest, assuming you wanted to change this behavior in your child/family, how confident are you that you could (insert target behavior)?" These two questions assess the client's importance and confidence for change, respectively (11,32). Clinicians follow each of these questions with two probes. If the client answered "five," for example, the counselor would probe first with "Why did you not choose a lower number, like a three or a four?," followed by "What would it take to get you to a six or a seven?" These probes elicit positive change talk and ideas for potential solutions from the client. To help parents establish discrepancy between their child's/family's current behavior and their personal core values or life goals, our group has developed a values list tailored to parents of overweight youth (see Figure) that is used to identify what is important to parents about their children and families. Practitioners then probe parents to see if they can find any connections between their child's weight behaviors and the values they selected.

THREE COMMUNICATION STYLES: A ROUTE TO INTEGRATION

It can be challenging for practitioners to fit motivational interviewing into their everyday practice. Some view it as a highly specialized skill that is difficult for the typical

physician to effectively integrate and is preferentially delivered by psychologists. Yet, it is also striking how brief consultations by skilled physicians can approach the spirit and even the "laws" of motivational interviewing. One resolution to this "intimidation factor" proposed by Rollnick and colleagues (28) is to place motivational interviewing within a model of communication that comprises three naturally occurring communication styles: directing, guiding, and following. When practitioners use a directing style, they primarily inform patients about what they think the patients should do and why they should do it. This is similar to what is often referred to as anticipatory guidance. Conversely, when practitioners use a more guiding style, they rely less on persuasion and instead encourage patients to explore their motivations and aspirations. Following involves understanding and tracking the patient's story, and is typically used in the early phase of a consultation and under special circumstances, such as when responding to a bereaved individual. Skillfulness is defined as the ability to move flexibly between these styles according to patient needs. The guiding style is seen as particularly suited to consultations involving health behavior change, and motivational interviewing is defined as a refined form of this naturally occurring guiding style. Seen in this light, the task for practitioners in the pediatric obesity field is to improve their guiding abilities while suppressing the instinct to direct.

APPLYING MOTIVATIONAL INTERVIEWING TO PEDIATRIC OBESITY: CONCEPTUAL AND PRAGMATIC ISSUES

There are several aspects of obesity counseling for children and adolescents that pose unique challenges for the motivational interviewing practitioner. First, depending on the age of the patient, the intervention can occur directly with the parent(s), directly with the child, or both. There is some evidence that older obese children do not benefit from involvement of their parents, whereas parent involvement can be beneficial for younger children (33). However, it is not known at what age youth and parents should be seen alone vs together. In addition, a general issue regarding use of motivational interviewing with children is that practitioners might need to utilize more questions as opposed to reflections in order to elicit responses. Secondly, obesity is not a behavior per se. Therefore, a key task for clinicians is to work with parents and/or youth to identify what behaviors contribute to the child's weight status and use agenda-setting strate-

Table 1. Studies using motivational interviewing for control of pediatric weight, diet, and physical activity

Study	Starting number	Age (y)	Outcome/design	Intervention	Interventionist
Healthy Lifestyles, Dietz and colleagues (unpublished)	93	3-7	BMI ^a Pilot	Standard care Moderate=1 MI ^b (MD ^c) High=2 MI (MD)+2 MI (RD ^d)	Pediatricians Dietitians
Go Girls, Resnicow and colleagues, 2005 (37)	147	12-16	BMI RCT ^e	Multicomponent Group session and 4-6 phone MI	Health educators Psychologists
DISC ^f , Berg-Smith and colleagues, 1999 (21)	127	13-17	Diet Lipids No control	1 in person MI 1 phone MI	Health educators Dietitians
Channon and colleagues, 2003 (38)	40	14-18	HbA1c ^g Nonparticipants as controls	Variable 1-9 mean 4.7	Investigator
Knight and colleagues, 2003 (39)	20	13-16	Perceptions about DM ^h	Six 1-hr sessions Qualitative response	Registered nurse Senior registrar

