

## Adherence to, and Satisfaction with, the Self-Acupressure Intervention in the LIFE Weight-Loss Maintenance Study

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### ABSTRACT

**Background:** The LIFE study was a randomized controlled trial assessing the impact of a self-acupressure intervention, Tapas Acupressure Technique® (TAT®), on weight-loss maintenance. The primary analysis showed no significant difference between TAT and social support (SS) for weight-loss maintenance, while exploratory *post hoc* tests suggested that, among participants with highest initial weight-loss, those in the TAT condition regained less weight than those in the SS condition.

**Objective:** The aim of the current study was to assess adherence to, and satisfaction with, the experimental self-acupressure intervention in the LIFE weight loss maintenance trial.

**Design:** This was a secondary analysis of adherence and satisfaction patterns in a large randomized controlled trial.

**Setting:** The study was conducted at a prominent health maintenance organization in the Pacific Northwest.

**Subjects:** This study involved 142 obese participants who had lost >10 pounds in a conventional weight-loss program and who were randomized to the experimental acupressure intervention.

**Interventions:** The experimental intervention ( $n = 142$ ) arm consisted of instruction and application of a self-acupressure intervention, the Tapas Acupressure Technique® (TAT®).

**Outcome Measures:** The outcome sought was self-reported satisfaction and frequency of TAT practice

**Results:** Sixty-six percent of TAT participants attended at least 6 of 8 intervention sessions. More than 80% of participants reported practicing TAT at home, on average, at least 2 days per week. Sixty two percent reported practicing <10 minutes per session, while 27% reported practicing 10–20 minutes per session. Higher satisfaction scores were significantly correlated with less weight regain ( $p = 0.001$ ). Frequency of TAT practice was not significantly associated with changes in weight, stress, insomnia, depression, or quality of life.

**Conclusions:** These data suggest moderate acceptance of, and adherence to, the TAT intervention. Further research is required to identify and achieve optimal home-practice levels of self-acupressure techniques.

**Key Words:** Acupressure, Tapas Acupressure Technique, Weight Loss Maintenance, Energy Psychology

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## INTRODUCTION

**D**OCUMENTING LEVELS OF ADHERENCE sufficient to produce outcomes—and understanding the impact of adherence on outcomes—are critical first steps in developing an evidence base to support the use of complementary and alternative medicine (CAM) modalities in weight management. In addition, understanding adherence patterns can help clinicians to assess the appropriateness of recommending acupressure or other self-help techniques to their patients.

Last year, the current authors published results of the LIFE study, a randomized controlled trial assessing the impact of a self-acupressure intervention, the Tapas Acupressure Technique® (TAT®) on weight-loss maintenance.<sup>1</sup> Two hundred and eighty-five obese adults who had lost weight successfully in a behavioral weight-loss program were randomized to either TAT instruction or a social support (SS) group (as a control). The main clinical outcome measure was maintenance of weight loss, from randomization to 12 months later. The primary analysis showed no significant difference between TAT and SS for weight-loss maintenance. A secondary analysis suggested a TAT treatment effect that was conditional on initial weight loss, while exploratory *post hoc* tests suggested that, among participants with the highest initial weight loss, those in the TAT condition regained less weight than those in the SS condition.

This article presents results of secondary analyses of data related to adherence to, and satisfaction with, the TAT intervention in the same trial, as self-reported by participants through paper survey instruments. In particular, this article addresses the following questions:

- (1) How well did patients adhere to the protocol?
- (2) Which participants were most satisfied with the TAT program?
- (3) Did more TAT practice result in greater improvements in weight change and psychosocial measures?
- (4) What types of participants were adherent to the intervention?

## METHODS

### Intervention

Participants were obese adults who participated in an initial, 6-month behavioral weight-loss program (WLP).<sup>2</sup> The experimental intervention ( $n=142$ ) arm of the study consisted of instruction and application of TAT. The TAT practice combined self-acupressure with a prescribed set of mental steps. Each participant was instructed to apply light touch using the tips of the thumb and fourth finger of one hand to the area 1/8-inch above the inner corner of each eye, with the middle finger of the same hand positioned on the forehead directly above the nose and about 1/2-inch above

eyebrow level. The participant's other hand was placed on the back of the head, with the palm cradling the occiput and the thumb pointing down as it rested above the hairline. The TAT pose thus used two points along the bladder meridian: BL 1 "Bright Eyes," located at the inner canthus of the eyes, and BL 10 "Heavenly Pillar," located at the occiput. Palpation of these points served to mobilize Qi through the Bladder meridian toward higher levels of consciousness, bringing conscious awareness and reflection to hunger and other instincts, and allowing individuals to visualize and shift their actions and points of view. The TAT pose facilitated this process further by palpation of a third point found between, and slightly above, the eyebrows. This area is called *Yin Tang* (the "Third Eye" in the Indian tradition), which is thought to calm the mind.<sup>3</sup>

