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Treatment Fidelity of Motivational Interviewing Delivered by a School Nurse to Increase Girls' Physical Activity

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Abstract

Motivational interviewing, which involves the use of person-centered, directive counseling techniques, shows promise for changing adolescent behaviors. The purpose of this paper was to describe the methodology and findings related to the treatment fidelity of three face-to-face motivational interviewing sessions involving middle school girls and a school nurse to help the girls increase their moderate to vigorous physical activity. The following four areas related to treatment fidelity were addressed: (a) study design, (b) training of interventionists, (c) intervention delivery, and (d) intervention receipt. Findings showed that 34 of 37 (91.9%) girls completed all three sessions. An initial motivational interviewing training workshop followed by evaluation of audio-taped sessions with constructive feedback can result in successful and consistent delivery by a school nurse.

Keywords

exercise; counseling; nurses; schools; research; adolescent

INTRODUCTION

Motivational interviewing, an empathetic and collaborative communication method, was one component of a comprehensive six-month "Girls on the Move" intervention that also

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DECLARATION OF CONFLICTING INTERESTS

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included an after-school physical activity club. The purpose of this article was to describe the methodology and findings related to the treatment fidelity of face-to-face motivational interviewing sessions involving middle school girls and a school nurse to help the girls increase their moderate to vigorous physical activity (MVPA).

BACKGROUND

Only a small percentage of girls of middle and early high school age meet current national physical activity recommendations (Troiano et al., 2008) calling for at least one hour everyday with most of the time being spent engaging in MVPA (U.S. Department of Health and Human Services, 2008). As middle school girls progress from 6th- to 8th- grade, MVPA declines 4% per year (Pate et al., 2009). Lower durations of MVPA are associated with increases in BMI and adiposity (Kimm et al., 2005; Kronsberg et al., 2003; Wittmeier, Mollard, & Kriellaars, 2008). By 9th-grade, over 25% of girls are already overweight or obese (Eaton et al., 2010), indicating a need to intervene before high school (Gutin et al., 2005; Yin, Hanes, et al., 2005; Yin, Moore, et al., 2005).

To help middle school girls increase their MVPA, however, they should not be treated as a homogeneous group, as each girl responds uniquely to experiences (Radzik, Sherer, & Neinstein, 2008), such as MVPA. Several studies show that middle school girls' perceptions concerning MVPA vary (Grieser et al., 2003, 2006, 2008), and some girls may even need personal assistance to help them feel efficacious about engaging in MVPA (Flattum, Friend, Neumark-Sztainer, & Story, 2009; Neumark-Sztainer, Story, Hannan, Tharp, & Rex, 2003). An unpublished anecdotal report from an earlier study conducted by the first author indicated that girls of middle school age needed someone to talk to about their mindset and feelings related to MVPA. Similar results emerged in another study exploring high-school PE to prevent obesity, in which female students emphasized their need for individualized counseling (Neumark-Sztainer, Martin, & Story, 2000). Beyond these findings, several group-based approaches have produced only minimal improvement in the behavior (Bayne-Smith et al., 2004; Sallis et al., 2003; Webber et al., 2008). These results indicate that, although important, providing opportunities for MVPA alone may fail to address personal circumstances or alter embedded negative perceptions interfering with the achievement of MVPA recommendations.

To promote greater participation in physical activity, increasing empirical evidence supports person-centered approaches based on an individual's current behavior and perceptions related to it, including personal motivation to change (Small, Anderson, Sidora-Arcoleo, & Gance-Cleveland, 2009). One promising approach that is increasingly being used with adolescents who are not engaging in health-promoting behaviors is motivational interviewing. Encouraging findings have been reported from the use of motivational interviewing in office-based settings to prevent or treat an overweight or obesity problem among children and adolescents (Pollak et al., 2009; Schwartz et al., 2007). Unfortunately, many school-age children and adolescents do not have easy access to this type of health care setting (DeVoe, Tillotson, Wallace, Lesko, & Pandhi, 2011).

Students spend close to one-third of their day at school and are accessible for preventive health counseling. Because students are comfortable accepting assistance from the school nurse (Hamilton, O'Connell, & Cross, 2004) and view school nurses as trust-worthy with regard to keeping information confidential (Lightfoot & Bines, 2000), school nurses are well-suited to engage in motivational interviewing in the school setting. Yet, empirical evidence supporting a viable role for the school nurse in promoting positive changes in behaviors, such as physical activity, is lacking, and any direct involvement of the school nurse in physical activity counseling interventions to date is limited (Hamilton et al., 2004).