^aBMI=body mass index; calculated as kg/m².
^bMI=motivational interviewing.
^cMD=physician.
^dRD=registered dietitian.
^eRCT=randomized control trial.
^fDISC=Dietary Intervention Study in Children.
^gHbA1c=hemoglobin A1c.
^hDM=diabetes mellitus.

gies to determine which behaviors they feel are most amenable to intervention. Although motivational interviewing has been established as a useful method for helping individuals overcome resistance and clarify motivation, it is important to note that additional strategies, such as behavior therapy (34) or cognitive behavioral therapy (35), might be needed once an individual decides to attempt behavior change. There is a motivational interviewing-consistent means for delivering such treatment and, at this stage of care, motivational interviewing should perhaps be conceived as a platform for treatment delivery rather than the primary treatment modality. How to best integrate standard cognitive and behavioral weight-loss strategies from a training and clinical perspective merits examination.

Identification of Prior Studies Using Motivational Interviewing

Studies were identified by electronic search of the Medline database using various combinations of key search terms, including *motivational interviewing*, *motivational enhancement*, *obesity*, *children*, *adolescents*, *nutrition*, *diet*, and *physical activity*. Additional studies were identified through bibliographies of published studies and informal communication with peers. Given the lack of published randomized trials of motivational interviewing for treatment or prevention of pediatric obesity, we decided to include in our review pediatric obesity pilot studies, youth studies where motivational interviewing was used to modify diet or physical activity, youth studies on diabetes, adult studies of motivational interviewing to modify diet or physical activity, and studies addressing

the use of motivational interviewing to modify other behaviors in children and adolescents, which almost exclusively involved substance use.

Motivational Interviewing Studies Targeting Pediatric Obesity

We identified only two studies in which motivational interviewing was used to intervene on pediatric obesity (Table 1). The first of these studies, the Healthy Lifestyles Pilot Study, focused on prevention of overweight among children 3 to 7 years old. The second study, Go Girls, was a multicomponent intervention for overweight African-American adolescents aged 12 to 16 years, which included motivational interviewing as a key intervention element.

Healthy Lifestyles Pilot Study

The Healthy Lifestyles Pilot Study was conducted from 2004 to 2005 as a partnership of the Centers for Disease Control and Prevention, the American Academy of Pediatrics, and the American Dietetic Association. The primary aim of the Healthy Lifestyles Pilot Study was to examine the feasibility and potential efficacy of pediatrician and registered dietitian (RD) motivational interviewing counseling for preventing childhood obesity in primary care pediatricians. Study sites were members of the American Academy of Pediatrics Pediatric Research in Office Settings network, which is a practice-based research network established by the American Academy of Pediatrics in 1986 (36). Fifteen Pediatric Research in Office Settings practices were assigned by the investiga-

Table 2. Parent perceptions of pediatrician and dietitian motivational interviewing in the Healthy Lifestyles Pilot Study (n=16)

Questionnaire item	% Parents agreeing “a lot”
My pediatrician listened to me	100
My pediatrician asked my opinion about things	88
My pediatrician asked permission before giving me information or advice	88
My pediatrician helped me think about why changing my family's food habits is important	94
My pediatrician was supportive/encouraging	94
My pediatrician discussed values that were important to me	88
My pediatrician helped me think about why changing my family's television-viewing habits is important	63
The nutritionist listened to me	100
The nutritionist asked my opinion about things	100
The nutritionist asked permission before giving me information or advice	88
The nutritionist helped me think about why changing my family's food habits is important	100
The nutritionist was supportive/encouraging	100
The nutritionist discussed values that were important to me	88
The nutritionist helped me think about why changing my family's television-viewing habits is important	50

