

Online Delivery of Emotional Freedom Techniques for Food Cravings and Weight Management: 2-Year Follow-Up

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Abstract

Background: Growing obesity rates are a problem worldwide. Several studies of emotional freedom techniques (EFT), a brief psychophysiological technique, have indicated that it may be a promising addition to traditional weight loss interventions.

Objective: The current study evaluated food cravings, dietary restraint, subjective power of food, weight changes, and self-reported symptoms (e.g., somatic, anxious, and depressive) 2 years after an 8-week online self-directed EFT intervention with additional online support.

Design: Participants were initially randomly allocated to a treatment or waitlist group. The treatment group was instructed to self-pace through an online EFT treatment program made up of seven modules throughout the 8-week intervention period, and the waitlist was also completed at the end of this period.

Results: Analyses of the online EFT intervention program indicated significantly reduced scores for food cravings (−28.2%), power of food (−26.7%), depression (−12.3%), anxiety (−23.3%), and somatic symptoms (−10.6%) from pre to postintervention and from pre (baseline) until the 2-year follow-up and significantly improved scores for restraint (+13.4%). Further improvements were experienced for carbohydrates and fast food cravings between 6 months and 2 years. Body Mass Index and weight significantly decreased from pre- to 12 months follow-up although there were no differences at the 2-year point.

Conclusions: As an online intervention program, EFT was very effective in reducing food cravings, perceived power of food, psychological symptomatology, and improving dietary restraint and maintaining those improvements over a 2-year period. The addition of EFT to traditional weight loss interventions is timely and supported by this research.

Keywords: emotional freedom techniques, obesity, food cravings, online, weight loss

Introduction

WORLDWIDE OBESITY FIGURES continue to increase at epidemic rates. Rising obesity rates predict increases in disease prevalence, resulting in greater financial costs for the individual and wider community. It is generally accepted in medical settings that effective interventions should address both the psychological and physiologic factors that increase the risk of individuals engaging in maladaptive eating behav-

iors.^{1,2} Biologic influences on obesity do not fully explain the variability in weight; however, significantly higher levels of psychological distress increase the risk of overconsumption.^{3,4} Psychological factors such as restrained eating (e.g., the intention to restrict food intake deliberately to prevent weight gain or to promote weight loss) and experiencing food craving can complicate eating behaviors by remodeling internal hunger cues that result in the individual becoming more receptive to external cues.⁵

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Current treatments

The predominant aim of most obesity intervention programs is to achieve weight loss, with traditional behavioral treatments targeting dietary intake and physical exercise behaviors as the main methods for achieving this goal.⁶ However meta-analyses have reported dieting to be a counter-productive practice for maintaining weight loss as dieters are likely to regain weight due to the inherent lack of long-term compliance that is characteristic of diets.^{7,8} Behavioral treatments for long-term weight loss suggest that interventions should last at least 12 months, but adherence appears hindered by commitment and financial expense.

It appears that long-term weight loss is negatively influenced by psychologic distress and disorders and as such greater emphasis has been placed on understanding the role internal psychologic factors have on intervention program outcomes.⁹ Of the therapies currently available to target the underlying cognitive beliefs of dysfunctional eating practices, Cognitive Behavior Therapy (CBT) has been identified as the most effective. However, long-term time and financial commitments are often needed for successful treatment.^{10,11} As a result, short-term and alternative interventions are being examined, with energy psychology and mindfulness-based approaches showing promise.¹²

Emotional freedom techniques

Clinical emotional freedom techniques (EFT) is a psychophysiological intervention likened to psychologic acupuncture.^{13,14} The technique has clients manually stimulate a series of eight acupuncture points (acupoints) on their face and upper body to reduce an undesired physiologic response.¹³ The manualized form of this approach combines elements of two existing evidence-based psychotherapeutic techniques: exposure therapy and cognitive therapy. It is referred to as “clinical EFT” and is distinguished by having been validated in clinical trials that conformed to the APA’s Division 12 (Clinical Psychology) then-current standards for empirically supported treatment at the time it was validated.¹⁴ The aim of EFT is to reduce and relieve clients of psychologic distress symptoms, including stress and anxiety.¹⁵

Meta-analyses for both depression and anxiety, as well as post-traumatic stress disorder, indicate effect sizes above the Cohen’s *d* or Hedge’s *g* cutoffs of 0.8 for a large effect size.^{16–18} A comparative review and meta-analysis has addressed the question of whether acupoint tapping is an essential ingredient in the intervention and identical protocols with and without the acupoint tapping component were compared.¹⁹ The conditions that included the full tapping protocol produced a significantly larger effect size than those that omitted the tapping. The study indicated that the tapping was an essential ingredient in the large effect sizes that were found, beyond the benefits of the cognitive and exposure elements of the protocol or any nonspecific therapeutic factors.

