



Motivational Interviewing: A Behavioral Counseling Intervention for the Family Medicine Provider

Eve Ackerman, DNP; Sherry A. Falsetti, PhD; Patricia Lewis, PhD, RN; Alesia O. Hawkins, PhD; Judie A. Heinschel, PhD, APRN

BACKGROUND AND OBJECTIVES: This study investigated whether adult participants who receive a brief motivational interviewing (MI) intervention delivered by a family medicine provider (family nurse practitioner or family medicine resident [MD]) progress to the next stage of change and increase physical activity.

METHODS: A pilot study that included enrollment of 30 patients who failed usual care counseling to increase physical activity by their family medicine provider. Each study participant received three MI sessions over a 3-month period and an initial face-to-face session followed by two telephone counseling sessions scheduled approximately a month apart. Stages of Change were measured by the Exercise Stages of Change Short Form, and physical activity was measured using the Community Healthy Activities Model Program (CHAMPS) activities questionnaire.

RESULTS: Among the study participants, 80% (n=24) progressed to the next stage of change. Study participants also increased activity from baseline to completion.

CONCLUSIONS: MI counseling offers promise as a valuable intervention that can be used by family medicine providers to address patients' ambivalence to promote advancement through the stages of change and increase physical activity in the overweight patients.

(Fam Med 2011;43(8):582-5.)

Physical inactivity has led to an epidemic of overweight and obese adults. The National Health and Nutrition Examination study projects that by 2030, 86.3% of adults will be obese or overweight.¹ Motivational interviewing (MI) is a directive, patient-centered counseling style that aims to help patients explore and resolve their ambivalence about behavior change.² MI has demonstrated efficacy as a counseling intervention in secondary prevention of obesity to increase

physical activity/exercise³⁻⁸ as well as in the tertiary stages of chronic disease management.⁹⁻¹⁴ To date, limited research has been provided on the feasibility of conducting MI in a primary care setting provided by the family practice provider (FPP) to facilitate obese patients to increase their physical activity.

Study Questions

The purpose of this study was to determine if adult participants who receive brief MI counseling sessions

delivered by a FPP progress to the next Stage of Change and increase physical activity.

Methods

Setting and Subjects

The Family Health Center is an outpatient family medicine residency teaching clinic located in an urban setting in Rockford, IL. The University of Illinois Institutional Review Board approved this study. Fifty adult patients who had failed usual care counseling by their FPP were referred to the study, resulting in 30 patients (28 women and two men) participating who met inclusion criteria. Inclusion criteria included (1) referral to the study by his/her FPP, (2) ability to speak English, and (3) access to a telephone. Exclusion criterion included (1) any uncontrolled disease, physical or mental, that would prohibit physical exercise or impair cognition, coordination, or the ability to process and/or communicate information, (2) currently participating in other studies that have impact on physical exercise or weight, and (3) currently exercising for 30 minutes five times

From the Department of Family and Community Medicine, University of Illinois at Rockford (Dr Ackerman, Dr Falsetti, Dr Hawkins, Dr Heinschel); and College of Nursing, University of Illinois at Chicago (Dr Ackerman, Dr Lewis, Dr Heinschel).

per week or greater. MI study counselors included one family medicine resident (MD) and two family nurse practitioners (FNPs) who completed a 3-day certification program in MI counseling.

Procedure

Participants who agreed to participate were assigned to one of three MI-trained FPPs. The first MI session was a 30-minute face-to-face meeting, followed by two additional telephone sessions (15–20 minutes each) provided approximately 1 month apart. Stages of Change and physical activity were assessed prior to the study (baseline) and at 3 months, following completion of the study.

Outcome Measures

Stages of Change were measured by The Exercise Stages of Change Short Form,¹⁶ which identifies individuals in one of four stages: (1) Precontemplation, no intention of exercising regularly in next 6 months, (2) Contemplation, intention to exercise regularly in the next 6 months, (3) Preparation, intention to exercise regularly in the next 30 days, and (4) Action, exercising regularly for less than 6 months.