While maintaining this TAT pose, participants were instructed to focus on a series of statements (silent or spoken) aimed at healing and resolving barriers in a problem area. The series began with a statement focusing on the target problem, followed by statements focused on healing, identifying a desired alternative to the problem, shifting toward resolution, and, finally, acceptance and integration of the healing. TAT instruction was provided in eight group sessions over a 6-month period for a total of 13 contact hours. Participants were advised to practice TAT daily on their own. The complete protocol took approximately 20–30 minutes; a shortened version was also taught, which could be completed in 2–5 minutes and used throughout the day as needed. Detailed participant instructions, rationale, and practitioner curriculum guides for the study protocol have been previously published.<sup>3</sup> The control intervention arm ( $n=143$ ) consisted of social support-group meetings (SS).

### Outcome Measures

The main clinical outcome measure was change in weight from randomization to 6 and 12 months postrandomization. Secondary clinical outcomes included insomnia,<sup>4</sup> stress,<sup>5</sup> depression,<sup>6</sup> and quality of life (QoL).<sup>7</sup> Missing data for the above measures were replaced using multiple imputation.

Secondary adherence and satisfaction outcomes included the following: At each weight-loss maintenance group session, participants in the TAT arm reported, via paper logs, the average number of days each week since the last group session that the participants had practiced TAT on their own. Missing data were replaced by using multiple imputation. Participants reported on both the frequency of TAT use and the length of each TAT session at 6- and 12-month follow-up data-collection visits. To record frequency of their TAT use, participants could choose "none at all," "monthly," "2–3 times/month," "weekly," "2–6 times/week," "daily," "more than once per day," or "other." For time spent per TAT session, participants chose from "none at all," "less than 10 minutes," "10–20 minutes," "21–30

minutes,” “31–45 minutes,” “46–60” minutes, or “more than 1 hour.” Finally, at the 6-month follow-up, participants reported, via a numeric scale, on the likelihood that they would continue using TAT in the future (0 = “not at all,” 1–3 = “somewhat,” 4 = “a lot”). For adherence data collected at follow-up data collection visits, this article reports on results for participants who provided complete data ( $N=113$  at the 6-month visit).

The Client Satisfaction Questionnaire (CSQ)<sup>8</sup> was also administered to the participants at the 6-month follow-up visit, and the results for participants with complete data are reported in this article. ( $N=121$  at 6 months,  $N=113$  at 12 months). CSQ scores range from 1 to 4, with 4 representing highest satisfaction.

## Statistical Methods

A series of regression models were run to assess the potential association between self-reported practice (average number of days per week) and weight change and psychosocial outcomes. For each outcome, change was regressed in the outcome variable, from randomization to 6 months postrandomization, against the average number of days of TAT practice per week. Adjustments were made for initial prerandomization change in the variable, when this was possible, as well as for psychosocial parameters.

A regression model was also run; this model was used for assessing potential association between self-reported home practice (average number of days per week) and a range of characteristics. Self-reported home practice was regressed against demographic characteristics (age, gender, race, income, and education); randomization values for weight, sleep, depression, stress, and QoL; and change scores in the pre-randomization weight-loss program for weight, depression, sleep, and stress. Study dropout was defined as attending fewer than 3 weight-loss maintenance intervention sessions and not completing the 12-month follow-up assessment.

## RESULTS

### Question 1: Adherence

*Session attendance and dropouts.* Sixty-six percent of 142 TAT participants attended at least 6 of the 8 intervention sessions, 19% of the participants attended 4–5

sessions, 11% of the participants attended 2–3 sessions, and 4% of the participants attended 0–1 sessions. This pattern was similar to adherence seen in the SS group ( $p=0.83$ ). The dropout rate was low and comparable for both groups (3.5% from TAT and 6.3% from SS;  $p=0.60$ )

*Frequency and duration of TAT home practice.* Almost half of TAT participants reported practicing TAT at home, on average, for 2–3 days per week (Table 1), while 8% reported, on average, zero days per week of practice, and 2% reported daily practice. More than 80% of participants reported practicing TAT at home, on average, at least 2 days per week.

Among the 89 TAT participants who attended both the 6-month and 12-month follow-up data collection visits, 64% reported using TAT at least weekly at the time of 6-month follow-up and 19% reported at least weekly use at the 12-month visit (Table 2). A total of 43% of participants (bolded cells in Table 2) appear to have used TAT at least monthly across the entire course of the study follow-up.

In terms of duration, of the 113 TAT participants who reported data at the 6-month follow-up visit, 9% reported doing no TAT at all, 62% reported practicing <10 minutes per session, 27% reported practicing 10–20 minutes per session, and 3% reporting practicing >20 minutes per session.