EFT evidence for food cravings

A number of studies have assessed EFT for its impact on food cravings, addiction, weight loss, and food management. An initial study investigating the outcomes of a

1-day EFT workshop on food cravings, pain, and psychologic distress for 216 health workers saw a significant reduction in all measures that were maintained on 3 months follow-up.²⁰

Several randomized clinical trials (RCT) conducted in Australia corroborated these findings, demonstrating that in-person EFT treatments led to significant decreases across the three outcome measures, as well as to participants’ weight and body mass index (BMI). These improvements were maintained 12 months after the completion of the 4-week EFT treatment program.^{21,22} A comparison of EFT to CBT indicated that both were effective for decreasing perceived power of food, dietary restraint, and depressive symptoms from preintervention to postintervention and then maintained up to 12 months later. However, the EFT treatment group experienced significantly greater reductions in food cravings and anxiety symptoms than those in the CBT group, and these were maintained at both the 6- and 12-month follow-up.^{23,24} Other studies have also indicated that depressive symptoms improve in adults who are simultaneously losing weight, highlighting the links between weight and psychologic symptomatology and the ability of EFT to concurrently address both concerns.²¹

The studies reviewed indicate that EFT can be used as an effective weight loss intervention to treat the food cravings and psychologic factors which maintain maladaptive eating behaviors in overweight and obese adults. The current study sought to investigate the effectiveness of EFT on weight management and associated psychologic symptomatology 2 years after the administration of previously reported 8-week EFT intervention.²⁵

Methods

The trial was registered with the Australian New Zealand Clinical Trial Registry and received ethical approval from the Bond University Human Research Ethics Committee.

Participants had to be 18 years or older, to have reported emotional eating or regular food cravings, to not be experiencing any current severe psychologic issues, not receiving treatment (psychologic or medical) for their food cravings, and to agree to abstain from participating in weight loss programs for the duration of the trial. Figure 1 outlines the total number of participants and their flow through the trial. Demographic information is presented in Table 1.

Waitlist control group

All waitlist participants began and completed the EFT treatment exactly 8 weeks from pretest to when they began the treatment. These data were analyzed as a comparison to the active treatment group. Following that the data were collapsed into the treatment data for a final analysis of the online intervention.

Measures

Demographic questions. Participants provided demographic information, including gender, age, marital status, household size, level of education, area of employment, total income, and information relating to current food craving experiences.

Anthropometric measures. The height and weight measurements of participants were recorded and used to

