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# Effects of Brief Daily Kundalini Yoga Meditation on Self-Esteem, Mood and Emotional Self-Efficacy: A Randomized Comparison Study

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This randomized comparison study measured the impact of brief daily use of two types of kundalini yoga meditation from the Yogi Bhajan lineage on self-esteem, regulatory emotional self-efficacy, and positive and negative affect in a non-clinical sample of 46 Spanish-speaking adults residing in Spain. Results of the two meditation types—Kirtan Kriya and Internal Conflict Resolution—are compared. Results showed that both types of meditation had positive impacts on all study variables, though the degree of change and effect size depended on the type of meditation used. Results point to these relevant forms of brief daily meditation as simple and inexpensive tools to improve welfare and support positive personality development in populations without psychological pathologies.

**Keywords:** *meditation, emotional self-efficacy, self-esteem, mood, healthy adults*

**M**editation is an introspective technique developed over millennia, typically linked to religious or spiritual traditions. An operational definition of meditation based on traditional and clinical parameters (Cardoso et al., 2004) has proposed that in order to be characterized as meditation, a process should encompass five characteristics : a) the use of a specific and clearly defined technique; b) muscle relaxation; c) mental relaxation (without intention to analyze its possible effects); d) a self-induced state; and e) the use of some type of self-focus as an anchor for attention. Although traditional classification systems have proposed up to 14 different types of meditation (Goleman, 1978), these can be considered of two basic types: a) meditation with attention centered on one point such as an image, sound or sensation used to quiet the mind; and b) meditation similar to mindfulness that implies opening of the mind to reach state alert to the continuous flow of emotions and sensations without identifying with them (Hussain & Bhushan, 2010).

In the last decades, researchers have examined the effects of meditation on diverse variables and as adjunct psychological treatments.

Indeed, some studies (Baer, 2015; Brooks & Scarano, 1985; Matko et al., 2021) have suggested that therapy and meditation may be connected sequentially and evolutionarily. Brooks and Scarano (1985) concluded that meditation practice has significant effects on the reduction of anxiety, depression, emotional paralysis, alcohol consumption, family conflicts, insomnia, and other symptoms of post-traumatic stress (Koszycki et al., 2007). Other studies suggest that meditation may be a preventive measure for addictions (Carlson & Larkin, 2009; Chen et al., 2010), hypertension (Barnes, et al., 1997), and fears and phobias (Barendregt, 2011).

Despite numerous studies of the effects of meditation on psychological and physiological disorders and their respective treatments, relatively few have focused on its impact on positive attributes such as self-esteem, mood and emotional self-efficacy, sometimes with contradictory or inconclusive results. Some research has indicated a general association with meditation processes and positive changes in aspects personality (e.g., Emavardhana & Tori, 1997; Srideva et al., 1998). For example, Bogart (1991) found that meditation helped patients improve control over psychological

processes and concerns, and that it positively impacted perception of challenges with resulting effect on relaxation, attention, and cognitive restructuring. Hutcherson et al. (2008) suggested that subjects who practice meditation develop more than controls in the direction of positive mental health, self-actualization, and the capacity for intimate social contact. Emavardhana and Tory (1997) found that intense meditation for a short period of time increased self-esteem. Van der Berg and Mulder (1976) found that long-term meditators had significantly higher self-esteem than a control group, as well as improved self-image. Koole et al. (2012) found no consistent effect of meditation on implicit or explicit self-esteem, but an increase of congruence between internal and external self-esteem. Taylor (1995) found significant increases in self-esteem among HIV seropositive patients who followed a meditation program, and Sridevi and Krishna (1998) showed that meditation produced positive personality changes.

Regarding emotional self-efficacy, Oman et al. (2008) found that meditation improved emotional self-efficacy among persons dedicated to caring for others. A study by Astin (1997) concluded that participants who completed a meditation training tended to show greater emotional, affective, and behavioral control. De la Fuente et al. (2010) demonstrated that a meditation program had positive effects on alexithymia and social skills in a student sample. More recently, Charoesnukmongkol (2014) found that the practice of meditation was significantly associated with a greater degree of emotional intelligence and self-efficacy.

