

An Evaluation of the Mindless to Mindful (M2M) Intervention on Exercise Self-Regulation and Fat Mass Loss: A Case Study

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Abstract

Purpose: To evaluate the impact of the Mindless to Mindful intervention on fat mass loss in adults.

Design: This was a single-group case study.

Setting: A fitness center delivered by certified fitness professionals.

Subjects: 222 adults who participated in M2M as a team or as individuals, and 195 completed the entire intervention (attrition rate = 12.16%).

Intervention: M2M was an 8-week behavior change intervention with tailored coaching, group moderate-to-vigorous exercise (MVE) and self-regulation techniques.

Measures: Participants completed a demographic questionnaire, the Jackson-Pollock 4-site body fat measure, brief self-control scale, self-compassion scale, and a daily exercise log.

Analysis: Paired sample *t*-tests were used to determine differences within groups and a one-way ANOVA was used to determine the differences between groups (*P*-value < .05).

Results: Participants engaged in an average of 4.88 h (*SD* = 2.04) of MVE per week. There was a significant decrease in fat mass (*M* = 17.65; *P* < .001) and increase in self-control (*t* = 6.248, *P* < .001, *d* = .300) and self-compassion (*t* = 4.314, *P* < .001, *d* = .165).

Conclusion: Self-monitoring, group exercise, and individualized coaching can promote self-regulation and fat mass loss.

Keywords

physical activity, weight loss, exercise habit, social support, exercise identity

Purpose

Obesity is a global health problem associated with a variety of chronic diseases.¹ Systematic reviews support the use of exercise for fat loss in adults, however, most adults struggle to maintain regular exercise for fat loss maintenance.² Mindless to Mindful (M2M) was an 8-week exercise intervention that provided group exercise, tailored coaching, and self-regulation of exercise behavior. Participants could engage in M2M as individuals or members of a team, with previous research supporting a team-based approach for exercise promotion.³ M2M was based in the self-regulation theory, a four-step feedback loop including goal setting, engaging in goal-directed behavior, monitoring health behavior, and adjusting health behaviors as appropriate to achieve one's goals.⁴ Previous research found self-regulation and tailored coaching

positively impacts exercise behavior.⁵ The purpose of this study was to report the results of a case study evaluating the impact of the M2M intervention on fat mass loss, self-control, and self-compassion for adults, and compare results between individual and team participants.

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Methods

Design and Sample

The M2M intervention was a single-group case study. Convenience sampling occurred as adults who were members of a fitness center who wanted to change their lifestyle habits were recruited ($n = 222$), and 195 completed the entire intervention (attrition rate = 12.16%). Participant age ranged from 18 to 68 years ($M = 43.44$, $SD = 8.89$), 76.9% ($n = 150$) were female, and the mean body fat was 28.0% ($SD = 7.1$) at baseline.

Measures

Demographic Questionnaire. Participants completed the following questionnaires at baseline and follow-up via paper-and-pencil.

Body Fat. Lange skinfold calipers and the Jackson-Pollock 4-site equation (JP4E) assessed body fat percentage, fat mass (FM) loss, and fat free mass (FFM) gain, which is a valid and reliable measure.⁶

Brief Self-Control Scale (BSCS). The 13-item BSCS measured general trait self-control on a 5-point Likert scale ranging from 1 (not at all) to 5 (very much).⁷ The internal consistency was high at baseline ($\alpha = 0.80$) and follow-up ($\alpha = 0.81$).

Self-Compassion Scale-Short Form (SCS-SF). The 12-SCS-SF evaluated self-kindness, common humanity, and mindfulness to create a total self-compassion score.⁸ Measured on a Likert scale from 1 (almost never) to 5 (almost always), the SCS-SF exhibits near perfect correlation and factor analysis with the long form.⁸ The internal consistency was high at baseline ($\alpha = 0.87$) and follow-up ($\alpha = 0.86$).

Self-Monitoring. Participants self-reported daily caloric and protein intake, MVE, and daily reflections. Participants submitted their log to their coach for meta-monitoring each week.

Intervention Adherence. Total participant intervention adherence was calculated by determining the adherence to each of the six M2M guidelines for the 56-day intervention and dividing total adherence by six.

Intervention

The 8-week M2M intervention consisted of six guidelines including 1) 5 h of group MVE per week; 2) 3 min of daily diaphragmatic breathing; 3) dietary intake at or below the individualized recommended daily caloric intake; 4) protein intake at or above the individualized recommended daily protein intake; 5) liquid intake consisting of only water, black coffee, and/or unsweetened tea; and 6) daily reflection and self-monitoring of their progress. To promote self-regulation

of diet, participants were provided with a printed cookbook that included healthy food options and recipes. Participants received daily emails from their coach with a journal reflection prompt, and weekly communication in the preferred method of the participant (ie, face-to-face, text message, or email) as social support. The group-based exercise occurred in a fitness center delivered by certified fitness professionals. Participants completed baseline assessments of body fat, self-control, self-compassion, and exercise habit strength. The baseline data informed participant goal setting, which was reviewed by their coach to ensure feasible attainment within 8 weeks. Coaches recommended a maximum daily caloric and protein intake based on each participant's current body composition, age, gender, and fat mass loss goal. The six guidelines were self-monitored by participants in a weekly checklist and submitted to their coach as meta-monitoring, or when participants tracked their secondary goals (ie, caloric and protein intake) as a means of achieving their primary goals (ie, fat mass loss).