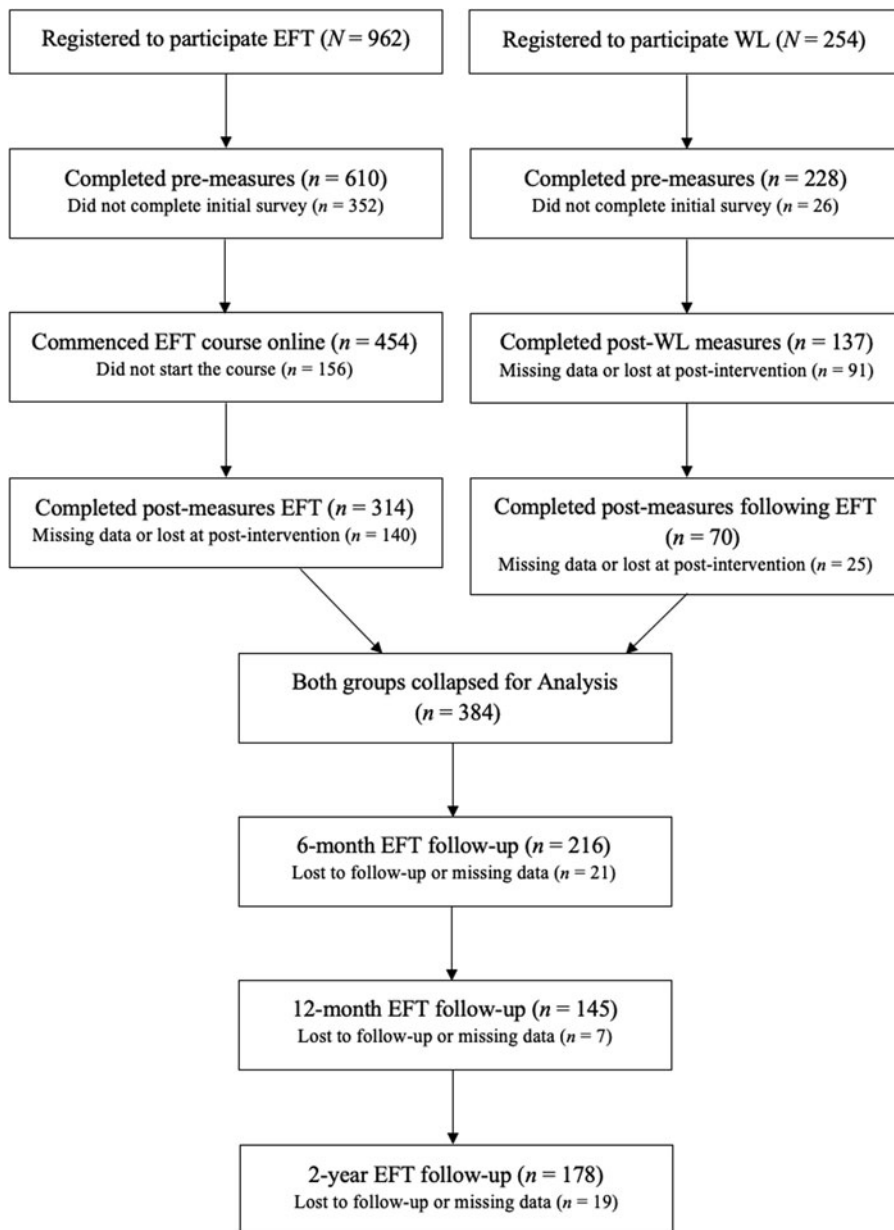


FIG. 1. CONSORT flow chart of participants through trial.

calculate their BMI using the mathematical formula “weight divided by squared height (kg/m^2).” The World Health Organization (WHO) BMI categories were utilized to classify participants accordingly: healthy weight (18.5–24.9), overweight (25.0–29.9), obese class I (30.0–34.9), obese class II (35.0–39.9), and obese class III (≥ 40.0).

Food Craving Inventory (FCI²⁶) is a 37-item self-report inventory designed to measure the cravings of 37 specific types of food in adults over a period of 30 days. It is made up of four subscales: carbohydrates, fast food fats, high fats, and sweets. Cronbach’s alpha (α) was calculated for the current study from which the FCI total score demonstrated a high internal consistency ($\alpha=0.92$) similar to that of the initial development of the FCI.²⁶

Power of Food Scale (PFS²⁷) is a 21-item self-report instrument that assesses responses to environments containing highly desirable foods independent of physiologic hunger. The psychological impact of this environment is

measured through the reported anticipation of food taste based on its proximity and availability, rather than actual consumption. In the current study, the PFS had excellent internal consistency ($\alpha=0.96$).

Revised Restraint Scale (RRS²⁸) is a 10-item, self-report questionnaire used to measure dietary restraint as an enduring eating pattern, typically encompassing restrictive behaviors and periods of excessive eating.²⁹ The RRS consists of two subscales: weight fluctuation (WF) (four items assessing history of WFs) and concern with dieting (six items assessing attitudes toward dieting). Cronbach’s alphas (α) in the current study demonstrated acceptable internal consistency ($\alpha=0.71$).

Patient Health Questionnaire (PHQ³⁰) is a 15-item self-report questionnaire measuring conditions across five mental disorder subscales, including depression, anxiety, somatoform, alcohol, and eating disorders. For the current study, the anxiety (PHQ-A), depression (PHQ-D), and

TABLE 1. SUMMARY OF PARTICIPANT DEMOGRAPHIC INFORMATION

BMI group	Total sample	Overweight (n=59)	Obese class 1 (n=39)	Obese class II (n=23)	Obese class III (n=31)
BMI mean (SD)	32.8 (6.9)	27.5 (1.3)	32.6 (1.4)	37.1 (1.5)	43.8 (3.6)
Age mean (SD)	53.0 (10.0)	54.5 (9.9)	51.7 (11.2)	53.78 (9.0)	51.5 (10.3)
Gender (%)					
Female	93.9	98.3	92.3	87.0	93.5
Male	6.1	1.7	7.7	13.0	6.5
Married (%)	60.6	61.0	48.6	65.2	66.7
Posthigh school education	77.6	71.2	81.1	87.0	80.0
Employed	56.4	59.3	64.1	56.5	41.4
Income (AUD\$) (%)					
<\$10,000	0.0	0.0	0.0	0.0	0.0
\$10,001–\$40,000	20.5	17.5	28.6	18.2	20.7
\$40,001–\$60,000	18.6	19.3	14.3	22.7	24.1
\$60,001–\$80,000	11.5	12.3	17.1	0.0	10.3
\$80,001–\$100,000	19.9	22.8	11.4	27.3	24.1
>\$100,000	29.5	28.1	28.6	31.8	20.7

N = 178.

BMI, body mass index; SD, standard deviation.

somatoform (PHQ-S) subscales were used.³⁰ The current study reported excellent levels of internal consistency for the PHQ-A ($\alpha=0.95$) and PHQ-D ($\alpha=0.88$).

Table 2 outlines the group means and standard deviations for all outcome measures across time.