Physical activity level was measured by the 41-item Community Healthy Activities Model Program (CHAMPS) activities questionnaire designed to measure physical activities of community-dwelling adults.¹⁷ Frequency of activity and total hours per week (hrs/wk) spent on all physical activities is calculated into kilocalories/week (kcal/week). Validation for use in older adults has been shown.¹⁸⁻¹⁹

Data Analysis

Descriptive analyses were conducted to provide demographic characteristics of participants. The Stages of Change were measured at baseline (before intervention) and at the end of 3 months (after intervention). A Wilcoxon signed rank test was conducted to examine whether or not

participants showed changes from before treatment to after treatment on the Stages of Change. Additionally, this test was used to determine the direction of change. Frequencies were computed on the Stages of Change to determine the magnitude of change. Descriptive analyses were conducted to determine overall mean scores and mean hrs/wk for physical activity (all exercise-related

activities and for moderate/greater intensity exercise-related activities). One paired sample *t* test was conducted to examine the relationship between the means of the outcome measures before and after the intervention. All analyses were carried out using SPSS statistical software. Alpha was set at a *P* value less than .05.

Table 1: Demographic Information

Category	Participants
<i>Characteristic</i>	<i>n=30</i>
Gender	
Female	28 (93%)
Male	2 (7%)
Age	
Mean (years)	52.4
Ethnicity	
Caucasian	26 (87%)
African-American	2 (7%)
Hispanic	2 (7%)
Education	
College graduate	6 (20%)
Some college	13 (43%)
High school	11 (37%)
Reason referred	
Coronary artery disease	7 (23%)
Diabetes	10 (33%)
Hyperlipidemia	15 (50%)
Hypertension	19 (63%)
Metabolic syndrome	13 (43%)
Other	5 (17%)
Multiple diagnoses	23 (77%)
Charlston Comorbid Score	
Mean	1.93
BMI	
Overweight >25	2 (7%)
Obese >30	18 (60%)
Morbid obesity >40	10 (33%)

Results

Stages of Change

Demographic information (see Table 1) is provided for study participants. The majority of participants (80%) progressed to the next stage of change, including 53% of participants who progressed to the Action Stage of Change. Wilcoxon test analysis revealed that the changes in stages from before to after treatment

were significant ($Z = -4.207, P < .001$). The majority of participants, 71% ($n = 21$), moved up one stage of change. Figure 1 provides the distribution of participants in each Stage of Change.

