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Commercial programs' online weight loss claims as compared to results from randomized controlled trials

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Abstract

Objective—To characterize weight-loss claims and disclaimers present on websites for commercial weight-loss programs and compare them to results from published randomized controlled trials (RCT).

Methods—We performed a content analysis of all homepages and testimonials available on the websites of 24 randomly selected programs. Two team members independently reviewed each page and abstracted information from text and images to capture relevant content including demographics, weight loss, and disclaimers. We performed a systematic review to evaluate the efficacy of these programs by searching MEDLINE and Cochrane Database of Systematic Reviews, and abstracted mean weight change from each included RCT.

Results—Overall, the amount of weight loss portrayed in the testimonials was extreme across all programs examined (range median weight loss 10.7 to 49.5 kg). Only 10 out of the 24 programs had eligible RCTs. Median weight losses reported in testimonials exceeded that achieved by trial participants. Most programs with RCTs (78%) provided disclaimers stating that the testimonial's results were non-typical and/or giving a range of typical weight loss.

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Conclusion—Weight loss claims within testimonials were higher than results from RCTs. Future studies should examine whether commercial programs' advertising practices influence patients' expectations or satisfaction with modest weight loss results.

Keywords

Weight reduction programs; commerce; obesity

Introduction

Weight management guidelines by the American Heart Association/American College of Cardiology/The Obesity Society (AHA/ACC/TOS) have emphasized the need for clinicians to manage patients' inappropriate weight-loss goals (1). Advertising may cultivate beliefs and attitudes that influence behavior (2); therefore, the promotional practices of commercial weight-loss programs could influence patients' expectations. For example, advertisements highlighting large weight losses could promote the misconception that these results are common.

In 2002, the Federal Trade Commission (FTC) analyzed advertising content of commercial weight-loss programs and supplements, which found that false or misleading claims were common (3). The most widespread marketing techniques used were consumer testimonials, before/after photos, and misleading claims (e.g., rapid, long-term/permanent, or all natural/ safe weight loss). The FTC discouraged media from disseminating advertisements with false or misleading statements. In 2004, the FTC repeated a content analysis of advertisements for dietary supplements that found fewer advertisements were using false or misleading practices (4). However, this second report did not examine commercial programs.

Our objective was to characterize current weight-loss claims and disclaimers present on websites for commercial weight-loss programs, and then compare these results with available data from published randomized controlled trials (RCTs) of these programs.

Methods

Identification of Commercial Weight-Loss Programs

We generated a list of commercial weight-loss programs from several sources: obesity experts, U.S. News & World Report rankings, and Internet searches (Google and Bing) and included programs that emphasized nutrition (dietary change and/or meal replacements) and counseling/social support components with or without physical activity, based on information provided on programs' websites. We excluded programs that focused on issues other than weight loss (e.g., wellness or food addiction), promoted medications/supplements, were not available across the U.S., or were residential programs. We excluded programs that did not have a website or one that contained only minimal content (e.g., blog, etc). We identified 32 commercial weight-loss programs that met these criteria. Due to the large cumulative number of testimonials present, we limited the number of programs for further data abstraction by randomly selecting 24 of these programs using a random name draw (Supplemental Table 1). We elected to randomly select programs to capture a broad

spectrum available across the marketplace, rather than just focusing on the most popular programs, as less known programs might have different advertising practices. Several programs (e.g., Health Management Resources, Curves) were not selected in the random draw. We abstracted attributes of included programs from their websites in August 2012 (Supplemental Table 2).

Johns Hopkins Institutional Review Board exempted this study as non-human subjects research.

Data Abstraction from Commercial Weight-Loss Programs' Websites

We performed a content analysis of all testimonials available on commercial weight-loss program websites and their homepages. Prior studies have used content analysis to evaluate images of obesity portrayed in the media (5-7) and to abstract information from communitybased weight-loss programs (8). We adapted these strategies for this study. We captured homepages and all webpages featuring testimonials that were available from each program's website between August 11 and August 18, 2012. Two staff redacted each page to remove any information that might identify the program (e.g., logos, keywords) and assigned an ID number to the page. These staff did not participate in data abstraction. To reduce any bias that they might have towards a specific program, all data abstractors were blinded to the program identity. Abstractors were only given page ID numbers, only viewed redacted pages that had all program identifying information concealed, and were not told which programs they were abstracting. We developed a coding scheme to abstract relevant content including participant characteristics (e.g., age, gender), reported weight loss, time period over which weight loss occurred, and presence and type of weight-loss disclaimers (e.g., disclosing typical results, identifying results as non-typical). We documented the presence of disclaimers on both testimonial webpages and homepages to ensure that we did not misclassify a program by failing to note a disclaimer. Two team members independently reviewed each page and abstracted information from text and images. Testimonials that featured groups of people in which individual results could not be identified were excluded (n=6). Discrepancies between the two coders were resolved through consensus between reviewers or adjudication by a senior investigator (KG) if consensus was not reached.