tors to one of three conditions: control, minimal intervention, or intensive intervention. Five practices were allocated to each arm. The intervention phase lasted 6 months. Each of the 15 Pediatric Research in Office Settings practices was asked to recruit 10 patients. Subject eligibility included children ages 3 to 7 years with either a body mass index (BMI; calculated at kg/m^2) for age and sex between the 85th and 95th percentiles or a combination of at least one parent with a BMI >30 and a BMI for age and sex between the 50th and 85th percentiles. Parents in all groups completed questionnaires at baseline and again 6 months later (Table 2). The only intervention provided to participants in the control group consisted of two safety education tip sheets. Parents of children in the minimal-intervention group received a single, brief motivational interviewing counseling session from their pediatrician 1 month after baseline. Pediatricians in the minimal intervention group were trained to provide counseling in a 2-day motivational interviewing workshop. In contrast, participants in the intensive-intervention group engaged in four motivational interviewing counseling sessions. Two sessions were led by the patient's pediatrician, and two sessions were guided by an RD. These counseling sessions were delivered at 1 month and 3 months postenrollment. Physicians and RDs were trained at a joint, 2-day motivational interviewing workshop. The RD-led sessions were longer than those with the pediatricians, generally in the range of 30 to 45 minutes. Sick visits continued as usual for children in both groups. Recruitment occurred from April through November 2004. One minimal intervention practice dropped out, leaving a total of 93 enrolled patients from 14 practices.

To assess competence in motivational interviewing skill, clinicians participating in the Healthy Lifestyles Pilot Study completed a measure of motivational interviewing fidelity developed by the Healthy Lifestyles Pilot Study investigators called the 1-PASS. The 1-PASS consists of self-evaluation rating forms on which performance on several motivational interviewing dimensions is scored on a scale of 1 to 7. Scores of 4.0 and higher are considered an indication of adequate motivational inter-

viewing proficiency. Using audiotapes of the Healthy Lifestyles Pilot Study intervention encounters, a trained psychologist rated each motivational interviewing session using 1-PASS and then discussed the score with each clinician. Overall scores for the first patient encounters ranged from 3.2 for moderate-intensity pediatricians to 4.4 for high-intensity intervention group RDs. Overall scores were slightly higher in the second encounters, ranging from 3.7 to 5.8 for pediatricians and RDs combined. For the six clinicians who participated in two supervisor feedback sessions, mean motivational interviewing skills scores increased 1.1 points between the first and second encounters. Outcomes of the Healthy Lifestyles Pilot Study on BMI and self-reported behavior are forthcoming (R. Schwartz, Wake Forest University School of Medicine, Winston-Salem, NC, unpublished data, 2006). Process results indicate that parents reported high satisfaction with the counseling from the pediatricians and RDs.

Go Girls

Go Girls was a church-based nutrition and physical activity program designed for overweight African-American adolescent females (37). Ten predominantly middle socioeconomic status churches were randomized to either a high intensity (20 to 26 sessions) or moderate intensity (six sessions) culturally tailored behavioral group intervention delivered over 6 months. Each session included an experiential behavioral activity, approximately 30 minutes of physical activity, and preparation and tasting of healthy foods. In the high-intensity group, girls also received four to six motivational interviewing telephone counseling calls. Counselors were either health educators with master's degrees or doctorate-trained psychologists. All counselors received 2 days of experiential motivational interviewing training by the first author (K. R.), plus ongoing clinical supervision by doctoral-level psychologists. Telephone calls were synchronized with the group sessions to ensure that the motivational interviewing calls focused on participants' plans and progress re-

garding the same topics covered during each weekly group session. Calls lasted approximately 20 to 30 minutes each and were generally conducted in the afternoon or evening.

From the 10 churches, 123 girls completed the baseline and 6-month follow-up assessments. The primary outcome was BMI. The 6-month assessments indicated a net difference of 0.5 BMI units between the high and moderate intensity. This difference was not statistically significant ($P=0.20$). In addition, there was no association between change in BMI and the number of motivational interviewing calls completed in the high-intensity group. An additional follow-up assessment was conducted at 1-year postbaseline, and findings mirrored those found at 6 months.