Analysis

Demographics and outcome variables were analyzed using descriptive statistics. Paired sample *t*-tests determined differences within groups from baseline to follow-up. A one-way ANOVA was used to determine the differences between groups (P -value $< .05$) at baseline and follow-up.

Results

Baseline Variables Between Groups

There were no significant differences between groups for FM (95% CI, -5.48 to 5.99), self-control (95% CI, -0.686 to 3.681), or self-compassion (95% CI, $-.270$ to $.126$).

Outcome Variables Across All Participants

The average weekly MVE was 4.88 hours ($SD = 2.04$). There was a significant decrease in FM from baseline to follow-up ($t = 23.323$, $P < .001$, $d = 1.887$) and a significant increase in FFM ($t = 2.941$, $P < .004$, $d = 0.352$). There was also a significant increase in self-control ($t = 6.248$, $P < .001$, $d = .300$) and self-compassion ($t = 4.314$, $P < .001$, $d = .165$) (see Table 1). Fat mass loss was associated mean MVE ($r = .301$, $P < 0.001$).

Outcome Variables Between Groups

Team participants had significantly (< 0.001) higher adherence ($M = 77.8$, $SD = 19.3$) than individual participants ($M = 57.0$, $SD = 27.4$), and ($F = 24.207$, $P < 0.001$) more hours of MVE per week ($M = 5.35$; $SD = 1.88$) than individual participants ($M = 3.90$; $SD = 2.02$). Teams and individuals exhibited significant changes in self-control, self-compassion, and FM across time (see Table 2).

Table 1. Baseline and Follow-Up Mean Scores for the M2M Intervention (n = 195).

Outcome variables	Pre-		Post-		t (194)	P
	M	SD	M	SD		
Fat Mass	48.7	18.9	41.1	17.7	−23.323	<0.001
Fat free Mass	122.67	25.72	123.31	25.00	2.941	0.004
Self-control	42.10	7.25	44.32	7.18	6.248	<0.001
Self-compassion	3.092	0.654	3.224	0.636	4.314	<0.001

Table 2. M2M Outcome Variables in the Across Time and Between Groups (n = 132 Team; n = 63 Individual).

Variable	Group	M ± SD	t (193)	P	Cohen's d
Δ fat Mass	Individual	7.71 ± 5.33	−0.125	.900	.019
	Team	7.62 ± 4.20			
Δ self-control	Individual	0.97 ± 5.04	2.471	.014*	.378
	Team	2.83 ± 4.85			
Δ self-compassion	Individual	0.069 ± 0.482	1.432	.154	.219
	Team	0.162 ± 0.398			
Moderate-to-vigorous exercise	Individual	3.90 ± 2.02	4.920	<.001**	−.753
	Team	5.35 ± 1.88			

*Significant at $P < 0.05$, **Significant at $P < 0.001$.

Discussion

Summary

The M2M intervention resulted in an average decrease of £7.65 of fat mass and participants engaged in more than the recommended weekly amount of MVE, which is greater weight loss in a shorter time than previous interventions.⁹ The M2M intervention targeted barriers to self-regulation of *health* behaviors through group exercise, tailored coaching, self-monitoring, and team support, each of which can enhance self-regulation and weight loss.^{10,11}

Participants in this study self-monitored multiple behaviors with high adherence. Previous self-monitoring interventions incorporating multiple strategies resulted in greater physical activity when compared to self-monitoring alone.¹² Also, as with this study, self-compassion enhances self-regulation of physical activity.¹³ Writing down self-determined goals, self-monitoring of exercise, and coaching support can increase self-control and self-regulation of exercise.¹⁴ Like previous research, team participants engaged in significantly more MVE than the recommended weekly amount,³ and more than the individual participants. It is possible team participation inspired social support and accountability, promoting exercise participation.

Limitations

The case study did not have a control group and participants self-selected team or individual participation. Due to selection bias and convenient sampling, the results are not

generalizable nor possible to determine whether the effects were due to any external factors. Furthermore, participants in M2M self-reported their exercise behavior. Future research should utilize a randomized controlled trial design, direct MVE measures, and a representative sample for objective results.

Significance

The M2M intervention significantly increased participant self-control, self-compassion, exercise behavior, and decreased fat mass in 8 weeks. Adherence to the six guidelines was high, supporting the use of self-monitoring, group exercise, and individualized coaching on self-regulation of exercise behavior and fat mass loss.

SO WHAT (Implications for Health Promotion Practitioners and Researchers)

What is Already known About the Topic?

Interventions that utilize multiple techniques to target self-regulation of exercise is more effective than interventions that utilize self-monitoring alone.¹² The M2M intervention utilized group exercise, tailored coaching, daily self-monitoring and meta-monitoring, and participants had high adherence, exceeded exercise recommendations, and lost weight in 8 weeks.

What Does This Article Add?

The current findings support the effectiveness of team-based and individual-based participation in a self-regulation exercise intervention in a real-world setting.

What are the Implications for Health Promotion Practice and Research?

The M2M intervention could be translated to other fitness centers or worksite wellness programs to engage employees or patrons, promote social cohesion, and facilitate health behavior change.

Author's Note

This study was approved by the IRB of William Jessup University.

Declaration of Conflicting Interests

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