

SHORT COMMUNICATION

Motivation for weight loss and association with outcomes in a lifestyle intervention: comparing emerging adults to middle aged adults

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Summary

Background

Emerging adults (EAs) ages 18–25 are at high risk for overweight/obesity, but little is known about their motivations for weight loss or how these may differ from those of middle aged adults (MAs) and relate to treatment outcomes.

Purpose

The purpose of this study was to examine potential differences in weight loss motivations between EAs and MAs and determine the association between motivation and engagement/outcomes in a weight loss trial.

Methods

Data were pooled from two behavioural weight loss interventions: one targeting EAs ($n = 52$) and one targeting MAs ages 40–60 ($n = 101$). Motivation, attendance, dietary self-monitoring and weight change were measured in both trials across 3 months of treatment.

Results

Emerging adults were less motivated by health concerns than MAs ($p < .05$). Motivation to lose weight in order to improve appearance was of similar importance for both MAs and EAs but demonstrated differential associations with treatment variables. Appearance-related motivation was associated with higher program engagement for MA but was associated with poorer weight loss for EAs. Overall engagement, weight loss and retention were worse for EAs than MAs ($ps < .05$).

Conclusions

Specific motivations for weight loss were associated with treatment outcomes, but effects varied by developmental stage. Findings of this study highlight the potential differences between motivation to initiate weight loss efforts and motivation to successfully change weight-related behaviours. Future research should explore methods for intervening directly on motivation within the context of weight control interventions among EAs.

Keywords: Emerging adults, lifestyle intervention, motivation, weight loss.

Introduction

Emerging adulthood (ages 18–25) is a high-risk period for weight gain and obesity due to myriad transitional life events (1) and associated unhealthy weight-related

behaviors (2) that occur during these years. Over 40% of emerging adults (EAs) in the United States have overweight or obesity, with even greater rates among racial/ethnic minorities (3). Despite the high prevalence of overweight/obesity and known risk factors associated

with this distinct developmental period, EAs are markedly underrepresented in standard adult behavioural weight loss programs (4). Though such programs reliably produce clinically meaningful weight losses associated with reduced risk for chronic illness among adults as a whole (5), the few EAs who do enrol in these programs demonstrate poorer attendance, retention and weight loss outcomes when compared with older participants (4).

Such findings prompted efforts to design treatment programs specifically for EAs (6). Research conducted with this age group revealed that these poor outcomes are not due to a general lack of motivation for weight loss among EAs. One study found that 94.9% of surveyed EAs meeting criteria for overweight or obesity were interested in losing weight within the next 3 months (7). This same investigation also assessed motivations for weight loss, finding that the strongest motivations for weight loss in this population were improvements in health, appearance, self-confidence and energy level in addition to disease/illness prevention. Very few EAs endorsed strong motivation to lose weight in order to attract a romantic partner or be a certain clothing size. Given the demonstrated link between motivation and weight loss outcomes (8,9), a better understanding of EAs' motivation for weight loss – and how these may differ from those of older adults – may improve treatment development efforts with this population.

There is some evidence to suggest that age-related differences exist with respect to motivations for weight loss and related behaviours (10–12). Specific motivations have been found to wax and wane over the course of the lifespan; for example, adults age 45 and older reported stronger motivation to exercise for psychological benefits than EAs (10). Similarly, motivation to exercise for stress reduction has been found to increase across the lifespan, while motivation to exercise to socialize with friends decreases (11). Motivational differences also emerged in a sample of adults who had lost weight and maintained this weight loss for at least 1 year. Investigators found that young adults were more likely than older adults to report appearance and social pressure and less likely to report health concerns as motivating factors for their initial decision to lose weight (12). Given the association between medical triggers and long-term weight loss success in adults (13), the fact that young adults are less likely to be motivated by health concerns may play a role in their poorer engagement and weight loss outcomes in lifestyle interventions.

To date, there has been no comparative analysis of motivation between emerging and middle aged adults (MAs) who present for weight loss treatment; thus, it is unknown how such differences in baseline motivations may differentially affect treatment outcomes. Such an investigation has

the potential to highlight additional ways in which lifestyle interventions for EAs might be tailored to improve outcomes. As such, the aims of the current study were to compare EAs' motivations for weight loss to those of MAs in a treatment-seeking sample, and to explore how these motivations predicted engagement and weight loss within a brief lifestyle intervention for overweight/obesity. It was hypothesized that baseline differences in weight loss motivations between EAs and MAs initiating treatment for weight loss would be largely consistent with the age-related differences documented among those who have successfully lost weight (12). Further, it was hypothesized that associations between baseline motivations and treatment outcomes would vary as a function of developmental stage.