Motivational Interviewing

Motivational interviewing can be used to elicit and strengthen an individual's motivation for making a positive behavior change (Miller & Rollnick, 2002). Motivation is enhanced by: 1) acknowledging the difficulties inherent in changing behavior; 2) communicating that ambivalence toward change is both normal and acceptable; and 3) exploring the possibility of engaging in certain healthy behaviors that are in accord with an individual's personal values and goals (Naar-King & Suarez, 2011).

The motivational interviewing communication style supports adolescent autonomy by gently and respectfully facilitating positive change, as opposed to lecturing, advising, or arguing about a negative behavior. Open-ended, as opposed to closed-ended, questions are used to encourage exploration of the potential consequences of a behavior. As negative statements are made, the adolescent is guided to explore strategies for future positive change. Reflections are used to echo what the adolescent has said to emphasize key points. The adolescent's point of view is acknowledged, even if agreement with it is lacking. To increase the adolescent's perceived self-efficacy or confidence in the ability to master change, personal strengths and prior successes are affirmed (Levy & Knight, 2008).

Motivational interviewing is based on the premise that self-efficacy is an important component driving behavior change (Miller & Rollnick, 2002). Although motivational interviewing has resulted in significant increases in adolescents' self-efficacy for making a positive change, such as quitting smoking (Patten et al., 2008), the relationship between motivational interviewing and self-efficacy for behaviors contributing to overweight and obesity in this population is not yet well-understood (Walpole, Dettmer, Morrongiello, McCrindle, & Hamilton, 2011).

Treatment Fidelity

Although motivational interviewing is feasible with adolescents (Naar-King & Suarez, 2011), little is known about counselor competence or fidelity to motivational interviewing in interventions (Moyers, Martin, Manuel, Hendrickson, & Miller, 2005; Resnicow, Davis, & Rollnick, 2006). Developing, implementing, and evaluating a treatment fidelity plan is a time-consuming, but important, process for researchers to ensure that an intervention has been implemented as intended and accurately tested (Bellg et al., 2004). Failure to establish treatment fidelity can result in unanticipated, non-significant findings that are erroneously attributed to problems with the intervention itself as opposed to its poor delivery (Resnicow et al., 2006).

Because of complex research designs and diverse populations, maintaining credibility when testing interventions, although recognized as important, has been a major challenge. In July 1999, the National Institutes of Health, with assistance from the American Heart Association and foundations, such as the Robert Wood Johnson Foundation, established the Behavior Change Consortium (BCC) to provide a collaborative infrastructure to support funded projects testing interventions for promoting positive health behavior change. In response to the need to address various design and implementation issues, the Treatment Fidelity Workgroup was created within the BCC. The workgroup developed recommendations for treatment fidelity in the following five areas: 1) study design, 2) training of interventionists, 3) intervention delivery, 4) intervention receipt, and 5) enactment of the intervention in real-life settings (Bellg et al., 2004; Resnick et al., 2005).

The first four of these five elements are directly applicable to the implementation and receipt of the motivational interviewing intervention in the school setting. Strategies related to these elements that were used to assess the fidelity of motivational interviewing involving a school nurse and girls of middle school age are discussed. The final element focuses on

fidelity as related to the participant response or change in behavior, which may have been also influenced by the after-school physical activity club. Therefore, although change in behavior is important, this latter element is not addressed in this article. The after-school physical activity club sessions were conducted by instructors who had experience teaching exercise classes for this age group and not by the school nurse. During the counseling sessions, however, the school nurse encouraged each girl to increase her MVPA both within and outside the physical activity club to meet the national physical activity recommendations.

METHOD

Study Design

A secondary data analysis was conducted. Data were obtained from a two-group pretest-posttest quasi-experimental study, in which one of two schools was randomized to receive the “Girls on the Move” intervention with the other serving as an attention control.

Study design and treatment fidelity—Strategies to maximize fidelity related to study design are intended to ensure that interventions are congruent with the underlying theory and clinical processes. Ensuring this consistency involves operationalizing the intervention and precisely defining the variables most relevant to its “active” ingredient (Moncher & Prinz, 1991). The intervention delivered by the school nurse was based on an integration of the theory of behavior change underlying motivational interviewing (Miller & Rose, 2009) with the Health Promotion Model (Pender, Murdaugh, & Parsons, 2010).