Treatment condition

Participants were instructed to self-pace through an online EFT treatment program made up of seven modules throughout the 8-week intervention period. Within each of seven modules there were between three and eight video lessons, which had been previously recorded by the first author, who had both experience and appropriate certification to administer EFT. There were 32 video lessons in total, lasting up to 15 min each. Participants could repeat lessons as needed throughout the intervention period. To ensure that all videos were completed in a module, a multiple-choice quiz had to be passed before participants could progress to the next module.

Weekly reminder e-mails were sent to participants to alert them of the module for that week. All participants were able to receive support and ask questions from the first and third authors in a secret Facebook group so they did not progress through the intervention unaided. While this was optional, 80% of participants became highly engaged in the Facebook group. The waitlist control group had exactly the same process and their own online support group for their 8 weeks. The secret groups were ended at the completion of the trial.

The EFT intervention

The EFT tapping sequence began with participants identifying a problem which caused them some degree of distress; this may have been a behavior, feeling, memory, sensation, or thought. Participants self-assessed the intensity of their subjective distress and indicated this using a 0 to 10-point scale (subjective units of distress [SUD])³¹ with 0 signifying no current concern and 10 indicating the highest level of distress. Once the problem had been identified, it was acknowledged through a setup statement while tapping

on the side of the hand point (Fig. 2). An example may have included “even though I have this chocolate craving, I accept myself anyway.”

Participants then initiated a basic, eight-point tapping sequence with each of these acupressure points tapped approximately seven times (Fig. 3), while repeating a shortened reminder phrase from the setup statement (e.g., “this craving”). The sequence was repeated until the SUD rating was zero.

Results

Data diagnostics

Data analysis was performed using the IBM Statistical Package for Social Sciences (SPSS) Version 25, and an alpha level of 0.05 was set. *A priori* power analyses were used to identify minimum sample sizes with power set at 0.95 (G*Power, version 3.1³²). The total sample size required to detect a medium effect ($d=0.5$) for the two-way mixed between-subjects design was 42 participants ($\alpha=0.05$), which the current sample ($n=178$) satisfied Cohen.³³ A minimum sample size of 48 participants was needed for the repeated measures design ($\alpha=0.05$) to identify a small effect size ($d=0.2$), and the analysis was deemed to have sufficient power due to the current sample size.

Chi-square analyses for age revealed a significant, moderately strong between-group difference across the variable of age category [$\chi^2(2, N=178)=7.36, p=0.025$]. All age categories were represented in the EFT treatment group more than the waitlist group. The analysis for weight categories also indicated a between-group difference. There were more participants in the EFT treatment group weighing between 50 and 69.99 kg, 70 and 89.99 kg, and 110 and 129.99 kg, $\chi^2(5, N=165)=11.4, p=0.044$, than in the waitlist group. Additional analyses did not indicate any significant demographic differences between the treatment and waitlist groups.

Repeated measures ANOVA

Eight one-way repeated-measures ANOVAs (RM-ANOVAs) were used to determine if there were statistically

TABLE 2. GROUP MEANS AND STANDARD DEVIATIONS FOR THE DEPENDENT VARIABLES ACROSS TIME FOR THE COLLAPSED GROUP MEAN SCORES

Variable	Collapsed total		95% CI	
	M	SD	Lower	Upper
FCI (baseline)	62.57	15.09	58.88	66.25
POF (baseline)	72.91	18.32	68.44	77.38
RRS (baseline)	23.78	4.99	22.56	25.00
BMI (baseline)	32.03	6.14	30.72	33.35
Dep (baseline)	7.71	4.98	6.69	8.73
Anxiety (baseline)	9.47	6.00	8.12	10.81
Som (baseline)	8.21	5.02	7.17	9.25
FCI (post)	47.87	11.37	45.09	50.64
POF (post)	50.70	17.63	46.50	55.00
RRS (post)	20.69	5.26	19.40	21.97
BMI (post)	31.5	6.32	30.14	32.85
Dep (post)	4.86	3.79	4.08	5.64
Anxiety (post)	5.73	5.63	4.47	7.00
Som (post)	6.40	3.77	5.62	7.18
FCI (6-month follow-up)	49.17	1.43	46.32	52.03
POF (6-month follow-up)	51.94	19.02	47.30	56.58
RRS (6-month follow-up)	20.15	5.31	18.85	21.45
BMI (6-month follow-up)	31.39	5.90	30.12	32.65
Dep (6-month follow-up)	5.90	5.04	4.87	6.94
Anxiety (6-month follow-up)	7.76	6.06	6.40	9.12
Som (6-month follow-up)	6.05	0.41	5.22	6.86
FCI (12-month follow-up)	49.01	13.11	45.82	52.21
POF (12-month follow-up)	52.22	20.38	47.25	57.20
RRS (12-month follow-up)	19.46	5.50	18.12	20.80
BMI (12-month follow-up)	31.25	5.88	29.99	32.52
Dep (12-month follow-up)	5.63	4.70	4.67	6.59
Anx (12-month follow-up)	8.28	5.47	7.05	9.50
Som (12-month follow-up)	5.94	0.37	5.19	6.69
FCI (2-year follow-up)	50.49	13.66	47.16	53.83
POF (2-year follow-up)	54.51	20.74	49.45	59.57
RRS (2-year follow-up)	19.67	5.45	18.34	21.00
BMI (2-year follow-up)	31.36	5.83	30.11	32.61
Dep (2-year follow-up)	5.07	4.45	4.16	5.99
Anx (2-year follow-up)	8.08	5.66	6.81	9.34
Som (2-year follow-up)	6.00	0.39	5.21	6.78