Data Abstraction from Systematic Review of Commercial Weight-Loss Programs

To identify RCTs of these 24 programs, we updated a 2005 systematic review (9) and have previously published these results (10-12). In brief, we searched MEDLINE and Cochrane Database of Systematic Reviews from inception to November 2014. We contacted all identified programs to request bibliographies of published studies and reviewed their websites to identify any articles listed for screening.

Two team members independently reviewed and screened articles against our eligibility criteria (Supplemental Table 3). We included RCTs of adults with overweight/obesity that reported results on an included program regardless of comparator. We included RCTs of at least 12 weeks' duration. Two team members serially abstracted data on study design, setting, population characteristics, intervention, and mean weight change from baseline in the commercial arm.

Analysis

Using the content analysis data, we performed descriptive analyses of each program's population to describe proportion of testimonials by age group and gender based on information from testimonial images. We also determined mean age based on age reported in testimonials' text. For each program, we calculated the median weight change and interquartile range (IQR) reported by participants from testimonial text. We determined the proportion of testimonials where weight loss was reported over specific timeframes, and calculated the median weight loss during these timeframes for each program (when data was available). We calculated median rather than mean, as the weight-loss data were skewed. Finally, we determined 1) the proportion of testimonials with any disclaimer, 2) the presence of any disclaimer on the homepage, and 3) characterized the disclaimer types present.

From the systematic review, 10 programs had eligible RCTs out of the 24 included programs. For these 10 programs, we compared the characteristics (age and gender) of testimonial participants to RCT participants by commercial program. We determined the range of reported within-group mean weight change among RCTs by program and time point. Similar to our previous studies (10-12), we did not perform meta-analyses given the heterogeneous study populations, varying analysis types, and lack of variance estimates. We compared magnitude of median weight change within the testimonials with the mean weight change reported from the RCTs of the 10 programs.

Results

Of the 24 programs examined, all programs had homepages available for review and 20 programs had testimonials (a total of 735 testimonials were reviewed).

Programs with both testimonials and RCTs

Weight Watchers is an intensive program where individuals monitor their food intake by tracking points and participate in-person or online support. Weight Watchers had 24 testimonials, and most by middle-aged women (Table 1). We identified 8 RCTs that evaluated Weight Watchers. Populations included in the RCTs were older than those in the testimonials' text, and gender varied somewhat between the groups (Table 2). Median weight loss in the testimonials was 16.9 kg (Figure 1), and most did not specify the weight loss timeframe (Table 3). The ranges of mean weight loss reported in RCTs were lower than the median weight loss reported in testimonials (Table 3). Weight Watchers had disclaimers of typical and non-typical results present (Table 4).

Jenny Craig is an intensive program where individuals use meal replacements and participate in one-on-one counseling. Jenny Craig had 24 testimonials of which 22 reported the weight loss achieved, and most by young women (Table 1). We identified 3 RCTs that evaluated Jenny Craig. Populations included in the RCTs were older than those in the testimonials' text, and gender varied somewhat between the groups (Table 2). Median weight loss in the testimonials was 35.7 kg (Figure 1), and most did not specify the timeframe over which the weight loss occurred (Table 3). The ranges of mean weight loss reported in RCTs were

lower than the median weight loss reported in testimonials (Table 3). Jenny Craig had disclaimer of typical results present (Table 4).

Nutrisystem is an intensive program where individuals use meal replacements and have inperson or online support. Nutrisystem had 47 testimonials, and most by middle-aged women (Table 1). We identified 3 RCTs that evaluated Nutrisystem. Populations included in the RCTs were older than those in the testimonials' text, and gender varied somewhat between the groups (Table 2). Median weight loss in the testimonials was 28.2 kg (Figure 1), and most did not specify the timeframe over which the weight loss occurred (Table 3). The ranges of mean weight loss reported in RCTs were lower than the median weight loss reported in testimonials (Table 3). Nutrisystem displayed disclaimers of typical and nontypical results (Table 4).