Before and After Intervention

Physical Activity

A one sample *t* test was conducted to compare physical activity before

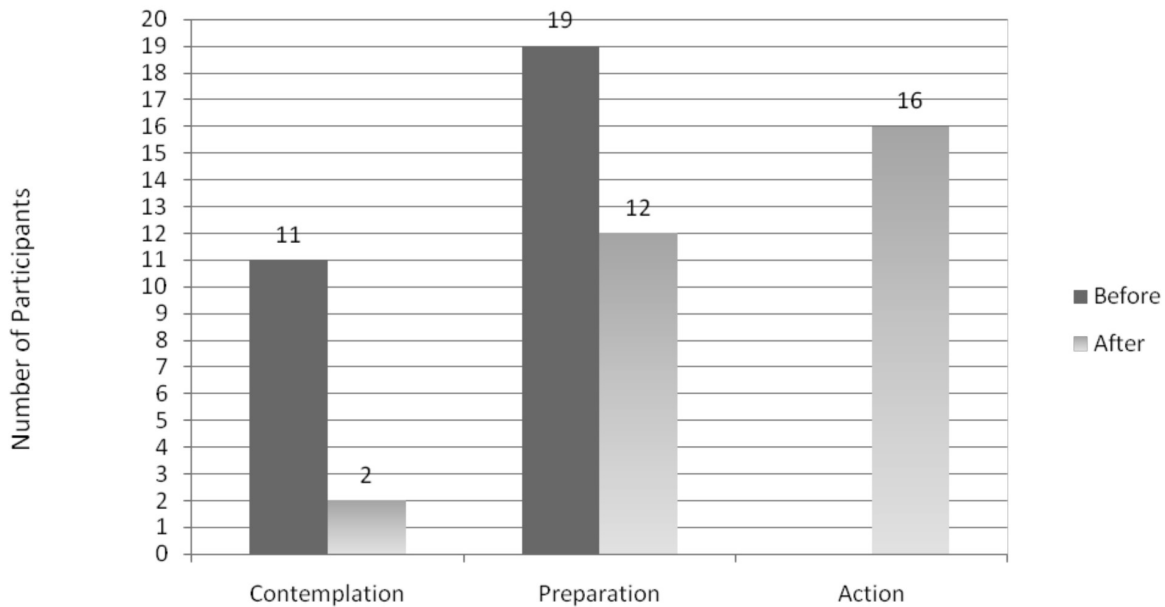
and after the intervention for kcal/week (see Table 2). Results of the *t* test revealed significant differences in the scores for all exercise-related activities, ($T = -8.66; P < .001$) and for moderate/greater intensity activities ($T = -5.99; P < .001$). Posthoc tests were conducted using a one sample *t* test to examine mean differences before and after the intervention by number of hours of physical activity.

Table 2: Means for Physical Activities and Hours Per Week

Intervention				
	Before Intervention	After Intervention	<i>t</i>	df
Kcal Expenditure per week				
All activities	1,645.5	3,388.8	-8.86*	29
Moderate/Greater Intensity Activities	565.5	1481.5	-5.99*	29
Hours per week				
All Activities	26.0	33.7	-5.35*	29
Moderate/greater intensity activities	1.53	3.68	-5.36*	29

* $P < .001$

Figure 1: Stages of Change



Hours per week for physical activity increased for all exercise activities ($T=-5.35$, $P<.001$, moderate/greater intensity physical activities ($T=-5.36$; $P<.001$).

Discussion

Results of the current study revealed that the majority of participants progressed to the next Stage of Change. Previous MI studies demonstrated similar outcomes in Stages of Change;^{4,19} however, used MI interventions of different duration and methods. For instance, Clark⁴ provided six 30-minute face to face counseling sessions over 12 months by a counseling interventionist. Bennett¹⁸ provided six 15-minute telephone-only counseling sessions over 6 months by a physical activities counselor. Our findings support the notion that combined face-to-face visits with telephone calls have a positive effect of increased physical activity.^{3,8,11-14}

Limitations

Some limitations should be noted. First, the findings from this pilot study are based on a small sample of primarily Caucasian women, which limits generalizability of our findings. Future studies should utilize a larger, more representative sample and incorporate a control or comparison group so that causal inferences about the efficacy of MI can be made. Lastly, all participants began in the Contemplation Stage of Change, therefore, they may have entered the MI intervention more motivated to change. It is unclear if there would be similar findings for individuals in the Precontemplation Stage of Change, but this may not be a significant weakness, given that patients in the precontemplation stage of change do not usually enter behavior change treatment studies.

Conclusions

Despite the limitations discussed, this appears to be the first study to provide evidence that MI can be implemented by FPPs in a primary care setting to successfully address a significant barrier to change—the patient's own ambivalence. MI may provide a powerful, cost-effective counseling intervention that can be used by the FPP to empower patients to make the necessary steps to increase physical activity to ultimately contribute to the reduction of obesity.

ACKNOWLEDGMENTS: The authors acknowledge Elizabeth Mendeloff, DNP-P; Melissa Garcia, MD; and Leslie Filer, RN, LCSW.

CORRESPONDING AUTHOR: Address correspondence to Dr Ackerman, University of Illinois College of Medicine at Rockford Residency Program, 1221 East State Street, Rockford, IL 61104. 815-972-1088. Fax: 815-972-1091. evea@uic.edu.