95% CIs for the total mean scores (i.e., collapsed across CBT and EFT).

95% CI, 95% confidence interval; CBT, Cognitive Behavior Therapy; EFT, emotional freedom techniques; FCI, Food Craving Inventory; POF, Power of Food Scale; RRS, Revised Restraint Scale.

significant differences in dependent variable scores for the total treatment group, immediately postintervention, as well as at 6 and 12 months and 2-year follow-ups. All pairwise comparison used Bonferroni adjustment unless otherwise stated.

Food cravings. Mauchly's test of sphericity indicated that the assumption of sphericity for participants' degree of

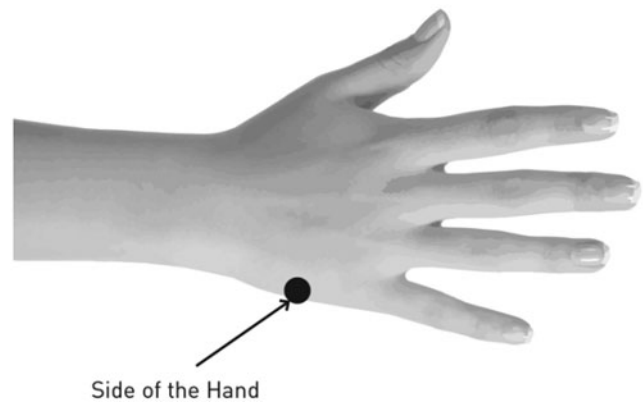


FIG. 2. Side of hand utilized in EFT practice. EFT, emotional freedom techniques.

food craving had been violated, $\chi^2(5)=15.02$, $p=0.002$. Epsilon (ϵ) was 0.85333 and was used to correct.³⁴ Degree of food craving was significantly different at the various postintervention time points, $F(3.41, 248.96)=32.73$, $p<0.001$, partial $\eta^2=0.310$. Pairwise comparisons revealed a significant decrease from pre- to postintervention (-28.2%) and from pre to each of the postintervention time periods ($p<0.001$; Table 3).

Additional RM-ANOVAs were run separately for the FCI subscales, with all being statistically significant at each

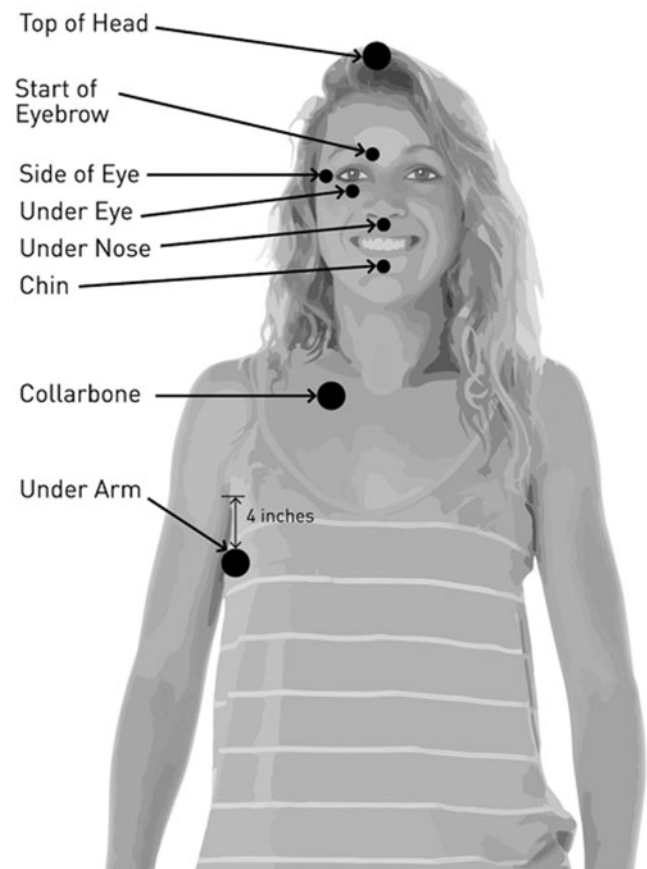


FIG. 3. Eight tapping points utilized in EFT practice.