Several studies focused on positive development have employed meditation techniques from the kundalini yoga tradition. For example, Suresh et al. (2013) provided evidence that the practice of kundalini yoga was effective in improving emotional stability, and Newberg et al. (2010) found that a meditation program based on the kundalini yoga technique known as Kirtan Kriya (KK) produced improvements in the control of emotions. A qualitative study of a kundalini yoga meditation program documented reports of increased positive mood and behaviors, greater capacity for self-reflection, improved mental clarity, and higher self-esteem (Jindani & Khalsa, 2015).

Kundalini meditation practice has also been linked with improvements in clinical symptoms. In an 8-week randomized controlled study on the effects of kundalini yoga practices symptoms of posttraumatic stress, program participants showed significant improvement in sleep, perceived stress, positive mood, resilience, and anxiety as compared to waitlist controls (Jindani et al., 2015). Implementation of a kundalini yoga protocol with group cognitive behavioral therapy resulted in significant improvements in posttraumatic symptoms and sleep (Staples et al., 2016), and another study found significant improvement of addicts in areas related to daily life, functioning, and behaviors related to active recovery and social, school, and work performance (Khalsa et al., 2008). In addition, practice of kundalini yoga KK meditation for 12 minutes per day during an 8-week meditation program was associated with improved cognitive function and cerebral blood flow in subjects with memory loss in a small preliminary study (Newberg et al., 2010). Family dementia caregivers who followed this same 8-week KK meditation protocol showed improvements in depressive symptoms, cognitive functioning, telomerase activity, and overall mental health (Lavretsky et al., 2013). In related research the effects of KK meditation have been shown to differ from those of other meditation forms (Shannahof-Khalsa, 2004).

Some methodological problems with the studies previously presented derived from failing to separate meditation from other therapeutic techniques, making it difficult to discern whether the improvements were due to the effects of meditation or to a specific combination of processes. Ospina et al. (2007) analyzed 813 medical and psychological studies on the impact of meditation on physiological and psychological variables, concluding that despite the large amount of scientific literature on the subject, most evidence for the efficacy of meditation comes from studies of poor quality.

### Study

The aim of the present study was to test whether a short daily kundalini yoga meditation practice would impact self-esteem, emotional self-efficacy, and mood in a nonclinical adult sample,

and whether the type of meditation practiced would produce differences of effects on those psychological variables. Two types of beginner-friendly meditation from within the tradition of kundalini yoga were chosen, one employing mantra practice—the repetition of sacred sounds—and one without this aspect.

### **Method**

A two-armed randomized comparison trial was used to measure the impact of two types of kundalini yoga meditation on self-esteem, emotional self-efficacy, and mood by comparing pre- and post-test within-subject results in each study arm, and then comparing outcomes between the two arms. The two types of meditation practice are as taught within the Yogi Bhajan lineage, one of which is known as Kirtan Kriya (KK) and includes mantra practice, the other of which is known as Inner Conflict Resolution (ICR) and does not include mantra practice.

The researchers hypothesized that participant post-test assessments in both groups would reflect increased self-esteem, emotional self-efficacy, and positive affect, and decreased negative affect, as compared with pre-test. It was also expected that between-group results would differ on each study measure, due to differences in type of meditation.

### **Participants and Recruitment**

For the study, purposive sampling was used to recruit adult Spanish-speaking Spaniards who reported no previous diagnosis of psychological disorder, and who were of legal age to sign a consent form including a voluntary commitment to carry out 40 daily 11-minute meditations. No criteria for prior meditation experience were established. Participants were contacted by a Center of Kundalini Yoga through Facebook and online advertisement, inviting enrollment in a study of the effects of a kundalini yoga meditation program. No financial compensation was offered for participation; acquaintance with meditation techniques and email support for the duration of the study were the only suggested potential benefits of participation.