Medifast is an intensive meal replacement program. Medifast had 48 testimonials of which 40 reported the weight loss achieved, and most by middle-aged women (Table 1). We identified 1 RCT that evaluated Medifast. The RCT population was similar in age to that in testimonials' text, but had fewer women than those in the testimonials (Table 2). Median weight loss in the testimonials was 30.9 kg (Figure 1), and most did not specify the timeframe over which the weight loss occurred (Table 3). The range of mean weight loss reported in RCT was lower than the median weight loss reported in testimonials (Table 3). Medifast had disclaimers of typical and non-typical results present (Table 4).

OPTIFAST is an intensive meal replacement program that is typically delivered in a physician-supervised setting. OPTIFAST had 12 testimonials, and most by middle-aged women (Table 1). We identified 4 RCTs that evaluated OPTIFAST. Populations included in the RCTs varied somewhat with respect to gender compared to the testimonials (Table 2). Median weight loss in the testimonials was 35.2 kg (Figure 1), and most did not specify the timeframe over which the weight loss occurred (Table 3). The ranges of mean weight loss reported in RCTs were lower than the median weight loss reported in testimonials (Table 3). OPTIFAST had disclaimers of typical and non-typical results present (Table 4).

SlimFast is a self-directed meal replacement program with online support available. SlimFast had 4 testimonials, and all were from young women (Table 1). We identified 8 RCTs that evaluated SlimFast. Populations included in the RCTs varied somewhat with respect to age and gender to the information in testimonials' text and images, respectively (Table 2). Median weight loss in the testimonials was 21.6 kg (Figure 1), and none specified the weight loss timeframe (Table 3). The ranges of mean weight loss reported in RCTs were lower than the median weight loss reported in testimonials (Table 3). SlimFast had no disclaimers present (Table 4).

Atkins is a self-directed low-carbohydrate diet with online support available. Atkins had 82 testimonials, and most were from young or middle-aged women (Table 1). We identified 9 RCTs that evaluated Atkins. Populations included in the RCTs varied with respect to age and gender to the testimonials' text and images, respectively (Table 2). Median weight loss in the testimonials was 36.4 kg (Figure 1), and most did not specify the weight loss timeframe (Table 3). The ranges of mean weight loss reported in RCTs were lower than the

median weight loss reported in testimonials (Table 3). Atkins had no disclaimers present (Table 4).

The Biggest Loser Club is a self-directed program that encourages calorie tracking and offers online support. The Biggest Loser Club had 35 testimonials, and most by middle-aged women (Table 1). We identified 1 RCT that evaluated The Biggest Loser Club. The RCT population was similar with respect to age and gender in testimonials' text and images, respectively (Table 2). Median weight loss in the testimonials was 49.5 kg (Figure 1), and most reported a weight loss timeframe of 3 to 5 months (Table 3). The range of mean weight loss reported in RCT was lower than the median weight loss reported in testimonials (Table 3). The Biggest Loser Club included disclaimers of typical results (Table 4).

eDiets is a self-directed program that encourages calorie tracking and meal planning, as well as offering online support. eDiets had 11 testimonials, and most by young women (Table 1). We identified 1 RCT that evaluated eDiets. The RCT population was similar with respect to age and gender in testimonials' text and images, respectively (Table 2). Median weight loss in the testimonials was 14.1 kg (Figure 1). Half reported a weight loss timeframe of 3 to 5 months and the remaining half had a timeframe of 12-23 months (Table 3). The range of mean weight loss reported in RCT was lower than the median weight loss reported in testimonials (Table 3). eDiets had disclaimers of typical results (Table 4).

Programs with testimonials and without RCTs

Eleven programs only had testimonials: Best Life (n=4), Body for Life (n=201 of which 154 reported the weight loss achieved), Calorie King (n=69), Daily Burn (n=7), Dukan Diet (n=55), Flat Belly Diet (n=12 of which 10 reported the weight loss achieved), Jillian Michaels (n=21), LA Weight Loss (n=29), My Fitness Pal (n=22 of which 18 reported the weight loss achieved), South Beach Diet (n=9), and Spark People (n=21). In these programs, testimonials were typically provided by young or middle-aged adults (Table 1). Women provided most programs' testimonials with the exception of Body for Life (42%) and Daily Burn (29%). Median weight loss varied across these programs (Figure 1), and ranged from 10.7 kg for Body for Life to 48.9 kg for Best Life. The timeframe over which weight loss occurred was variably specified across programs (0 to 65% had a specified timeframe) (Supplemental Table 4). Only 5 of these programs provided disclaimers of any kind on their websites (Best Life, Body for Life, Daily Burn, Jillian Michaels, SparkPeople)(Table 4).