TABLE 3. SIMPLE EFFECTS ANALYSES FOR TIME USING COLLAPSED GROUP MEAN SCORES

Variable + time point	p	Mean difference	95% CI	
			Lower	Upper
Total food cravings				
1 → 2	0.00*	2.36	1.52	3.20
1 → 3	0.00*	1.95	1.06	2.76
1 → 4	0.00*	2.08	1.10	3.05
1 → 5	0.00*	1.95	0.94	2.97
2 → 3	0.98	-0.44	-1.21	0.32
2 → 4	1.00	-0.28	-1.18	0.62
2 → 5	1.00	-0.40	-1.30	0.49
3 → 4	1.00	0.16	-0.67	0.99
3 → 5	1.00	0.04	-0.98	1.07
4 → 5	1.00	-0.12	-1.10	0.85
Power of food				
1 → 2	0.00*	20.62	14.05	26.06
1 → 3	0.00*	21.33	15.44	27.21
1 → 4	0.00*	21.61	15.75	27.47
1 → 5	0.00*	18.74	13.01	24.46
2 → 3	1.00	1.27	-4.01	6.55
2 → 4	1.00	1.55	-4.08	7.20
2 → 5	1.00	-1.32	-6.25	3.61
3 → 4	1.00	0.28	-5.13	5.70
3 → 5	1.00	-2.59	-7.94	2.75
4 → 5	0.9	-2.87	-7.72	1.96
Restraint				
1 → 2	0.00*	15.23	10.74	19.71
1 → 3	0.00*	13.43	9.13	17.73
1 → 4	0.00*	14.00	8.89	19.10
1 → 5	0.00*	13.54	7.93	19.14
2 → 3	1.00	-1.79	-5.34	1.74
2 → 4	1.00	-1.23	-5.29	2.83
2 → 5	1.00	-1.68	-5.67	2.29
3 → 4	1.00	0.56	-3.56	4.69
3 → 5	1.00	0.10	-4.87	5.09
4 → 5	1.00	0.45	-5.14	4.22
BMI				
1 → 2	0.00*	0.53	0.14	0.92
1 → 3	0.17	0.64	0.07	1.22
1 → 4	0.04*	0.78	0.02	1.53
1 → 5	0.46	0.67	-0.28	1.62
2 → 3	1.00	0.11	-0.37	0.59
2 → 4	1.00	0.24	-0.51	1.00
2 → 5	1.00	0.13	-0.88	1.14
3 → 4	1.00	0.13	-0.43	0.69
3 → 5	1.00	0.02	-0.86	0.90
4 → 5	1.00	-0.10	-0.81	0.59
Weight				
1 → 2	0.00*	1.38	0.35	2.430
1 → 3	0.01*	1.72	0.19	3.26
1 → 4	0.04*	2.13	0.08	4.19
1 → 5	1.00	1.77	-0.88	4.42
2 → 3	1.00	-1.39	-2.43	-0.35
2 → 4	1.00	0.74	-1.29	2.77
2 → 5	1.00	0.38	-2.42	3.18
3 → 4	1.00	0.41	-1.11	1.93
3 → 5	1.00	0.48	-2.37	2.47
4 → 5	1.00	-0.36	-2.35	1.62
Anxious symptoms				
1 → 2	0.00*	3.73	1.73	5.73
1 → 3	0.03*	1.70	0.06	3.34
1 → 4	0.51	1.19	-0.54	2.92

(continued)

TABLE 3. (CONTINUED)

Variable + time point	p	Mean difference	95% CI	
			Lower	Upper
1 → 5	0.24	1.39	-0.35	3.14
2 → 3	0.06	-2.02	-4.11	0.06
2 → 4	0.00*	-2.54	-4.64	-0.44
2 → 5	0.00*	-2.34	-4.19	-0.48
3 → 4	1.00	-0.51	-2.36	1.32
3 → 5	1.00	-0.31	-2.03	1.39
4 → 5	1.00	0.20	-1.46	1.86
Depressive symptoms				
1 → 2	0.00*	2.85	1.78	3.91
1 → 3	0.00*	1.80	0.58	3.03
1 → 4	0.00*	2.08	0.72	3.44
1 → 5	0.00*	2.63	1.17	4.10
2 → 3	0.20	-1.04	-2.31	0.22
2 → 4	0.97	-0.76	-2.08	0.54
2 → 5	1.00	-0.21	-1.46	1.03
3 → 4	1.00	0.27	-1.24	1.79
3 → 5	1.00	0.83	-0.71	2.37
4 → 5	1.00	0.55	-0.79	1.90
Somatic symptoms				
1 → 2	0.00*	1.38	0.34	2.43
1 → 3	0.02*	1.72	0.18	3.25
1 → 4	0.04*	2.13	0.07	4.18
1 → 5	0.58	1.76	-0.87	4.41
2 → 3	1.00	0.33	-0.95	1.62
2 → 4	1.00	0.74	-1.28	2.77
2 → 5	1.00	0.04	-2.41	3.17
3 → 4	1.00	0.41	-1.11	1.93
3 → 5	1.00	0.04	-2.37	2.47
4 → 5	1.00	-0.36	-2.35	1.62

1 = preintervention, 2 = postintervention, 3 = 6-month follow-up, 4 = 12-month follow-up, 5 = 2-year follow-up. p = significance value (to two decimal points).