### **Instruments and variables**

At the start of the study, participants completed a demographic questionnaire that asked about date

of birth, sex, prior experience with meditation (y/n), if prior meditation experience whether they currently practiced regularly (y/n), length of time in years of any prior meditation experience, whether they have ever practiced kundalini yoga (y/n), and if so whether currently they practice it regularly (y/n). Before and after the intervention self-report measures were administered to assess self-esteem, levels of positive and negative affect, and perceived ability to manage the expression of affect (regulatory emotional self-efficacy).

After the study participants were also asked to report whether they had missed any practice sessions or days, and if so how many had been missed. They were also asked whether they experienced any changes facilitated by the meditation program (y/n), and if yes, whether the change was experienced as negative or positive.

1. *Rosenberg Self-Esteem Scale* (RSES; Rosenberg, 1965) is a widely used self-report instrument for evaluating individual self-esteem composed of a 10-item scale that measures global self-worth by assessing both positive and negative feelings about the self. Psychometric evaluation confirms that scale is unidimensional. All items are answered using a 4-point Likert scale ranging from *strongly agree* to *strongly disagree*. For the Spanish population the test exhibits the following properties: reliability ( $\alpha = .87$ ), test-retest reliability ( $r = .72$ ) over a two-month interval and ( $r = .74$ ) over a one-year interval (Vazquez, Jimenez & Vazquez, 2004). RSES scores showed a substantial negative correlation with the total score on a scale of pathological symptoms, the Symptom Checklist-90-Revised (SCL90R;  $r = -.61$ ), indicating good construct validity.

2. *Positive and Negative Affect Schedule* (PANAS; Watson & Tellegen, 1988) is a widely used self-report instrument comprises two mood scales, one measuring positive affect and other negative affect. The scale is composed of 20 items, 10 each for positive and negative affect. All items employ a 4-point Likert scale for indicating congruence with actual mood. For the Spanish population the test exhibited reliability of the positive affect scale at  $\alpha = .89$  and reliability of the negative affect scale at  $\alpha = .91$  (Sandin et al., 1997).

3. *Regulatory Emotional Self-Efficacy* (RESE). The RESE scale was developed to assess perceived self-efficacy in managing negative affect and in expressing positive affect. It is composed of 15 items answered using a 5-point Likert scale format ranging from *unable* to *fully capable*. The present study used the Spanish version (Caprara et al., 2014) which exhibits good reliability ( $\alpha = .84$ ).

### Procedures

Prior to the start of the study participants were assigned to one of the two experimental conditions based on use of a random number generator. Participants were then supplied electronically with a demographic questionnaire along with other pre-test instruments and written and video instructions for 40 daily 11-minute meditations. Participants reported compliance with the meditation requirement on daily report forms. At the end of the trial period participants were again electronically provided with the study instruments for post-test assessment.

Written instructions for the two meditation practices were as follows (instructions were provided to participants in Spanish and were translated into English for this publication).

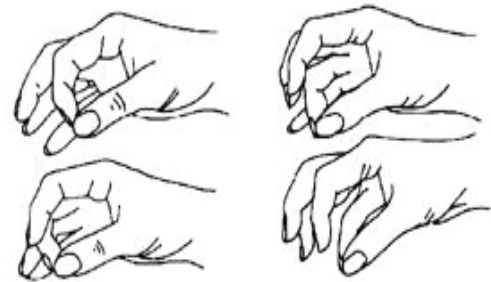
**Kirtan Kriya.** This is an easy to learn type of meditation based on awakening the energy of the body, which yogis visualize as a snake that nests at the base of the spine and which must ascend through it until reaching the crown area. In the body energy moves through channels that yogis call “rivers.” To get energy to flow through these channels KK uses the mantra (SA-TA-NA-MA) and fingers for meditation. During a session of 11 minutes of KK we require to the participant follow the next instructions:

1. Sit in an easy posture (on a cushion with crossed legs on the floor, you can also use a meditation stool or a chair with both feet flat on the floor and back straight and not supported on the back).
2. Slightly bend your neck down (as if you wanted to keep an apple between your chin and chest), this is very light, it is about getting your back as straight as possible, but you should not force or worry excessively whether you do it right or wrong).
3. Close your eyes and focus on the chest.