References

1. Wang Y, Beydoun MA, Liang L, et al. Will all Americans become overweight or obese? Estimating the progression and cost of the US obesity epidemic. *Obesity* 2008;16(10):2323-30.
2. Miller WR, Rollnick S. What is motivational interviewing? In: *Motivational interviewing, preparing people for change: second edition*. New York: Guilford Press, 2002:33-42.
3. Harland J, White M, Drinkwater C, et al. The Newcastle exercise project: a randomized controlled trial of methods to promote physical activity in primary care. *BMJ* 1999;319:828-32.
4. Clark M, Hampson SE, Avery L, et al. Effects of a tailored lifestyle self-management intervention in patients with Type 2 diabetes. *Br J Health Psychol* 2004;9:365-79.
5. Resnicow K, Jackson A, Blisset D, et al. Results of the healthy body health spirit trial. *Health Psychol* 2005;24(4):339-48.
6. Carels RA, Darby L, Cacciapaglia HM, et al. Using motivational interviewing as a supplement to obesity treatment: A stepped-care approach. *Health Psychol* 2007;26(3):369-74.
7. Smith West D, Dilillo V, Bursac Z, et al. Motivational interviewing improves weight loss in women with type 2 diabetes. *Diabetes Care* 2007;30(5):1081-7.
8. Harcastle S, Taylor A, Bailey M, et al. A randomized controlled trial on the effectiveness of a primary health care based counseling intervention on physical activity, diet, and CHD risk factors. *Patient Educ Couns* 2008;70:31-9.
9. Woollard J, Beilin L, Lord T, et al. A controlled trial of nurse counseling on lifestyle change for hypertensive treated in general practice: preliminary results. *Clin Exp Pharmacol Physiol* 1995;22:466-8.
10. Smith DE, Heckemeyer CM, Kratt PP, et al. Motivational interviewing to improve adherence to a behavioral weight-control program for older obese women with NIDDM. *Diabetes Care* 1997;20(1):52-4.
11. Mhurchu CN, Margetts BM, Speller V. Randomized clinical trial comparing the effectiveness of two dietary interventions for patients with hyperlipidaemia. *Clin Sci* 1998;95:479-87.
12. Ang D, Kesavalu R, Lydon JR, et al. Exercise-based motivational interviewing for female patients with fibromyalgia: a case series. *Clin Rheumatol* 2007;26:1843-9.
13. Bennett JA, Lyons KS, Winters-Stone K, et al. Motivational interviewing to increase physical activity in long-term cancer survivors: a randomized controlled trial. *Nurs Res* 2007;56(1):18-27.
14. Greaves CL, Middlebrooke A, O'Loughlin L, et al. Motivational interviewing for modifying diabetes risk: a randomized controlled trial. *Br J Gen Pract* 2008;58:535-40.
15. Prochaska JO, Redding CA, Evers KE. The transtheoretical model and stages of change. In: Glanz K, Rimer FM, eds. *Health behavior and health education: theory, research and practice*. San Francisco: Jossey-Bass 2002:99-120.
16. Nigg CR. Physical activity assessment issues in population-based interventions: a stage approach. In: Welk GJ, ed. *Physical activity assessments for health-related research*. Champaign, IL: Human Kinetics, 2002:227-39.
17. Stewart AL, Mills KM, King AC, et al. CHAMPS physical activity questionnaire for older adults: outcomes for intervention. *Med Sci Sports Exerc* 2000;33(7):1126-41.
18. Harada D, Chiu V, King AC, et al. An evaluation of three self-report physical activity instruments for older adults. *Med Sci Sports Exerc* 2001;33(6):962-70.
19. Bennett JA, Young HM, Nail LM, et al. A telephone-only motivational interviewing intervention to increase physical activity in rural adults: a randomized controlled trial. *Nurs Res* 2008;57(1):24-32.