Methods

Participants

Participants were pooled across two behavioural weight loss programs, one targeting EAs age 18–25 ($n = 52$), and one targeting MAs age 40–60 ($n = 101$). Exclusion criteria for both studies included: ongoing participation in another weight loss program, recent weight loss $\geq 5\%$, serious medical and/or mental health conditions that posed a safety risk, and current, recent or planned pregnancy. Body mass index inclusion range was 25–45 kg/m² for the young adult intervention and 30–40 kg/m² for the MA intervention.

Interventions

Both interventions were conducted as randomized controlled trials testing delivery models for standardized gold-standard behavioural weight loss treatment. Treatment duration was identical across interventions, with both providing ongoing treatment contact for 3 months. Assessments took place at baseline and at 3 months. Both programs were designed to produce weight losses of 1–2 pounds per week and included evidence-based behavioural weight loss modules, calorie and fat prescriptions, physical activity prescriptions, training in core behavioural modification strategies (e.g. stimulus control, goal setting) (5) and self-monitoring of key behaviours with personalized weekly feedback on progress. The intervention designed for EAs comprised three arms differing primarily with respect to delivery modality: in person (group), via web and a hybrid model (14). All treatment arms in the intervention for EAs delivered content adapted specifically for this age group based on formative work (15). The intervention targeting MAs was designed to compare two arms, each implementing a different model of lay coaching.

Measures

Weight loss motivations

Participants' reasons for wanting to lose weight were assessed at baseline in both trials using a nine-item measure developed for the National Weight Control Registry. This measure has been used in previous studies examining differences between young adults and older adults regarding motivation for weight loss (12). Participants were asked to indicate the importance of each reason for weight loss (e.g. health concerns, social pressure) on a five-point Likert scale ranging from 'not at all important (1)' to 'extremely important (5).'

Treatment attendance

Attendance (yes/no) was taken at each of the in-person group sessions in both interventions; weekly weight reporting (yes/no) was used as a proxy for attendance in the web-based treatment arms. Attendance percentage was calculated as the number of sessions attended divided by the total number of sessions held.

Dietary self-monitoring

In both trials, participants were instructed to keep weekly dietary self-monitoring logs and to report average calorie and fat information to their interventionist. Completion of self-monitoring logs was tracked each week by intervention staff (yes/no). Completion percentage was calculated as the number of monitoring logs received divided by the total number of opportunities to turn in monitoring logs.

Retention

In both trials, participants were considered to be retained if they completed their 3-month assessment.

Anthropometric measures

Weight was measured to the nearest 0.1 kg in light clothes without shoes using a calibrated digital scale at 0 and 3 months by blinded research assistants. Height was measured at baseline only to the nearest millimetre using a wall-mounted stadiometer and a standard protocol. BMI was calculated as weight in kg/height in meters².

Statistical analyses

Emerging adults and MAs were compared on demographic characteristics and treatment variables using ANOVA or chi-square tests for continuous and

categorical variables, respectively. Treatment arm and significant demographic differences associated with outcome variables were controlled for in all subsequent analyses. Analyses examining motivations as predictors were conducted separately for EAs and MAs. For analyses predicting weight loss, baseline measures were included as covariates, and baseline data was carried forward for missing 3-month data unless otherwise stated. Percent weight loss was calculated as: $((\text{baseline weight [kg]} - 3\text{-month weight [kg]}) / \text{baseline weight [kg]}) \times 100$. All analyses were conducted using SPSS version 23.

Results

Participants in the intervention targeting MAs were more likely to be male, non-Hispanic white, and married or living with a romantic partner than those in the intervention for EAs; EAs were more likely to have at least some college education than MAs. Difference in baseline BMI between EAs and MAs was non-significant (see Table 1).

Significant differences were found between EAs and MAs' baseline motivations for weight loss (Table 1). Emerging adults were less likely to endorse health concerns than MAs (3.94 v. 4.63, $F[1, 149] = 7.52, p < .05$) and more likely to endorse desire for improved appearance (4.58 v. 4.17, $F[1, 149] = 4.56, p < .05$). Other motivational differences between EAs and MAs were not statistically significant, although a marginally significant trend emerged such that wanting to improve energy was less important for EAs than for MAs (4.04 v. 4.59, $F[1, 149] = 3.23, p = .07$).