With arms straight and the hands resting on the knees, press one fingertip after another against the tip of the thumb, once with each sound, always beginning with the index finger. You will be touching the fingers of both hands simultaneously, maintaining the movement throughout the meditation

- a. SA The thumb and forefinger
- b. TA The thumb and middle finger
- c. NA thumb and ring finger
- d. MA The thumb and the little finger

While singing whispering, or silently repeat-



ing the mantra, mentally visualize a light and the sound of the consonants S, T, N, and M entering through the top of the head, and the letter A leaving through the brow, as if the sound would make an L in your head.

e. Vibration of the mantra: a) first sing aloud for 2 minutes, b) then sing for 2 minutes with a loud whisper, c) then sing for 3 minutes in silence, d) again sing for 2 minutes with a loud whisper, and e) finally sing aloud for 2 minutes (you may follow the music that we attach so as not to worry about the time or, if you prefer, you can time yourself with a timer).

4. To finish, inhale deeply, raise your arms, exhale, and shake your arms for about 1 minute. If during the silent part of the meditation your mind wanders, returns to the whisper, the loud voice, the whisper and again the silence. Do this as many times as necessary.

**Inner Conflict Resolution.** This type of meditation is based on the assumption that human beings have internal conflicts blocking their ability to think and act clearly. Under the presence of such conflicts the energy of the mind (*prana*) is dispersed and poorly distributed, causing *prana* deficiencies in important areas of psychological and physical

functioning. Through meditation, *prana* is cultivated in order to reorganize and form a new pattern that allows the person to organize and act effectively using the total of their resources. During a session of 11 minutes of ICR the participant should follow the instructions below:

1. Sit in an easy posture (on a cushion with crossed legs on the floor, you can also use a meditation stool or a chair with both feet flat on the floor and back straight and not supported on the back).
2. Place the hands on the chest, with the palms on the torso at the level of the breasts. The fingers point towards each other, transversely.
3. Breathing: The key to this meditation is attention to breathing. Inhale deeply and completely for 5 seconds. Exhale completely for 5 seconds. Hold your breath out for 15 seconds, by suspending the chest movement while pulling in the abdomen (you mentally count this time)
4. To finish, inhale deeply and stretch your arms above your head. Relax your breathing and shake your arms and hands for 15–30 seconds. Just relax.

### Data Analysis

Shapiro-Wilk test for normality and Levene test for homoscedasticity were administered for both groups. Research hypotheses were tested using *t*-tests to test for significance and Cohen’s *d* to assess effect sizes, possible associations with age were tested by calculating Pearson correlations. Analysis was conducted to determine the impact of age, sex, prior meditation experience, and compliance with the intervention protocol.

### Results

All study measures were completed by 46 of the 72 initial subjects (39F/7M), who were Spanish-speaking Spaniards with a median age of 45.98 (SD = 8.78; range 32–70). Twenty-three participants engaged in each of the two types of meditation practice under study (KK, ICR).

In order to test the groups’ homogeneity prior to the intervention, a comparison of means of the total scores on the study instruments was made

using a Student’s *t*-test. We confirmed that the means of the total scores on the pretest had no statistically significant between-group differences. The Levene test for homoscedasticity indicated adequate within-group and between-group normalcy, despite the significant skew in distribution of sex (39F/7M).

Prior experience with meditation did not appear to be a variable that impacted outcomes, given that the majority of participants were relative beginners. Although 80.4% of the subjects had some previous experience with meditation (Table 1), only 17.4% were regular practitioners and the mean number of years of practice was 2.4 (SD = 1.96).