* $p < 0.05$.

postintervention time point, Fats $F(3.2, 233.32) = 15.53$, partial $\eta^2 = 0.175$; Carbs $F(3.43, 250.69) = 24.27$, partial $\eta^2 = 0.249$; sweets $F(3.4, 247.95) = 29.55$, partial $\eta^2 = 0.288$; and fast food $F(4, 292) = 18.03$, partial $\eta^2 = 0.198$ ($p < 0.001$).

Power of food. Desirable changes in the perceived power of food was significant at different postintervention time points, $F(4, 320) = 46.62$, $p < 0.001$, partial $\eta^2 = 0.368$. Pairwise comparisons revealed a significant decrease from preintervention to postintervention (-26.7%) and 6 months' follow-up, preintervention to 12 months' follow-up, and preintervention to 2 years' follow-up ($p < 0.001$). There were no significant differences between the other time points.

Restraint capabilities. Restraint was significantly improved at the postintervention time points, $F(4, 368) = 28.8$, $p < 0.001$, partial $\eta^2 = 0.238$. Pairwise comparisons improved from pre to postintervention (+13.4%) and to all time points, as well as postintervention to 12 months follow-up ($p < 0.001$). There were no significant differences from postintervention to other time points.

Additional RM-ANOVAs were run separately for the RRS subscales, with WF significant from preintervention to

12 months and 2 years ($F(4, 368)=6.32, p<0.001$, partial $\eta^2=0.064$), as well as postintervention to 12 months ($p<0.001$). The CD subscale was also significant [$F(4, 368)=30.81, p<0.001$, partial $\eta^2=0.251$] from preintervention to postintervention, 6 and 12 months, and 2 years follow-up ($p<0.001$).

Anxiety symptomatology. Anxiety symptomatology was significantly different at each of the different postintervention time points, $F(4, 312)=8.98, p<0.001$, partial $\eta^2=0.103$. Pairwise comparisons indicated a significant decrease from preintervention to postintervention (-23.3% ; $p<0.001$), preintervention to 6 months ($p=0.035$), postintervention to 12 months ($p=0.008$), and postintervention to 2 years follow-up ($p=0.005$).

Depressive symptomatology. The assumption of sphericity for participants' depressive symptomatology had been violated, $\chi^2(9)=22.83, p=0.007$, and consequently, a correction was applied³⁴ ($\epsilon=0.891$). Depressive symptomatology was significantly different at the postintervention time points $F(3.57, 331.59)=11.67, p<0.001$, partial $\eta^2=0.112$. Pairwise comparisons indicated that symptomatology was significantly decreased from pre to postintervention (-21.1%) and pre to all other time points ($p<0.001$).

Somatic symptomatology. The assumption of sphericity for participants' somatic symptomatology had been violated, $\chi^2(9)=31.0, p<0.001$, and a correction was applied³⁴ ($\epsilon=0.855$). Somatic symptomatology was significantly different at the postintervention time points, $F(3.4, 311.4)=12.94, p<0.001$, partial $\eta^2=0.124$. Pairwise comparisons revealed that somatic symptomatology was significantly decreased from pre to postintervention (-10.6%), as well as preintervention to all other time points ($p<0.001$). There were no significant differences in participants' somatic symptomatology, from postintervention to 6 or 12 months nor any other time point comparisons.

Body mass index. The assumption of sphericity for participants' BMI had been violated, $\chi^2(9)=137.84, p<0.001$; therefore, a correction was made³⁴ ($\epsilon=0.545$). BMI was significantly different at the different postintervention time points, $F(4, 340)=2.96, p=0.022$, partial $\eta^2=0.033$. Pairwise comparisons indicated that BMI was significantly decreased from pre to postintervention (-7.2% ; $p=0.001$), from preintervention to 6 months follow-up ($p=0.010$), and preintervention to 12 months follow-up ($p=0.039$). There were no significant differences in participants' BMI from preintervention to 2 years follow-up.