Compared with MAs, EAs attended fewer treatment sessions (63.14% v. 90.54%, $F = 31.30, p < .001$) and completed fewer dietary self-monitoring logs (34.78% v. 72.94%, $F = 42.57, p < .001$). Emerging adults were less likely to be retained for their 3-month assessment (80.8% v. 91.1%, $\chi^2(5)=22.87, p < .001$; $\text{Exp}(B) = 17.39, 95\% \text{ CI} = 1.49\text{--}202.95, p < .05$). Both completer ($-3.00\% \text{ v. } -6.40\%$, $F(1,130) = 9.60, p < .01$) and intent-to-treat ($-2.40\% \text{ v. } -5.83\%$, $F(1,149) = 13.93, p < .001$) analyses indicated that EAs lost less weight over the course of the 3-month treatment program (Table 2).

Two baseline weight loss motivations predicted retention at 3 months: one in MAs and one in EAs. Middle aged adult participants who more strongly endorsed wanting to lose weight in order to improve energy at baseline were more likely to be retained at 3 months, $\chi^2(5)=23.55, p < .001$; $\text{Exp}(B) = 2.85, 95\% \text{ CI} = 1.17\text{--}6.95, p < .05$. Emerging adult participants who more strongly endorsed wanting to lose weight due to social pressure at baseline were significantly less likely to be retained at month 3, $\chi^2(7)=17.89, p < .05$; $\text{Exp}(B) = 0.35, 95\% \text{ CI} = 0.14\text{--}$

Table 1 Participant baseline characteristics

	Emerging adults <i>n</i> = 52		Middle aged adults <i>n</i> = 101		<i>p</i>
	%	Mean (SE)	%	Mean (SE)	
Demographics					
Age		22.3 (0.3)		52.9 (0.5)	< .001
Female	78.8		69.3		< .001
Non-Hispanic White	48.0		86.1		< .001
At least some college	94.2		81.2		.03
Married or living with partner	23.1		71.3		< .001
Baseline BMI		34.2 (0.8)		34.9 (0.4)	.373
Weight loss motivations*					
Health concerns		3.94		4.63	.05
Improved appearance		4.58		4.17	.01
Social pressure		2.70		2.18	.16
Wanting to feel better about yourself		4.64		4.49	.37
Special event		2.30		2.13	.08
Improved energy		4.04		4.59	.07
Improved social life		2.92		2.53	.14
Improved work performance		3.04		2.98	.22
Feeling physically uncomfortable		3.96		4.05	.36

*Analyses controlled for racial/ethnic minority status and gender

Table 2 Treatment engagement and outcomes

	Emerging adults <i>n</i> = 52		Middle aged adults <i>n</i> = 101		<i>p</i>
	%	Mean (SE)	%	Mean (SE)	
Weight change (kg) – Intent to treat*		–2.2 (4.3)		–5.8 (5.0)	< .001
Weight change (%) – Intent to treat**		–2.4 (4.6)		–5.8 (5.0)	< .001
Weight change (kg) – Completers*		–2.7 (4.7)		–6.4 (4.9)	< .001
Weight change (%) – Completers**		–3.0 (4.9)		–6.4 (4.9)	< .01
Attendance	63.1		90.5		< .001
Dietary self-monitoring	34.8		72.9		< .001
Retention	80.8		91.1		.03

*Analyses controlled for racial/ethnic minority status, gender and baseline weight (kg).

**Analyses controlled for racial/ethnic minority status and gender.

0.84, $p < .05$. Wanting to lose weight in order to improve appearance was the only weight loss motivation associated with outcomes among both EAs and MAs. In EAs, stronger endorsement of this motivation predicted poorer weight loss outcomes among completers ($\beta = .485$, $p < .01$) and in intent-to-treat analyses ($\beta = .465$, $p < .01$) but was not associated with session attendance, dietary self-monitoring or retention. Among MAs, stronger motivation to lose weight in order to improve appearance at baseline did not predict weight change but did predict better session attendance ($\beta = .389$, $p < .01$), higher rates of dietary self-monitoring ($\beta = .272$, $p < .05$) and better retention at 3 months, $\chi^2(7)=23.72$, $p < .001$; Exp(B) = 3.52, 95% CI = 1.15–10.74, $p < .05$.

Discussion

These results suggest there are meaningful differences in weight loss motivations between emerging and middle aged adults. At baseline, EAs were less likely to endorse health concerns and more likely to endorse desire for improved appearance as motivators for weight loss. These data are consistent with formative work examining young adults' interest in weight loss programs (7) and previous findings in a sample of successful weight losers (12), both of which highlighted that appearance and social motivations may be more salient to young adults than older adults. The present findings add to our understanding of this area by demonstrating differences in motivations

exist even within a treatment seeking population and are related to engagement, retention and weight loss outcomes. Further, EAs in this study also rated wanting to lose weight in order to feel better about themselves ($\bar{x}=4.6/5.0$) and in order to improve energy ($\bar{x}=4.0/5.0$) as particularly strong motivations, although not significantly different from MAs in these respects. As such, themes related to improved appearance, self-esteem and energy may be well-suited for recruitment materials for lifestyle interventions with this age group, which echoes findings from qualitative investigations regarding recruitment of young adults into lifestyle interventions (7,15). Future studies should consider conducting recruitment experiments to test different types of messages and determine which produces the greatest yield with respect to EAs' enrollment in lifestyle interventions.