Programs without testimonials

Four programs did not use testimonials: Alere Weight Talk, Fat Secret, Lose It, and Traineo. Only Lose It, which offers calorie tracking and online support, had an eligible RCT that reported a mean weight loss of 1.8 kg at 6 months. Only Alere Weight Talk and Lose It provided disclaimers of typical results (Table 4).

Discussion

Among all commercial programs with RCTs, we found that median weight losses reported in testimonials exceeded that achieved by trial participants for these programs. To our knowledge, this is the first content analysis of online advertisements of weight loss programs

to compare results with RCTs. While some population characteristics differed between individuals in testimonials and trial participants and the timeframe over which weight losses occurred was unknown for many testimonials, these factors are unlikely to explain the large differences in magnitude of weight losses seen. In fact, most of these programs provided disclaimers stating that the testimonial's results were non-typical and giving a range of typical weight loss consistent with that found in the RCTs.

Regardless of whether an RCT was available for comparison, the amount of weight loss portrayed in the testimonials was extreme across all programs examined (median weight loss ranged from 10.7 to 49.5 kg), especially when considering that participants in the Diabetes Prevention Program and Look AHEAD trials only achieved 6.8 kg (7.2%) and 8.6 kg (8.6%) weight losses at 1-year, respectively (13-14). The AHA/ACC/TOS guidelines recommend a sustained weight loss of 3-5% to produce clinically significant health benefits including reductions in triglycerides and hemoglobin A1c. Further weight loss can reduce blood pressure and improve LDL–C and HDL–C (1). The amount of weight loss in these guidelines.

Our results raise the question of whether viewing these large weight losses in testimonials might influence patients' expectations. Pictures better communicate messages in advertising compared to text alone (15), which is critical when most people spend less than 15 seconds actively on a webpage (16). Testimonials are likely to be an effective strategy. However, a complex relationship exists between consumer expectations and advertising claims. Marketing research has suggested that consumers' product ratings tend to assimilate towards the advertised expectations, until expectations reach a very high level and the consumers' experience begins to contrast with the advertised expectations and leads to lower product evaluations (17). Similarly, the large magnitude of weight losses portrayed in testimonials might set consumer expectations unrealistically high and produce dissatisfaction with achieving typical weight loss. Prior studies have documented that unrealistic weight loss goals are common (18-24). However, results have been mixed whether these beliefs negatively impact weight loss or retention. Unrealistic weight-loss expectations have little effect on outcomes in clinical trials (18-22), but have been associated with greater drop out and dissatisfaction among commercial participants (23-24). Commercial participants may be more sensitive to experiencing a discrepancy between expected and actual outcomes, given that they are paying for the program. This question of whether commercial program testimonials influence expectations is presently conjecture, as our study did not evaluate patient perceptions. Our results highlight the need to investigate whether viewing advertisements alter patient weight-loss expectations and satisfaction with modest weightloss results.

In 2009, the FTC released guidelines that required any advertisement that featured consumer testimonials to convey a disclaimer of typical or atypical results (25). Implementation of these guidelines does not seem to be common practice in healthcare industry advertising. Vater and colleagues found that only 15% of testimonials included a disclaimer of typical or atypical results for cancer treatment advertisements (26). In this study, we found that 58% of commercial weight-loss programs provided some type of disclaimer. While this percentage

is higher than among cancer treatment advertisements, a substantial number of programs did not adhere to the FTC guidelines. Weight Watchers, Jenny Craig, and Nutrisystem have dominated the market share (72% in 2014) of the commercial weight-loss industry (27), and therefore, are likely to enroll the vast majority of people. All had disclaimers. In addition, a greater proportion of programs that conducted RCTs provided disclaimers on their websites compared with programs without RCTs (78% versus 45%, respectively). Undertaking RCTs and providing disclaimers may be related to a business need to manage consumer expectations and maintain brand loyalty – if inflated expectations are unmet, then the brand reputation and repeat sales suffer. This need may be particularly relevant to popular programs. While these programs are following the FTC guidelines, other programs are not and may warrant regulatory enforcement. As we assessed advertisements from 2012, reassessment of disclaimer status should occur by the FTC or others prior to any action, as companies may have since added disclaimers.