MOTIVATIONAL INTERVIEWING STUDIES ADDRESSING DYSLIPIDEMIA AND DIABETES

Dietary Intervention Study in Children

The Dietary Intervention Study in Children was a multicenter, randomized controlled trial sponsored by the National Heart, Lung, and Blood Institute to assess the efficacy of dietary counseling to decrease elevated serum lipids (low-density lipoprotein cholesterol). Children with elevated low-density lipoprotein cholesterol entered the initial clinical trial when they were 8 to 10 years of age (21). As the intervention cohort moved into adolescence, the investigators elected to add a motivational interviewing-based intervention to “renew” adherence to the prescribed diet among the original intervention group (there was no control group for this phase). The counselors were primarily master’s-level health educators and RDs who received 18 hours of motivational interviewing training. Each study participant received one in-person motivational interviewing session and one follow-up session that was conducted either in person or by telephone. Twenty-four-hour recall data from the first 127 youths to complete the two-session protocol indicated that the proportion of calories from fat and dietary cholesterol was substantially reduced at the 3-month follow-up assessment. Mean proportion of calories from fat decreased from 27.7% to 25.6% ($P<0.001$), and overall dietary adherence scores improved. When asked about their reaction to the counseling, 74% of the youths reported being satisfied or very satisfied.

Other Studies Targeting Diabetes

In a pilot study, Channon and colleagues (38) tested the impact of motivational interviewing on 22 adolescents with diabetes aged 14 to 18 years (38). Participating youth received between one and nine motivational interviewing sessions each, with an average of 4.7 sessions over 6 months. The focus of the motivational interviewing sessions consisted of awareness building (analyzing pros and cons), finding alternatives, problem solving, goal setting, and minimizing confrontation. Between 8 weeks and 6 months after the end of the intervention phase, patients who had received motivational interviewing showed a substantial reduction in hemoglobin A1c from an average baseline measure of 10.8% to approximately 10.0%.

Knight and colleagues (39) administered a motiva-

tional interviewing-based group intervention in six weekly, 1-hour sessions to six youths ages 13 to 16 years with poorly controlled type 1 diabetes mellitus. The intervention included externalizing conversations as well as motivational interviewing. Participation in the motivational interviewing-based group was compared with a “usual care” control group ($n=14$). At the 6-month follow-up assessment, adolescents who had received the group motivational interviewing were more likely than those youth in the control group to display positive shifts in their perception of diabetes, such as increased feelings of control and acceptance. Changes in behavior or physiologic outcomes were not assessed.

Studies on Diet and Physical Activity among Adults

We identified eight controlled outcome studies and one pilot study where motivational interviewing was used to modify diet and/or physical activity in adults (22,24,40-48). In none of these studies was weight the primary target. With the exception of the studies by Mhurchu and colleagues (40) and Woollard and colleagues (47,48), each study showed a substantial effect favoring the motivational interviewing group on at least one main outcome. In all three studies where motivational interviewing was used to modify fruit and vegetable intake, substantial effects were observed. In the four studies where weight was at least a secondary target outcome, only one, Woollard and colleagues (41), found a considerable effect. Although Harland and colleagues (42) found a short-term effect of motivational interviewing on physical activity, substantial long-term outcomes in this study and the Healthy Body/Healthy Spirit (46) study were not observed. In those studies where motivational interviewing showed important outcomes, effect sizes were generally in the small-to-moderate range, 0.20 to 0.50, as defined by Cohen (49).