Our finding that EAs strongly rated desire to improve appearance as a motivating factor for weight loss is consistent with previous work which has found body dissatisfaction to be a particularly important reason for pursuing weight loss treatment among those with overweight/obesity (16) – even when health issues related to excess weight are also at play (16). This is of potential concern, however, given that this motivation was associated with poorer weight loss outcomes among EAs in the current study. Research has found that health triggers (and not appearance) are associated with long-term weight loss success (13); thus, these results provide additional support for the need to address motivation as a treatment target within lifestyle interventions for EAs. Proximal and extrinsic motivations (e.g. appearance, social concerns) may exert strong influences on the decision to join a healthy lifestyle intervention but are likely not sufficient to promote long-term engagement and weight loss maintenance. Thus, more work is needed in order to determine the best methods for enhancing intrinsic motivation and distal considerations (e.g. health) associated with weight loss for this population. The use of motivational interviewing techniques and the provision of normative feedback may be of particular use given their success in reducing rates of problematic alcohol use among college students (17).

Of note, while wanting to lose weight in order to improve appearance was associated with poorer weight loss outcomes among EAs, this motivation was associated with better treatment attendance, engagement and retention for MAs. While it is possible that this finding emerged due to intervention-related differences that we were unable to account for in these analyses, it is also possible that motivation to improve appearance functions differently by developmental stage and perhaps holds different meanings for EAs versus MAs. For example, this motivation may reflect concerns about others'

expectations for EAs (i.e. extrinsic motivation or social pressure) whereas it may map onto self-esteem or related constructs for MAs (i.e. intrinsic motivation) (18). Thus, future research with EAs should assess motivation not only as single items as in the current studies, but also with respect to how these motivations might map onto established constructs of intrinsic and extrinsic motivation. Furthermore, motivation should be assessed at multiple time points throughout treatment, particularly if motivation becomes a target of treatment as suggested above.

Endorsement of social pressure to lose weight was predictive of poor retention among EAs in this sample. This is consistent with previous findings that perceptions of weight-related social control are associated with infrequent physical activity among young adults (19). Motivations stemming from perceived social pressure might discourage long-term motivation and success, perhaps reflected here by lower engagement and higher attrition. Healthy lifestyle programs targeting EAs may be able to improve engagement and retention by explicitly addressing perceived social pressure for weight loss in treatment content and by encouraging participants to bolster their intrinsic motivation for healthy living. Such programs might also consider ways of encouraging a sense of autonomy-supportive relatedness among EAs enrolled in lifestyle interventions by recruiting known peers, facilitating the formation of new social networks among participants and/or by providing opportunities for friendly competition.

Also of note in the present study is the discrepancy between EAs and MAs overall in terms of engagement and weight loss. While these findings are consistent with previous data documenting marked disparities within the context of adult behavioural weight loss programs,(4) the present sample of EAs were enrolled in a weight loss intervention designed specifically for their age group and achieved superior rates of treatment attendance and retention relative to those achieved by EAs enrolled in standard adult behavioural weight loss programs (4). However, disparities remained when compared with MAs; this sample of racially diverse EAs attended fewer sessions, were less engaged in treatment, lost less weight and demonstrated higher rates of attrition than MAs. Thus, while these interventions, which were adapted to meet the developmental and weight related needs of EAs, may represent an improvement upon standard programs, more research is clearly needed in order to bolster effects of weight loss lifestyle interventions for EAs.

Limitations of the current analyses include a small sample size, which may restrict the predictive power of motivations, and the lack of long-term follow up. Based

on the results of formative work with EAs – and given that treatment engagement and retention are well-documented concerns for this population – a brief (3 month) intervention was chosen to pilot this first-ever weight loss intervention targeting EAs. Despite these potential limitations, findings contribute to the nascent yet urgently needed literature on weight loss treatment development for EAs by highlighting motivational differences between this high-risk population and their MA counterparts within a treatment seeking sample. These data have the potential to inform recruitment methods and treatment development and suggest that appearance-related and social motivations for weight loss may represent appropriate treatment targets for young adults given their association with poorer weight loss and retention.

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Conflicts of Interest

The authors have no conflicts of interest to disclose.

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