As can be seen in the Table 1, 80.4% and 43.5% of the participants had prior experience with meditation and kundalini yoga, respectively but only 17.4% and 28.2% were regular practitioners currently. On the other hand, most participants (91.3%) perceived a change after the study, and

	F	%	M	%
Enrolled participants Age 32-70 (M = 45.98; SD = 8.78)	39	80.4	7	19.6
Internal Conflict Resolution	20		3	
Kirtan Kriya	19		4	
Variable	Y	%	N	%
Prior meditation experience	37	80.4	9	19.6
Adherence to current meditation	8	17.4	38	82.6
Prior KY practice	20	43.5	26	56.5
Adherence to KY practice	13	28.2	33	71.8
Self-perceived change	42	91.3		
Positive	41	89.1		
Negative	1	2.2		
None	4	8.7		
Days of practice missed				
0	16	34.8		
1	5	10.9		
2	11	23.9		
3	8	17.4		
4	2	4.3		
5	1	2.2		
6	3	3.5		
>6	0	0.0		

**Table 1. Demographic variables**  
*KY = kundalini yoga*

89.1% reported that this change was positive. Only 10% of participants reported missing more than 3 practice days.

### **Impacts of Meditation Programs**

As expected, across both meditation groups (KK, ICR) assessments of participants' self-esteem, regulatory emotional self-efficacy, and positive affect increased after completion of the meditation program, while scores on negative affect decreased—all results with moderate to large effect sizes. The mean scoring on a measure of self-esteem was higher after the 40-day meditation program ( $M = 35$ ,  $SD = 3.60$ ) than before ( $M = 25.76$ ,  $SD = 2.25$ ), a difference that was statistically significant [ $t(45) = 13.83$ ,  $p < .000$ ]; effect size was large (Cohen's  $d = 0.90$ ). Similarly, participants showed increased self-efficacy in managing negative emotions after performing meditation ( $M = 130.59$ ,  $SD = 17.12$ ) relative to pre-test ( $M = 115.63$ ,  $SD = 17.61$ ), and this difference was statistically significant [ $t(45) = 6.241$ ,  $p < .000$ ], with a medium effect size ( $d = 0.687$ ). Participants also demonstrated a higher mean score on positive emotions after the meditation program ( $M = 32$ ,  $SD = 3.83$ ) than before ( $M = 28.02$ ,  $SD = 3.93$ ), a difference that was statistically significant [ $t(45) = 7.44$ ,  $p < .000$ ] with a large effect size ( $d = 0.74$ ). At the same time, participants showed a lower mean score on negative emotions at post-test ( $M = 16.98$ ,  $SD = 4.08$ ) than at pre-test ( $M = 20.07$ ,  $SD = 4.67$ ), which was statistically significant [ $t(45) = -5.39$ ,  $p < .000$ ] with a medium effect size ( $d = 0.62$ ).

In line with prediction, participants using the KK meditation protocol showed greater mean increases than those participating in the ICR meditation on measures of self-esteem and positive affect at statistically significant levels; KK meditation participants also had a greater increase in mean score on measures of regulatory emotional self-efficacy and a greater decrease in mean score on negative emotions, but results were not statistically significant. In these samples the KK meditation was found to be moderately more effective than the ICR meditation at increasing self-esteem and positive affect. On average, participants who performed KK meditation showed higher self-esteem ( $M = 36.17$ ,  $SD = 3.33$ ) than those who performed ICR meditation ( $M = 33.83$ ,  $SD = 3.55$ ), and this difference was statistically