Studies of Motivational Interviewing for Other Adolescent Behaviors

Motivational interviewing has also been used in studies with adolescent smokers. In a pilot study, Colby and colleagues (16) compared motivational interviewing with brief advice in a study of 40 adolescent smokers recruited from a single hospital who were seeking care for conditions generally unrelated to smoking. Participants in the motivational interviewing group viewed four videotaped vignettes aimed to stimulate discussion. At the follow-up assessment, 20% reported 7-day smoking abstinence in the motivational interviewing group compared with 10% in the brief advice group. In the motivational interviewing group, 72% made a quit attempt vs 60% in the advice group. These differences were not statistically significant, possibly because of the small sample size employed.

In a subsequent study, the same researchers evaluated the efficacy of using a brief motivational interviewing intervention with adolescents from a hospital outpatient clinic or emergency department (50). Patients aged 14 to 19 years who were not seeking treatment for smoking were proactively screened and recruited. The motivational interviewing counselors were seven bachelor’s to master’s level staff with 1 to 4 years of clinical counseling

experience. Training included reading assignments, 40 hours of experiential workshops, and weekly group supervision. Patients were randomly assigned to receive either one session of motivational interviewing or standardized brief advice to quit smoking. The former generally lasted 35 minutes and the latter about 5 minutes. Both groups received a brief follow-up telephone contact 1 week later. The final sample consisted of 25 males and 60 females with an average age of 16.3 years. At 1-month and 3-month postenrollment, there were no significant between-group differences in self-reported 7-day abstinence or biochemically validated quitting. At 6 months, there was a significant effect ($P < 0.05$) favoring the motivational interviewing group in self-reported quitting compared to the brief advice group, at 23% and 3%, respectively. However, the differences based on the biochemically confirmed rates, 9% vs 2%, were not statistically significant.

FUTURE RESEARCH QUESTIONS

The studies reviewed here indicate that motivational interviewing might be feasible with children and adolescents. However, there is insufficient data to determine the efficacy of motivational interviewing for the prevention or treatment of pediatric obesity or other domains of behavior change in children. Data from adult studies suggest that motivational interviewing can be effective in modifying diet and at least short-term physical activity. However, direct evidence of efficacy for weight control in adults is lacking. It should be noted that none of the adult studies targeted weight as the primary outcome.

To establish the efficacy of motivational interviewing for pediatric and adult weight control, several methodologic issues will have to be addressed. First, it is important to address intervention fidelity. Failure to assess and statistically control for treatment fidelity can result in type III error. This occurs when negative or weak results are a result of poor intervention delivery but are erroneously attributed to failure of the intervention itself. Few studies have provided evidence of counselor competence or fidelity to motivational interviewing. This is complicated by the fact that there is considerable variability in how motivational interviewing is conceptualized, executed, and assessed across studies. There are no widely accepted criteria for what comprises a motivational interviewing intervention or for measuring how rigorously these components are administered.

An important question that should be examined is the extent to which the effects of motivational interviewing-informed interventions can be attributed to motivational interviewing per se as opposed to more generic elements of counseling such as attention effects and empathy. A related problem is that in several positive studies, internal validity is threatened by the fact that the motivational interviewing interventions were often additive to other interventions. Client contact was often not comparable across conditions, as the comparison groups did not receive any “sham” or alternative counseling. Determining the efficacy of motivational interviewing with high internal validity can be achieved by comparing motivational interviewing head-to-head with other counseling methods while holding intervention intensity, duration, and delivery modality constant. An example of this is

Project MATCH (13). An important issue for pediatric obesity is determining the appropriate age at which to begin intervening directly with youth, as opposed to their parents, and when, if at all, parents should be included in the counseling (33).

Tailoring Counseling Style to Different Client Needs and Preferences: It Is Not for Everyone

Although many patients report high satisfaction and improved outcomes from patient-centered communication approaches (51-53), such as motivational interviewing, some individuals prefer a more directive, educational style (54). Practitioners therefore need to tailor their intervention style to client needs, preferences, and culture. Absent methods for triaging which style to employ for particular client subgroups, clinicians might need to test various techniques with each client and rely on clinical judgment to determine which approach best fits each client.