The theory underlying motivational interviewing indicates that certain relational and technical components need to be integrated to facilitate behavior change (Miller & Rose, 2009). Specifically, three major components are motivational interviewing spirit, empathy and direction. For example, the motivational interviewing spirit, which involves collaboration, autonomy, and evocation, captures overall competence in using motivational interviewing. Collaboration is evident when negotiation, as opposed to an authoritative stance, occurs regarding an adolescent’s plan for behavior change. Autonomy is apparent when understanding is conveyed that an adolescent may not want to change and that the critical elements for change are within the individual only and cannot be imposed by others. Evocation is exemplified by the ability to draw out reasons for changing behavior from an adolescent (Naar-King & Suarez, 2011). Empathy is also expressed to create a safe and accepting atmosphere in which adolescents have the freedom to explore behavior change by expressing their opinions. Empathy is evidenced when effort is made to understand their perspective. Direction is demonstrated when a focusing or re-directing of the discussion toward changing the behavior occurs (Miller & Rose, 2009; Naar-King & Suarez, 2011).

The motivational interviewing sessions were designed to positively influence all of the following cognitive and affective variables associated with the Health Promotion Model (Pender et al., 2010): perceived benefits of physical activity, barriers to physical activity, physical activity self-efficacy, enjoyment of physical activity, social support, interpersonal norms, and exposure to models of exercise. During the first and final month of the intervention, to measure each of these variables, middle school girls responded to the following instruments, whose psychometric properties are reported elsewhere: Perceived Benefits Scale (Robbins, Wu, Sikorskii, & Morley, 2008), Perceived Barriers Scale (Robbins et al., 2008), Perceived Physical Activity Self-Efficacy Scale (Wu, Robbins, & Hsieh, 2011), Physical Activity Enjoyment Scale, Social Support Scale (Robbins Gretebeck, Kazanis, & Pender, 2006; Robbins, Stommel, & Hamel, 2008), Interpersonal Norms Scale, and Exposure to Models of Exercise Behavior Scale (Robbins et al., 2006). The first author created a one-page computer printout summarizing a girl’s key responses to each instrument

(e.g., based on mean scores or sums associated with the instruments measuring all cognitive and affective variables). Research assistants placed the printout into a folder, which was locked in a file cabinet in the school nurse's office. At each time period, the school nurse used the printout during the counseling session to stimulate the conversation with each girl and focus the discussion to thoroughly explore each of the variables of the underlying theory. At the midpoint of the intervention, girls did not complete the questionnaire, but met with the school nurse who explored each girl's perceived physical activity self-efficacy and importance of increasing her MVPA. This latter approach is a recommended motivational interviewing strategy for strengthening intrinsic motivation (Resnicow et al., 2006).

Participants and Setting

A total of 37 6th- and 7th-grade racially diverse girls from one urban middle school participated in the "Girls on the Move" intervention. Girls were included if they indicated on a screening tool that they were not meeting national MVPA recommendations and were not participating in school or community sports, or other organized physical activities or lessons that involved MVPA, such as dance or gymnastics, that required participation three or more days per week during the school year. The girls ranged in age from 10 to 14 years with a mean age of 11.5. The majority of the girls ($n = 28$; 75.7%) girls identified themselves as being African American or Black. Eight (21.6%) were European American or White, and one selected another race. Over three-fourths of the girls participated in the free and reduced lunch program.

Procedure

The Michigan State University Biomedical and Health Institutional Review Board approved procedures for protecting the participants. Approval to conduct this study was obtained from school district administrators and the middle school principal. During the six-month intervention, each girl was to complete a total of three 20 minute, face-to-face counseling sessions with the school nurse during the school day. Sessions were scheduled to occur every other month or at the beginning (Time 1), midpoint (Time 2), and end (Time 3) of intervention.

Training of Interventionists and Treatment Fidelity—Two school nurses, one of whom served as a back-up for the main interventionist, completed a two-day motivational interviewing training workshop conducted by a member of the Motivational Interviewing Network of Trainers (MINT) who served as an expert consultant on the project. The consultant was specifically identified by MINT as having extensive expertise in using motivational interviewing with adolescents. An intervention manual, including definitions of terms, protocols (examples of communication reflecting motivational interviewing), and policies, was provided for the nurses and reviewed with them at the time of the training. The training session included content on adolescent development and motivational interviewing. The nurses had numerous opportunities to practice the techniques demonstrated by the consultant and receive feedback. Role-playing activities occurred until the consultant and first author noted proficiency (prior to the start of the study, the first author completed both basic and advanced motivational interviewing training workshops conducted by the consultant). The first author trained the nurses to use the one-page computer printout (summary of a girl's key responses to questionnaire) to tailor the counseling to enhance its relevance, while employing the motivational interviewing communication style in delivery.