Weight. The assumption of sphericity for participants' weight had been violated, $\chi^2(9)=145.4, p<0.001$; therefore, a correction was made³⁴ ($\epsilon=0.54$). Weight was significantly different at the postintervention time points, $F(4, 340)=2.85, p=0.026$, partial $\eta^2=0.032$. Pairwise comparisons indicated that weight had significantly decreased from pre to postintervention ($p=0.002$), from preintervention to 6 months follow-up ($p=0.017$), and preintervention to 12 months follow-up ($p=0.036$). There were no significant differences in participants' weight from pre- to 2-year follow-up.

The time points are as follows: 1=preintervention, 2=postintervention, 3=6-month follow-up, 4=12-month follow-up, and 5=2-year follow-up.

Discussion

The aim of the current study was to assess the effectiveness of an 8-week online intervention EFT on weight loss and psychologic symptomatology 2 years after the completion of the program by overweight or obese adults.

The online EFT intervention program achieved significantly reduced scores for all outcome measures from preintervention to immediately postintervention consistent with other in-person and online EFT programs.^{22–25} Participants' improvements in food cravings, perceived power of food, depression, and somatic symptoms also remained improved at 2-year follow-up. For restraint capabilities, anxiety, BMI, and weight, significant reductions occurred from baseline to 12 months' follow-up, and while no significant changes occurred at the 2-year mark, the changes remained constant. The subjective concern for the dieting subscale of the RRS (CD) remained stable at the 2-year mark, as did all four subscales of the FCI. These findings suggest that due to the intervention, participants were unlikely to experience any further food cravings for previously desirable food nor other symptoms and, therefore, perhaps did not require ongoing intervention beyond the 8-week treatment period. These findings are consistent with previous research for in-person EFT treatment of food cravings, related eating pathology, and psychologic symptomatology.^{22–24}

As an online intervention program, EFT were very effective in reducing food cravings, perceived power of food, dietary restraint, and psychologic symptomatology. Mounting evidence for the efficacy of online psychologic treatments suggests that telehealth services can provide a solution for overcoming barriers to treatment based on cost, inconvenience, and availability to those in remote locations.³⁵ As well as reducing costs for health care providers, online psychologic therapies may have advantages over in-person therapies for certain psychologic issues.³⁶ Online therapy is relatively anonymous and carries less stigma, and many patients find it easier to confide more difficult problems in an online format.³⁷ The addition of the online secret Facebook support group in the present trial allowed participants to directly access the first and third authors for assistance and clarification as they self-paced through the intervention. Future trials should consider this component. Assisted compliance was well utilized, and participant feedback indicated that it was highly valuable.

Limitations and future directions

Despite several forms of follow-up contact, there was a high attrition rate between each time point. The number of individuals initially registering to participate in the study was 1316. Of these, 838 completed the premeasures; 384 completed the post-treatment or waitlist postmeasures; 216 completed the 6-month follow-up; 145 completed the 12-month follow-up; and 178 completed the 2-year follow-up. These rates were not seen to be unusual, as attrition rates in public health research range from 30% to 70%.^{38,39} While the authors used traditional strategies to enhance the engagement rate (e-mails, telephone, and post), future studies

may benefit from short message service (SMS) and motivational tactics such as financial incentives.

The study did not include an active comparison group. A subsequent investigation might compare the efficacy of online delivery of EFT for food cravings to a gold standard therapeutic intervention (e.g., online delivery of CBT) to control for expectancy effects and other nonspecific treatment effects.⁴⁰ Stapleton et al.'s study²³ compared group EFT to CBT for food cravings and demonstrated comparable effectiveness in reducing food cravings, one's responsiveness to food in the environment (power of food), and dietary restraint, with Cohen's effect size values suggesting moderate-to-high practical significance for both interventions. More importantly, EFT achieved these outcomes more efficiently. The gains made occurred within the 8-week trial, whereas the CBT outcomes were not present until the 6-month follow-up. Finally, significantly more females than males participated in the study, and thus, outcomes may not be generalizable to males. A more gender-balanced sample should be sought for future research.

Finally, the RRS has an increased tendency for Type 1 errors, in particular overestimating the restraint ability for overweight or obese individuals, and these results should be interpreted with caution.

Conclusions

In conclusion, the current study presents a 2-year follow-up to the first clinical trial of an online EFT program to address food cravings in assisting weight loss. Targeting problematic eating features with an EFT intervention also impacted related psychologic symptoms. As an online intervention program, EFT was very effective in reducing food cravings, perceived power of food, dietary restraint, and psychologic symptomatology and maintaining improvements over a 2-year period. It appears to be a promising component of or in some cases an alternative to conventional weight loss programs. Replication studies, as well as comparisons with other weight loss programs, delivered online would serve to strengthen or weaken the apparently encouraging implications of this study.

Author Disclosure Statement

P.S. discloses that she may receive income for keynote speeches at conference on the topic being investigated because of expertise. E.L.-H. and E.S. have no competing financial interests. G.M. may derive income in private practice from the technique being investigated.

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