Our study has several limitations. While we thoroughly examined online advertising of selected programs, we did not examine their print or television advertisements. Given the large number of testimonials across programs, we had to limit our abstraction to a subset of the eligible programs, which could have different advertising practices than those programs not captured. Future analyses might consider randomly selecting testimonials from each program or limiting to testimonials present on homepages to capture data from all programs. We also did not include programs that promoted supplements, which were out of scope for this study. Future studies may consider examining dietary supplements. We captured website content in 2012, and commercial programs' advertising practices may have changed. We reviewed these same programs' websites in April 2017 and found that most programs still use testimonials (16 of 21 programs with active websites) and only two programs that previously featured testimonials no longer use them (eDiets and Calorie King). Three programs no longer had accessible websites (Biggest Loser Club, Best Life, and Alere Weight Talk). We used a consensus approach during the content analysis, which prevents us from calculating inter-rater reliability estimates. We identified an individual's age through both image and text abstraction in the testimonials. We assigned age groups (Table 1) by examining the testimonials' image, which enabled us to have a rough estimate of the age of all individuals with an image. However, this assignment may be inaccurate and subject to abstractor bias. In contrast, the stated age in testimonial text (Table 2) is likely to be reliable; however, there was more missing data for some programs. We attempted to characterize race/ethnicity from testimonial images; however, it was difficult to determine. Our confidence in this data was limited, and therefore, we do not present these results. We were not able to directly compare the RCT results to testimonial results through statistical testing given the limitations of the available data. Finally, we did not assess how viewing these testimonials and disclaimers affect an individual's beliefs and expectations about weight loss. Future research should directly assess the relationship between viewing extreme weight losses in testimonials and expected weight loss beliefs.

Conclusion

For all commercial weight-loss programs, the weight losses reported in testimonials exceeded that achieved by participants in RCTs evaluating these same programs. These

weight losses also exceeded that achieved by Diabetes Prevention Program and Look AHEAD participants as well as the amount of weight loss recommended by the AHA/ACC/TOS guidelines. Future studies should examine whether commercial programs' advertising practices influence patients' expectations or satisfaction with modest weight-loss results.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Study Importance Questions

What is already known about this subject?

- Promotional practices of commercial weight-loss programs could influence patients' weight loss expectations or satisfaction with weight loss results
- False or misleading weight loss claims occurred commonly in programs' advertising in 2002

What does your study add?

- Amount of weight loss portrayed in commercial programs' testimonials was extreme and exceeded that achieved by trial participants
- Only 14 out of 24 programs provided disclaimers about typical weight losses achieved or non-typical results of testimonial participants



Figure 1.

Median and Interquartile Range of Reported Weight Losses in Testimonials, by Commercial Program. Boxplots for each program display the median and interquartile range of weight losses reported by individuals in testimonials. Commercial programs with eligible randomized controlled trials are presented on the left in dark gray, and programs without such trials are presented on the right in light gray. Abbreviations: RCT – randomized controlled trial.

Table 1

Characteristics of individuals portrayed in commercial weight-loss program testimonials obtained from image abstraction in the testimonials, reported by program

	7	N with images 07.	Age Groups [*]			Fomelo 0/
	L1	I WILL ILLAGES, /0	Young adult, %	Middle age, %	Senior, %	remarc, /0
Programs with both	testim	onials and randomize	d controlled trials			
Weight Watchers	24	100	29	71	0	100
Jenny Craig	24	100	58	42	0	75
Nutrisystem	47	100	30	66	4	77
Medifast	48	100	44	54	2	83
OPTIFAST	12	100	25	50	25	58
SlimFast	4	100	100	0	0	100
Atkins	82	100	45	49	6	67
Biggest Loser Club	35	100	43	51	6	57
eDiets	11	100	73	27	0	100
Programs with testi	monials	sand with out random	ized controlled tria	ls		
Best Life	4	100	25	75	0	50
Body for Life	201	100	41	50	2	42
Calorie King	69	87	38	46	3	55
Daily Burn	7	100	43	57	0	29
Dukan Diet	22	100	31	<i>L</i> 9	2	87
Flat Belly Diet	12	92	0	83	8	83
Jillian Michaels	21	100	33	62	5	86
LA Weight Loss	29	100	59	41	0	86
My Fitness Pal	20	91	41	45	0	77
South Beach Diet	6	100	0	89	11	67
Spark People	21	100	67	33	0	100

Programs without testimonials are not displayed, which includes Alere Weight Talk, Fat Secret, Lose It, and Traineo.