significant [ $t = 2.31(44)$ ,  $p = .025$ ] with a moderate-to-low effect size ( $d = 0.33$ ). Similarly, participants who performed KK meditation showed higher scores on positive affect ( $M = 33.26$ ,  $SD = 3.65$ ) than those who performed ICR meditation ( $M = 30.74$ ,  $SD = 3.66$ ), and this difference was statistically significant [ $t(44) = 2.34$ ,  $p = .024$ ] with a moderate-to-low effect size  $d = 0.34$ . While participants who performed the KK meditation also showed greater self-efficacy in managing negative emotions ( $M = 133.65$ ,  $SD = 19.36$ ) than those who performed the ICR meditation ( $M = 127.52$ ,  $SD = 14.33$ ), this difference was not statistically significant [ $t(44) = 1.22$ ,  $p = .123$ ]. KK meditation participants also showed a lower level of negative mood ( $M = 16.09$ ,  $SD = 3.68$ ) than those who performed the ICR meditation ( $M = 17.87$ ,  $SD = 4.34$ ), which again was not statistically significant [ $t(44) = -1.50$ ,  $p = .140$ ].

### **Impacts of Demographic Variables**

Variables of sex, previous experience with meditation, and study compliance were responsible for no statistically significant variations in outcomes other than prior meditation experience, which correlated with higher emotional self-efficacy.

1. *Sex.* Participant improvements were not affected by participant sex, suggesting that the strong skew towards women participants (39F/7M) likely did not have a substantive impact on study outcomes. For self-esteem, mean scores on the post-test for women were equal to those for men ( $M = 35$ ,  $SD = 3.53$  and  $SD = 4.28$  respectively). For emotional self-efficacy, the mean score for men ( $M = 131.86$ ,  $SD = 16.47$ ) was slightly higher than that for women ( $M = 130.36$ ,  $SD = 17.44$ ), but this difference was not statistically significant [ $t(44) = -.211$ ,  $p = .834$ ]. Finally, the mean score on negative emotions was slightly higher for women ( $M = 17.15$ ,  $SD = 4.177$ ) than for men ( $M = 16$ ,  $SD = 3.606$ ), but this difference was not statistically significant [ $t(44) = .685$ ,  $p = .497$ ]. The mean score on positive emotions was slightly higher for men ( $M = 32.71$ ,  $SD = 3.946$ ) than for women ( $M = 31.87$ ,  $SD = 3.847$ ), but again the difference was not statistically significant [ $t(44) = -.532$ ,  $p = 8.184$ ].

2. *Previous experience with meditation.* For self-esteem, average scores on the post-test for participants with previous meditation experience

were slightly higher than for participants without such experience ( $M = 35.16$ ,  $SD = 3.412$  and  $M = 34.33$ ,  $SD = 4.472$  respectively), but this difference was not statistically significant [ $t(44) = .615$ ,  $p = .542$ ]. For emotional self-efficacy, the mean score for participants with meditation experience ( $M = 133.32$ ,  $SD = 15.850$ ) was higher than for participants with no experience ( $M = 119.33$ ,  $SD = 18.493$ ), and this difference was statistically significant [ $t(44) = 2.301$ ,  $p = .026$ ]. Finally, the mean score on negative emotions was slightly higher for participants with meditation experience ( $M = 17.14$ ,  $SD = 4.315$ ) than for participants who lacked previous meditation experience ( $M = 16.33$ ,  $SD = 3.041$ ), but this difference was not statistically significant [ $t(44) = .525$ ,  $p = .603$ ]. In the same way, the mean score on positive emotions was slightly higher for participants with previous meditation experience ( $M = 32.24$ ,  $SD = 3.954$ ) than for those without such experience ( $M = 31.00$ ,  $SD = 3.279$ ), but again the difference was not statistically significant [ $t(44) = .871$ ,  $p = .388$ ].