Intervention Delivery and Receipt and Treatment Fidelity—Although both nurses completed the same two days of training, the main interventionist was able to conduct all of the sessions without needing the back-up nurse. The school nurse completed counseling session attendance logs for all participants. The school nurse received two digital tape

recorders, one serving as a back-up for the other, to audio-tape the counseling sessions with the 32 girls. Every other month, after each set of counseling sessions was completed, a research assistant retrieved the tape recorders, and the statistician on the project randomly selected three audio-taped sessions for evaluation. The three tapes were de-identified and sent via email to the consultant for evaluation.

Measures

The Motivational Interviewing Treatment Integrity Code: Version 3.0 (MITI; Moyers, Martin, Manuel, Miller, & Ernst, 2007) was used by the consultant to evaluate the taped sessions to determine interventionist adherence to motivational interviewing. Reliability, validity, and sensitivity indices for the MITI scale have been reported (Moyers et al., 2005).

The MITI Code rates the following three motivational interviewing global dimension elements from 1 (low adherence) to 5 (high adherence): (a) spirit, including collaboration, autonomy, and evocation; (b) empathy; and (c) direction. Behavioral counts are also included to evaluate intervention delivery in four ways by comparing the: (a) percentage of motivational-interviewing-adherent (e.g., asking permission before giving advice; affirming or saying something positive about the person's effort) to non-adherent statements (e.g., advising; confronting); (b) percentage of open-ended to closed-ended questions; (c) percentage of complex to simple reflections; and (d) ratio of reflections to questions (Moyers et al., 2007). To clarify the difference between a simple and complex reflection, the following example is provided:

Girl's response: I just can't find the time to be physically active every day.

Nurse's simple reflection: So, you just can't find the time to be physically active every day.

Nurse's complex reflection: So, you just haven't figured out how to fit physical activity into your busy day yet.

After the evaluation of the tapes was completed, the results were discussed at each of the three time points in phone conferences involving the school nurse, motivational interviewing consultant, and the first author. During the phone conference, the nurse received feedback to assist her in maintaining her motivational interviewing skills as means to avoid "drift" or a reduction in adherence to the intervention protocol over time (Bellg et al., 2004). According to the MITI code (Moyers et al., 2007), a mean rating score of 3.50 indicates beginning proficiency, and one of 4.00 indicates competency.

Immediately prior to each of the three phone conferences, the school nurse and the first author listened to the three audiotapes and independently responded to 11 questions (see Table 1). The questions were created by the first author to obtain additional evaluative information and reinforce appropriate counseling session responses for the nurse. Because response choices related to each question included a simple "yes" or "no," the form was easy to complete. An explanation for any negative response was required, and space was provided below each question for this purpose.

Analysis

All data analysis was done with the Statistical Package for Social Sciences (SPSS) Predictive Analytic Software (PASW) Statistics for Windows version 18.0.2. (SPSS, 2010). Descriptive statistics were calculated.

RESULTS

Thirty-two of the 37 girls and their parents/guardians (86.5%) provided written permission for the nurse to audio-tape the counseling sessions. Five girls did not assent and provide parental consent. Because the nurse did not audio-tape any counseling sessions involving the five girls, data from their sessions, with the exception of each session's start and end time recorded on the log by the school nurse, could not be used in the evaluation.

Thirty-four girls completed all three sessions, and three girls completed sessions at only Times 2 and 3. Reasons that the three girls were unable to complete the initial session included recurring scheduling issues and low attendance at school during this phase of the intervention.

As noted in Table 2, motivational interviewing global dimension element mean scores for the counseling sessions delivered by the school nurse at each of the three time points were all at the competency level of 4.00 or above. The number of 5.00 mean rating scores increased for the final or third session (Time 3).

With regard to the behavioral counts, improvement was also noted at Time 3 for the percentage of both motivational-interviewing-adherent statements and open-ended questions (see Table 3). According to the MITI Code (Moyers et al., 2007), the goal is to demonstrate 100% adherence, and the school nurse achieved this objective at Time 3. With regard to the total number of questions, at least 50% need to be open-ended to reach a level of beginning proficiency. Competence is achieved when 70% of the questions are open-ended. In this study, the school nurse demonstrated beginning proficiency at Time 1 and progressed beyond the competent level at Times 2 and 3.