* We abstracted age group from images present in the testimonials, and we defined "young adult" if an individual appeared to be between the ages of 19-35 years, "middle age" between the ages of 36-64 years, and "senior" as 65 years or older. The age group columns for each program may not add up to 100%, as age may have been unable to be determined in some testimonials images.

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Population characteristics of individuals from testimonials, as abstracted from testimonials' text and image for age and gender, respectively, compared to characteristics of participants from randomized controlled trials of commercial weight-loss programs

		Testimoni	als*	Rai	ndomized Controlled Tri	als
	z	Mean Age (%Reporting)	%Female (%Reporting)	N (N Trials)	Mean Age ^{**} (Range)	%Female
Weight Watchers	24	37.4 (100%)	100 (100%)	1,012 (8)	46.3 (37-51)	58-100
Jenny Craig	24	37.7 *** (88%)	75 (100%)	517 (3)	47.5 (42-57)	47-100
Nutrisystem	47	$43.0^{***}(19\%)$	77 (100%)	98 (3)	54.1 (52-56)	58-100
Medifast	48	36.6 ^{***} (35%)	83 (100%)	45 (1)	43 (NA)	33
OPTIFAST	12	NR (NA)	58 (100%)	123 (4)	46.3 (38-52)	67-100
Slimfast	4	29.5 (100%)	100 (100%)	346(8)	49.7 (37-70)	35-100 ****
Atkins	82	39.7 *** (91%)	67 (100%)	614 (9)	46.6 (41-54)	9-100
Biggest Loser Club	35	42.5 *** (31%)	57 (100%)	99 (1)	42 (NA)	59
eDiets	11	$40.0^{***}(18\%)$	100 (100%)	23 (1)	44 (NA)	100

* Data on age captured from text of testimonials, while gender was captured from images presented in testimonials. Parentheses provide the percent of testimonials that reported age in the text and had images available for gender abstraction.

** Data reported is a weighted mean age from the relevant arm in the randomized controlled trials when more than one trial was available, and range of mean ages reported in the trials is in parentheses.

*** Not all testimonials stated the age of the participant, so the results presented are determined from available data.

**** Not all randomized controlled trials included for this program reported this characteristic. Abbreviations: NA – not applicable; NR – not reported.

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Comparison of weight change (kg) between individuals in testimonials and participants from randomized controlled trials of commercial weight-loss programs by time point

	Time Doint		Testimonials*	Rande	omized Controlled Trials ^{**}
		z	Median Weight Change, kg (IQR)	N (N trials)	Range Mean Weight Change, kg
	Unspecified	13	-14.7 (-11.1, -23.5)	0	:
	3-5	7	-9.5 (-9.5, -9.5)	520 (5)	-3.8 to -6.1
Weight	6-11	5	-30.5 (-27.7, -31.3)	488 (5)	-3.5 to -6.6
	12-23	7	-33.3 (-27.0, -39.5)	(9) 262	-3.0 to -9.1
	24	-	-96.3	211 (1)	-2.9
	Unspecified	16	-41.1 (-27.2, -69.0)	0	:
	3-5	-	-11.4	0	:
Jenny Craig	6-11	7	-22.0 (-20.1, -24.0)	517 (3)	-7.2 to -11.1
	12-23	7	-43.4 (-34.9,-51.9)	517 (3)	-6.6 to -10.1
	24	-	-30.9	331 (1)	-6.2 to -7.4
	Unspecified	44	-27.7 (-18.4, -39.9)	0	
	3-5	0		97 (3)	-5.5 to -8.2
Nutrisystem	6-11	1	-34.1	84 (2)	-7.3 to -10.8
	12-23	1	-25.9	0	
	24	1	-49.5	0	
	Unspecified	23	-33.2 (-21.4, -48.0)	0	:
	3-5	4	-21.6 (-20.2, -24.2)	28 (1)	-13.5
Medifast	6-11	10	-40.2 (-27.0, -45.5)	26 (1)	-8.9
	12-23	1	-22.T	0	
	24	0		0	
	Unspecified	10	-35.2 (-30.5, -44.7)	0	
	3-5	1	-31.8	112 (4)	-11.5 to -21.3
OPTHAST	6-11	0		108 (4)	-11.1 to -22.4
	12-23	-	9 29-	41 (1)	-8.3