3. *Adherence to meditation practice.* This variable refers to the number of days participants did not comply with the meditation protocol. Participant adherence to the meditation program was generally good, with 32.6% reporting no days missed and 67.4% reporting 1 to 6 days missed. There was no difference in the post-test scores of self-esteem between participants who missed one or more days doing meditation during the intervention and participants who meditated every day ( $M = 35.35$ ,  $SD = 3.684$  and  $M = 34.27$ ,  $SD = 3.432$ ;  $t(44) = .960$ ,  $p = .343$ ). Regarding emotional self-efficacy, the mean score for participants who did not lose days ( $M = 132.26$ ,  $SD = 14.528$ ) was slightly higher than for participant who did ( $M = 127.13$ ,  $SD = 21.712$ ), but this difference was not statistically significant [ $t(44) = .950$ ,  $p = .347$ ]. Finally, the mean score on negative emotions was slightly higher for participants who meditated every day ( $M = 17.06$ ,  $SD = 4.098$ ) compared to participants who missed days ( $M = 16.80$ ,  $SD = 4.178$ ), but this difference was not statistically significant [ $t(44) = .204$ ,  $p = .839$ ]. In the same way, the average score on positive emotions was slightly higher among participants who meditated every day ( $M = 32.06$ ,  $SD = 3.812$ ) than those who lost days ( $M = 31.87$ ,  $SD = 3.998$ ), but again the difference

was not statistically significant [ $t(44) = .162$ ,  $p = .872$ ].

4. *Age.* No significant association was found between the measured variables and age: self-esteem ( $r = -0.19$ ,  $p = .19$ ); emotional self-efficacy ( $r = 0.20$ ,  $p = .17$ ); positive emotions ( $r = -0.14$ ,  $p = .32$ ); or negative emotions ( $r = -0.12$ ,  $p = .39$ ).

#### **Subjective Experience of Positive Change.**

Of the 46 participants completing the study, 42 indicated perceptions of positive changes after the meditation process (see Table 1), when asked (qualitatively) about this positive change they offer answers such as "I gained peace of mind and mental control," "I have noticed that I was feeling calmer every day. and regarding some conflicts, they almost disappeared," "I have improved my breathing," "a moment for me" or "hope." The ANOVA results of the means differences show that there is no difference in any variable between the three groups according to their perception of change (better, worse, equal): self-esteem ( $F = 1.62$ ,  $p = .20$ ); emotional self-efficacy ( $F = 0.06$ ,  $p = .94$ ); positive emotions ( $F = -0.55$ ,  $p = .58$ ); negative emotions ( $F = -0.96$ ,  $p = .38$ ).

#### **Discussion**

The present study showed that moderate daily practice of Kirtan Kriya (KK) and Internal Conflict Resolution (ICR) kundalini yoga meditations can increase levels of self-esteem, positive affect, and regulatory emotional self-efficacy, and decrease negative affect, with robust (medium to large) effect sizes. In this study these outcomes were not dependent on sex, age, prior experience with meditation, or rigid compliance with a meditation program. These results, generally in line with evidence from prior literature, point to the promising feasibility of providing a simple, inexpensive, and easy to use tool that appears able to improve the welfare and personal development in populations without diagnosed psychological pathologies. Analysis of qualitative gains has shown that meditation participants in non-clinical populations typically feel more secure, hopeful, committed and that their conflicts have decreased, regardless of the meditation program used or variables such as sex, age, regularity of practice, or previous meditation



practice (Barnes et al., 1997; Bogart, 1991; Cardoso et al., 2004; Hendricks, 2018; Suresh et al., 2013). This study also helps to expand the focus of meditation research beyond the specific techniques of mindfulness.

Despite the advantages mentioned above, this research also has some limitations that may generate future studies: the fact that recruitment and facilitation of the study was conducted through a Center of Kundalini Yoga, which has investment in the efficacy of the meditation forms it offers to the public, may have biased the study's design or execution. The fact that nearly half of the sample had some prior experience with kundalini yoga meditation practice reflects a potential bias within the sample. Despite statistical evidence of adequate within-group homoscedascity, the sex imbalance in the sample may have had a biasing effect. The absence of a control group prevented ruling out the impact of extraneous variables on results. The absence of follow-up assessments precluded determination of the durability of changes associated with meditation. Use of a non-clinical population precluded evidence for the potential impact of these meditation practices on individuals with psychological disorders.

Future studies should be done to include a longitudinal design, a control group, and should include samples with common psychological diagnoses such as depression, anxiety, and trauma.

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