In contrast, achieving a level of at least beginning proficiency related to the number of complex (as opposed to simple) reflections was difficult. Sustaining a similar level of proficiency for the ratio of reflections to questions was also problematic. Based on the MITI Code (Moyers et al., 2007), at least 40% of the total number of reflections should be complex. In this study, only 25% to slightly over 30% of the school nurse's reflections were complex. With regard to the reflection to question ratio, 1:1 indicates beginning proficiency and 2:1 demonstrates competence. The school nurse achieved a level of beginning proficiency in only the first two of the three sessions.

With regard to the 11 evaluative questions created by the first author (see Table 1), both the nurse and the first author responded "yes" to all except for the one related to reaffirming the girl's permission to be audio-taped. At Times 1 and 2, the school nurse did not remember to ask for verbal permission. Because written assent and parental consent to audio-tape the sessions had already been obtained and the question directed toward eliciting verbal reaffirmation was added only to support each girl's autonomy, the audio-taped data from these sessions were included in the analysis. By Time 3, the issue was resolved with the school nurse obtaining verbal permission from each girl.

The school nurse adhered to the protocol during the counseling sessions. All cognitive and affective variables associated with the Health Promotion Model were addressed in each evaluated counseling session at Times 1 and 3. Reflecting the theory of behavior change underlying motivational interviewing, the school nurse explored each girl's perceived physical activity self-efficacy and importance in each evaluated counseling session at Time 2.

The average session length was fairly similar at each of the three time periods, ranging from close to 11 minutes to slightly over 13 minutes. Although we had originally planned for

sessions lasting approximately 20 minutes, the nurse had difficulty achieving this objective as noted in Table 4.

DISCUSSION

Achieving fidelity is essential for the translation of intervention research into practice (Radziewicz et al., 2009). This study is the first of its kind to evaluate school nurse involvement in motivational interviewing to increase physical activity. The cognitive and affective variables of the Health Promotion Model (Pender et al., 2010) were reflected in the encounters, and all girls completed at least two of the three sessions. The difficulty experienced by the school nurse in conducting counseling sessions lasting close to 20 minutes is not surprising. The nurse described some girls as being “quiet” or having “shy” personalities, and monosyllabic communication is certainly characteristic of this developmental period (Thurlow & Marwick, 2005). The dose received, however, was considered adequate because even a single session of motivational interviewing or brief sessions lasting five to 15 minutes have been found to be efficacious (Mitcheson, Bhavsar & McCambridge, 2009; Pollak et al., 2009).

The 2-day motivational interviewing training workshop followed by regular evaluation of the audio-taped sessions resulted in competent, consistent, and successful delivery by the school nurse with notable improvement over time. The increased number of motivational interviewing global dimension element mean scores of 5.00 along with the higher percentage of motivational-interviewing-adherent statements and open-ended questions noted in the final counseling session, as compared to the initial session, indicated improvement in the delivery of motivational interviewing as the school nurse acquired more experience over time. In another study, in which a glaucoma educator was trained through self-study and role play followed by individual consultation to discuss the first few patients seen, the educator’s use of motivational interviewing techniques increased from pre- to post-training (Cook, Bremer, Ayala, & Kahook, 2010). In this study, only percentages associated with complex reflections and the reflection to question ratio failed to improve, indicating that greater emphasis needs to be placed on assisting the school nurse in these two areas. In summary, the findings underscore the insufficiency of the standard two-day initial intensive motivational interviewing training workshop alone (Miller & Mount, 2001) and the salience of adding post-workshop input, such as providing feedback on audio-taped sessions, for achieving competence (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004).

Strengths and Limitations

The study had strengths and limitations. The sample of girls was racially diverse. However, the small sample size and single urban school setting limited the generalizability of the results. The face-to-face sessions were feasible in a school setting, and the girls were willing to meet with the school nurse. The results showed that a newly trained school nurse with no prior experience in motivational interviewing could become relatively proficient in its delivery after a two-day initial training workshop, including didactic content, demonstrations, and role-playing activities, followed by post-workshop performance feedback.