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	Time Doint		Testimonials [*]	Rando	omized Controlled Trials ^{**}
		z	Median Weight Change, kg (IQR)	N (N trials)	Range Mean Weight Change, kg
	24	0	;	0	:
	Unspecified	4	-21.6 (-13.4, -30.7)	0	:
	3-5	0	;	163 (4)	-5.6 to -7.1
Slimfast	6-11	0	;	199 (5)	-4.8 to -9.0
	12-23	0	;	136 (4)	-4.4 to -10.7
	24	0	:	32 (1)	-10.5
	Unspecified	42	-36.4 (-25.9, -47.5)	0	:
	3-5	6	-18.2 (-17.8, -18.2)	271 (4)	-5.2 to -9.5
Atkins	6-11	13	-31.8 (-27.3, -39.5)	502(8)	-3.2 to -12.2
	12-23	13	-45.5 (-36.4, -72.7)	367 (6)	-2.1 to -10.9
	24	6	-55.7 (-47.0, -86.5)	48 (2)	-4.7 to -6.3
	Unspecified	5	-63.2 (-44.0, -76.3)	0	:
	3-5	17	-45.0 (-22.7, -74.1)	99 (1)	-2.1
Biggest Loser Club	6-11	3	-31.8 (-30.7, -35.0)	0	
	12-23	0		0	
	24	0		0	
	Unspecified	0		0	
	3-5	4	-13.9 (-12.7, -14.2)	23 (1)	-0.8
eDiets	6-11	1	-10.9	0	
	12-23	5	-34.1 (-25.5, -40.0)	23 (1)	-1.2
	24	0	:	0	:
		1			

Obesity (Silver Spring). Author manuscript; available in PMC 2018 March 02.

* Not all testimonials reported weight loss achieved. ** If a trial had more than one result presented during a time period, we only included the last observation reported during that period in our reporting of mean weight change ranges. We included the results from intention-to-treat analyses unless only completers' analysis results were reported in our presentation of mean weight change ranges. Abbreviations: IQR – interquartile range.

Table 4

Presence and type of disclaimers present in testimonials or on home pages of commercial weight-loss programs obtained from text abstraction, reported by program

	Any disclaimer present on testimonials, %	Any disclaimer present on home page	Disclaimer type(s) present*
Programs with both	testimonials and randomized controlled trial	S	-
Weight Watchers	100%	No	Non-typical results Typical results
Jenny Craig	92%	No	Typical results
Nutrisystem	100%	Yes	Non-typical results Typical results
Medifast	100%	Yes	Non-typical results Typical results
OPTIFAST	100%	Yes	Non-typical results Typical results
SlimFast	0	No	
Atkins	0	No	
Biggest Loser Club	86%	Yes	Typical results
eDiets	100%	Yes	Typical results
Programs with testi	monials and without randomized controlled t	rials	•
Best Life	100%	Yes	Non-typical results Typical results Non-specific
Body for Life	98%	No	Typical results Non-specific
Calorie King	0	No	
Daily Burn	14%	No	Non-typical results Typical results
Dukan Diet	0	No	
Flat Belly Diet	0	No	
Jillian Michaels	95%	Yes	Non-typical results Non-specific
LA Weight Loss	0	No	
My Fitness Pal	0	No	
South Beach Diet	0	No	
Spark People	0	Yes	Typical results
Programs without t	estimonials		
Alere Weight Talk	NA	Yes	Typical results
Fat Secret	NA	No	
Lose It	NA	Yes	Typical results
Traineo	NA	No	

"Non-typical results" disclaimer includes those stating that results achieved by the person in the testimonial are not typical results for program participants. "Typical results" disclaimer includes those stating the typical weight loss results achieved with the program. "Non-specific" disclaimer includes those making statements such as results vary, your fitness goals may be different, etc.

Not all disclaimer types were present in all disclaimers or all website locations. Abbreviations: NA - not applicable.