GRUPO EDITORIAL DE PSICOFUNDACIÓN

Revista de Psicoterapia (2026) 37(133) 92-101

Revista de Psicoterapia

https://revistadepsicoterapia.com • e-ISSN: 2339-7950

Universidad Nacional de Educación a Distancia (UNED)

Article

Psychological Effects of a Training in Serenity and Mindful Awareness (Mindfulness-based Mental Balance Program) in Inexperienced Meditators

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ARTICLE INFO

Received: 05/08/2024
Accepted: 28/12/2025

Keywords:
Mindfulness
Meditation
Psychological flexibility
Human suffering
Well-being
Personal growth

ABSTRACT

Background: The Mindfulness-based Mental Balance (MBMB) is an original and Spanish Mindfulness-based program developed in the Faculty of Psychology of the Spanish National University of Distance Education (UNED) as consequence of the teaching of mindfulness-based meditation for 13 years (1999-2012) in a weekly workshop during the academic course. The mindfulness-based interventions have traditionally focused on reducing symptoms associated with stress or clinical conditions. However, the original aim of meditation has a soteriological sense focused on the development of human potential and the reduction of suffering. The MBMB program is closed to this original sense of meditation and focuses its aim into de human growth or development context. **Methods:** The present study was performed to assess the effects of level 1 of MBMB on the improvement of variables related to psychological flexibility and the reduction of human suffering. A multiple baseline across subjects design was followed, with episodic measurements in the pre- and post-training phases, and ecological measures. **Findings:** At the end of the training, significant improvements were found in mindfulness and life satisfaction scores. Likewise, cognitive fusion, state-anxiety, stress, and neuroticism scores decreased. **Conclusions:** The results of the study show evidence of the preliminary efficacy of MBMB to promoting psychological flexibility and well-being.

Efectos Psicológicos de un Entrenamiento en Serenidad y Consciencia Mindful (Programa de Bienestar Psicológico Basado en Mindfulness) en Meditadores Noveles

RESUMEN

Antecedentes: El programa de Bienestar Psicológico Basado en Mindfulness (MBMB) es un programa original y español, de entrenamiento en Mindfulness, desarrollado en la Facultad de Psicología de la Universidad Nacional de Educación a Distancia (UNED), como consecuencia de la enseñanza de la meditación basada en mindfulness, durante 13 años (1999-2012), en talleres semanales de un curso académico de duración. Las intervenciones basadas en

Cite as: Carmona-Rincón, I., García-Palacios, A., & Segovia Vázquez, S. (2026). Psychological effects of a training in serenity and mindful awareness (Mindfulnessbased Mental Balance Program) in inexperienced meditators. *Revista de Psicoterapia, 37*(133), 92-101. https://doi.org/10.5944/rdp.v37i133.42020

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Palabras clave:
Mindfulness
Meditación
Flexibilidad psicológica
Sufrimiento humano
Bienestar
Crecimiento personal

mindfulness se han centrado tradicionalmente en la reducción de síntomas asociados al estrés o condiciones clínicas. Sin embargo, el objetivo original de la meditación tiene un sentido soteriológico, centrado en el desarrollo del potencial humano y la reducción del sufrimiento. El programa MBMB se adhiere a este sentido original de la meditación, y centra su objetivo en el contexto del crecimiento o desarrollo humano. El presente estudio evaluó los efectos del nivel 1 de MBMB en la mejora de las variables relacionadas con la flexibilidad psicológica y la reducción del sufrimiento humano. **Método:** Se siguió un diseño de línea base múltiple entre sujetos, con mediciones episódicas en las fases pre y post entrenamiento, y medidas ecológicas a lo largo de todo el entrenamiento. **Resultados:** Al finalizar el programa, se encontraron mejoras significativas en las puntuaciones de mindfulness y satisfacción vital. Asimismo, disminuyeron las puntuaciones de fusión cognitiva, ansiedad-estado, estrés y neuroticismo. **Conclusiones:** Los hallazgos muestran evidencia de la eficacia preliminar de MBMB para promover la flexibilidad y el bienestar psicológicos.

Introduction

Mindfulness, or better, mindfulness-based meditation (Segovia, 2017), is has been understood differently depending on the historical moment and context of its use, however its function and purpose within psychospiritual growth is clear: to eliminate the causal root of suffering through inducing meaningful and lasting changes in cognition, emotion, and behavior (van Vugt et al., 2019). Likewise, exercising of mindfulness-based meditation correctly requires both, the development of an ethical and virtuous discipline and the wisdom necessary to understand the roots of suffering (Purser & Milillo, 2014). In other words, mindfulness-based meditation is part of the Buddhist Noble Eightfold Path, and it is in this context that mindfulness has full meaning and, probably, offers to the meditator all its potential benefits (Segovia, 2019). However, training programs such as Mindfulness-based Stress Reduction (Kabat-Zinn, 1982, 2017) and analogues are relatively distant from this original meaning, which has led to controversy in the scientific community and clinical practice (van Dam et al., 2018; Thupten, 2019). Mindfulness is not only a tool to improve attention or reduce stress, but essentially a path of personal development (Segovia, 2017), which gives rise to a way of relating to our internal and external context from serenity, patience, intelligence, commitment, collaboration, kindness, and compassion (Anālayo, 2020).