IMPLICATIONS FOR SCHOOL NURSING

The delivery of motivational interviewing by school nurses trained to employ the related techniques and communication style is an innovative strategy for helping girls of middle school age to increase their MVPA and achieve or maintain a healthy weight. Results from one study, in which primary care providers conducted one motivational interviewing session with each overweight adolescent participant, showed a positive relationship between

providers' adherence to motivational interviewing and adolescent physical activity, and a negative relationship between the providers' motivational interviewing spirit and adolescent self-reported weight one month after the encounter (Pollak et al., 2009). Findings from other studies showed that nurse-delivered motivational interviewing during school hours was effective for improving other adolescent behaviors, such as reducing smoking (Hamilton, Cross, Resnicow, & Hall, 2005; Hamilton, Cross, Resnicow, & Shaw, 2007).

Although this type of intervention is promising, potential challenges to its widespread adoption in schools may include staffing the school nurse position and integrating behavior change techniques with other aspects of nursing care. Research is needed to clarify how motivational interviewing exerts an effect on behavior and what specific elements of the approach are essential (Thompson et al., 2011). Cost is another area of concern. However, if the school nurse contributes toward increasing girls' adherence to MVPA recommendations and their overall health and well-being, which may, in turn, have a positive impact on their academic performance and reduce long-term health care costs, then a case could be made to insurers, school administrators, and other stakeholders that this service should be offered and reimbursed. Cost-effectiveness analyses, therefore, represent an important area for future research.

CONCLUSION

The findings demonstrate the potential viability of advancing the school nurse role in evidenced-based physical activity interventions that involve motivational interviewing to promote the health of adolescents. School nurses can create and use a one-page printout that reflects a girl's key personal thoughts and feelings reported on a questionnaire, as guide to motivate her to achieve national physical activity recommendations. This description of establishing treatment fidelity is intended to inform nurses and encourage researchers to continue to test this approach with adolescents in future investigations. Monitoring fidelity of the counseling can contribute to the development and translation of school-based, nurse-delivered interventions for increasing physical activity (to prevent excess weight gain among girls) that are methodologically innovative, valid, and clinically applicable.

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Table 1**Eleven Questions Used to Evaluate Audio-taped Nurse (Interventionist) Counseling Sessions**

Questions	
1	Did the tape work?
2	Did the nurse remember to ask permission to tape?
3	Was the introduction clear and appropriate?
4	Was the pace of the intervention appropriate?
5	Did the nurse stay focused on the intervention?
6	Did the nurse adhere to the protocol to reflect the underlying theory?
7	Did the participant have any difficulty understanding any part of the counseling session?
8	Did the nurse engage the participant in a manner that facilitated behavior change?
9	Was the participant actively involved in the discussion (rather than passive recipient)?
10	Did the nurse use any inappropriate responses?
11	Was termination clear and appropriate?

Table 2

Motivational Interviewing Global Dimension Elements: Mean Scores for Adherence in Each Session

Elements	Session 1	Session 2	Session 3
Spirit	4.22	4.22	4.66
Collaboration	4.00	4.00	5.00
Evocation	4.66	4.66	5.00
Autonomy	4.00	4.00	4.00
Empathy	4.00	4.33	5.00
Direction	5.00	5.00	5.00

Note. Ratings = 1 (low adherence) to 5 (high adherence)

Table 3

Motivational Interviewing Behavioral Counts: Mean Scores for Each Session

Behaviors	<i>Session 1</i>	<i>Session 2</i>	<i>Session 3</i>
Adherent statements	8.00	5.66	2.67
Non-adherent statements	1.33	1.66	0.00
Total statements	9.33	7.32	2.67
% adherent statements	85.75	77.32	100.00
Closed questions	10.33	3.33	2.00
Open questions	19.00	16.67	14.67
Total questions	29.33	20.00	16.67
% Open Questions	64.78	83.35	88.00
Simple reflections	23.33	17.00	10.67
Complex reflections	8.67	7.33	3.67
Total reflections	32.00	24.33	14.34
% Complex reflections	27.09	30.13	25.59
Reflection: Question Ratio	1.09	1.22	0.86

Note. Boldface values represent MITI Code's four ways to evaluate intervention delivery.

Table 4

Intervention Dose

Counseling Sessions	n	Number of Minutes of Counseling		
		M (SD)	Min-Max	Range
Time 1 (beginning of intervention)	34	10:53 (2:56)	6:22 – 15:40	9:18
Time 2 (mid-point of intervention)	37	13:20 (3:14)	8:26 – 20:37	12:11
Time 3 (end of intervention)	37	11:48 (3:33)	7:15 – 20:15	13:00