### Question 2: Satisfaction

One hundred and thirteen TAT participants provided, at 6 months, both CSQ scores as well as data about their expected likelihood of continuing to use TAT in the future. A majority (55%) of the participants reported that they were at least somewhat likely to continue using TAT. CSQ scores for TAT participants were significantly correlated with less weight regain at 6 months ( $r=-0.30$ ;  $p=0.001$ ) and at 12 months ( $r=-0.20$ ;  $p=0.036$ ). The mean (standard deviation [SD]) CSQ satisfaction score for the TAT group ( $n=121$ ) was 2.8 (0.73), while, for the SS group ( $n=123$ ), the mean (SD) CSQ satisfaction score was 2.9 (0.72).

### Question 3: Adherence and Outcomes

The average number of days per week of TAT practice was not significantly associated with changes in weight,

TABLE 1. FREQUENCY OF TAT® HOME PRACTICE

Variables	Average # of days/week of TAT home practice through month 6*								
	0	1	2	3	4	5	6	7	Total
Self-reported number of days/week of home practice									
Number (%) of participants reporting this level of practice	11 (8%)	15 (11%)	40 (28%)	28 (20%)	23 (16%)	14 (10%)	8 (6%)	3 (2%)	142 (100%)

\*Values <0.5 are rounded to zero, values from 0.5 to <1.5 are rounded to 1, etc.

TAT,® Tapas Acupressure Technique.®

TABLE 2. REPORTED FREQUENCY OF TAT<sup>®</sup> PRACTICE OVER THE PREVIOUS 3 MONTHS

6-month follow-up	12-month follow-up			Total (%)
	Not at all (%)	1–3 times/month (%)	At least weekly (%)	
Not at all	8 (9%)	0 (0%)	1 (1%)	9 (10%)
1–3 times/month	17 (19%)	<b>5 (6%)</b>	<b>1 (1%)</b>	23 (26%)
At least weekly	25 (28%)	<b>17 (19%)</b>	<b>15 (17%)</b>	57 (64%)
Total	50 (56%)	22 (25%)	17 (19%)	89 (100%)

Bolded numbers represent participants who appear to have used TAT at least monthly during the course of the entire study follow-up.

TAT,<sup>®</sup> Tapas Acupressure Technique.<sup>®</sup>

stress, insomnia, depression, or QoL ( $p$  for all parameters  $>0.586$ ).

#### Question 4: Types of Participants and Adherence

When average days per week of TAT home practice were regressed against many demographic, psychosocial, and other measures (see Methods), the overall model F test result was not significant, indicating that none of the indicated factors was associated with frequency of TAT home practice.

## DISCUSSION

These data suggest moderate acceptance of, and adherence to, the TAT intervention. The dropout rate was low, session attendance was good, and  $>80\%$  of participants reported practicing TAT at home, on average, at least 2 days per week (Table 1). A majority of participants reported practicing TAT for  $<10$  minutes per session, suggesting that the shortened version of the protocol may be the best choice, at least in research settings.

Whether the rate of home practice reported by participants was adequate or not, or appropriate or not may depend upon the mechanism responsible for any TAT effect, or how TAT is used by a participant. It is often assumed that greater adherence to an intervention correlates with improved outcomes. However, practitioners of TAT, and similar techniques, maintain that symptoms, illness, or counterproductive behavior may be caused by, or attributable to, suppressed trauma or emotions, and that, through proper application of the acupressure practice, these factors can be healed, or definitively resolved.<sup>9</sup> Through the lens of this paradigm, more practice does not necessarily correlate with better outcomes. For example, if counterproductive overeating is triggered by stress-associated recollections of previous emotional trauma, and that conflict or stress is successfully identified and resolved through TAT practice, then the patient is healed, and further practice is unnecessary.

However, qualitative data from another previously published pilot study of TAT for weight-loss maintenance<sup>10</sup> suggest that participants often used TAT to control short-term eating habits and food cravings. These qualitative findings suggest a different model in which the technique can be used as a distraction from, or solution, to food cravings when they inevitably occur. Through this lens, more-frequent practice is likely to be better. Finally, it is also possible that participants may have used the technique in a mixture of these two ways, or in some other fashion.

## CONCLUSIONS

More than 80% of participants reported practicing TAT at home, on average, at least 2 days per week. Satisfaction with TAT correlated with less weight regain; however, frequency of TAT practice did not. The data suggest that further research is required to clarify the mechanism of action of TAT and other self-acupressure techniques. Such an evidence-based mechanistic framework will enable clinicians and investigators to better determine, prescribe, and measure the appropriate frequency of practice in future clinical trials, and to identify populations who are most likely to benefit from an intervention such as TAT.

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## DISCLOSURE STATEMENT

No competing financial interests exist.

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