Challenge of Technology Transfer

Many of the strategies and programs recommended for medical management of obesity were developed and tested under efficacy conditions (55,56). Under these circumstances, interventions are generally delivered by highly skilled practitioners who typically receive extensive training and supervision. The extent to which research-based interventions can be replicated under real-world conditions, where clinicians might receive only brief in-service training and supervision, remains unclear. While the primary “gatekeepers” for detection and treatment of obesity appear to be primary care physicians, many (if not most) of previously successful interventions were conducted by psychologists or behavioral specialists. This is also true for motivational interviewing interventions, where counselors were usually highly trained behavioral specialists. More research is needed to develop and test motivational interviewing-based interventions that a priori are designed for delivery by pediatric practitioners and account for limitations in medical training, as well as the field’s implicit “disease” orientation, practice structure, and reimbursement guidelines.

Recast Obesity as a Cluster of Heterogeneous Conditions: Consider the Obesities

Perhaps like cancer, obesity should be considered not as one disease but a rubric of many diseases, each with a unique etiology, course, and treatment. As noted by Epstein and colleagues (57): “Treating obesity as a homogeneous condition, with all participants receiving a common intervention, might contribute to the mixed treatment outcomes that are reported.” Factors operative in obesity include: age, sex, dietary patterns, physical activity, socioeconomic, psychosocial issues, metabolism, comorbidities, familial/genetic determinants, and racial/ethnic/cultural characteristics. With each of these factors having a greater or lesser influence on obesity in any individual case, classification, and subclassification schemes should be developed to adequately describe the heterogeneity of the obesities.

The reasons for energy imbalance in children can be

highly variable across individuals, and treatment programs can be better tailored to these individual differences. For example, excess caloric intake could result from consuming high-fat foods or foods high in simple carbohydrates. For some high-fat food consumers, excess caloric intake could be attributed to one or two foods, while for others excess intake could be attributed to a variety of foods. In addition to focusing on specific foods, tailoring could also account for eating patterns, such as consuming large serving sizes, rapid eating, eating second helpings, or eating at “all you can eat” establishments. Factors related to physical inactivity are likely to be equally individualistic, providing a similar rationale for tailoring treatment. However, despite numerous potential differences in behavioral patterns, our current detection and treatment algorithms often fail to account for such microlevel individual differences. An advantage of motivational interviewing is that its emphasis on “pulling” rather than “pushing” enables clinicians to better tailor interventions to the behavioral and psychologic needs of their clients.

Implications for Practitioners

Although the efficacy and cost-effectiveness of motivational interviewing for the prevention or treatment of pediatric obesity have not yet been clearly established, evidence from motivational interviewing for other health concerns combined with the considerable research on client-centered communication can be sufficient to encourage food and nutrition professionals to consider obtaining training in motivational interviewing and to begin incorporating these techniques into their practice. The American Dietetic Association has, in fact, begun to offer motivational interviewing workshops at both national and regional American Dietetic Association meetings. While motivational interviewing appears useful for helping clients resolve ambivalence and solidify motivation, clinicians might also require behavioral skills to employ during the “action” phase of treatment. Such treatment, however, should be generally delivered in a client-centered style. In recognition that some parents and youth might respond better to more directive counseling than a motivational interviewing style, clinicians should tailor their intervention approaches to their clients’ needs.

CONCLUSIONS

Ultimately, the essential question might not be whether motivational interviewing is effective for control of pediatric obesity but how effective, in what populations, at what dose, and at what cost. Which pediatric health care providers are best able to deliver motivational interviewing with sufficient fidelity, how much training is needed to raise their competence to adequate levels, and how best to impart clinical skills at various career stages should also be explored. How different health care delivery systems might be willing and able to incorporate motivational interviewing into training and clinical guidelines and how pediatric health care providers are reimbursed for training and delivery of motivational interviewing also merits examination.

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