The Mindfulness-based Mental Balance (MBMB) program (Segovia, 2017) is an original and Spanish training resulting from the teaching of mindfulness-based meditation carried out by its author at the Faculty of Psychology of the Spanish National University of Distance Education (UNED) during the period 1999-2012. MBMB bringing mindfulness-based meditation back to its original meaning –but Westernized– and making sure that the practice is consolidated and developed with a logical progression inspired by the fundamental Buddhist texts and empirical experience. To this purpose, the MBMB is structured into three levels of training: (1) development of serenity and pointing to the state of mindful awareness (natural state of consciousness); (2) stabilization of mindful awareness in daily life, and emotional and motivational self-regulation; (3) choiceless awareness, state of presence and cognitive restructuring (development of the wisdom of impermanence, emptiness, and non-duality of all phenomena). As the MBSR (Kabat-Zinn, 1990) and the Mindful Self-Compassion (MSC) (Germer & Neff, 2019) programs, the MBMB includes serenity and compassionate practices, but also includes emotional autoregulation, choiceless or simply sitting, as well as wisdom practices.

We have previously tested the effects of a training of MBMB in expert meditators, finding significant improvements in mindfulness, self-compassion, agreeableness (personality), life satisfaction (subjective well-being), cognitive fusion and perceived stress (Carmona-Rincón, 2021). The present study is focused on the MBMB Level 1, which offers a didactic methodology to serenade the mind and to point out the mindful awareness, that is, to recognize what in Eastern traditions is called the Great Mind, Original Mind or Witness Consciousness (Segovia, 2017). The starting point is based on the instructions contained in the Satipatthana Sutta and the Anapanasati Sutta (Solé-Leris & Vélez de Cea, 1999). Thus, in the first instance the practitioner pays attention to the breath, with the back erect, etc., while exercising *sati* (mindfulness itself) (Segovia, 2019); that is, he or she becomes aware of the distraction and remembers to return with equanimity to the attentional support (the breath). The drawback of the traditional methodology is that it requires a very long time of practice until the mental agitation ceases and may be that the practitioner realizes the natural or mindful state of consciousness. MBMB Level 1 is, however, structured in different stages specifically designed to facilitate, relatively quickly, the decrease and eventual extinction of mind wandering and to be able, then, to point out the mindful awareness and invite the practitioner to recognize it (initiation). From this state the practitioner will be able to establish a new style of relating to his or her internal and external context. The aim of the study was to assess the effects of a training in MBMB Level 1 on different psychological variables in inexperienced subjects. Our hypothesis was that training would produce improvements in mindfulness scores and life satisfaction. In contrast, scores on neuroticism, cognitive fusion, perceived stress, and anxiety (state and trait) should be reduced.

Method

Design

A multiple baseline across subjects design was used for this study (Barlow et al., 2009). This type of design allows us to demonstrate the effects of training on the dependent variables in each participant (individual level) and is recommended when we wish to test novel interventions before they are implemented on a larger scale in randomized controlled trials. Following Kratochwill et al. (2010), three experimental conditions were established: condition 1 (C1), 8-day baseline; condition 2 (C2), 10-day baseline; and condition 3 (C3), 12-day baseline. This type of design allowed

observation of variable scores over several days, both at the beginning and at the end of the study. Also, detailed measurements were obtained throughout the training (up to 76 measurements per subject). The participants were randomly assigned to each condition, and although twelve subjects initially collaborated, three of them dropped out of the study, so the final sample was nine participants. Thus, C1 was composed of two subjects, C2 of four and C3 of three.

Participants

The sample consisted of nine participants of Spanish nationality, six women and three men, aged between 35 and 55 years (M = 41.08; SD = 6.58). The subjects were students enrolled in MBMB Level 1, with no previous experience in meditation, who decided to participate voluntarily in the study. As this was a course aimed at the general population and held in a private clinic, the only inclusion criterion was to accept the invitation to commit to a regular meditation practice of at least fifty minutes per week between sessions, as well as to complete the high volume of measurements required by the design.

Procedure

The study was approved by the Deontological Commission of the Faculty of Human and Social Sciences of the Universitat Jaume I of Castellón (Spain). Before starting the training, the nature and purpose of the trial were explained to the group of students. Afterwards, their voluntary participation was requested, and those subjects who agreed to participate signed the informed consent form and completed the questionnaires to establish the baseline.

Two types of assessments were conducted: i) a traditional episodic assessment with full scales (see description of measures), both at baseline and at the end of training; and ii) an ecological momentary assessment with a reduced protocol (see description of measures) throughout the study. With respect to this assessment, participants completed self-report measures daily during baseline and twice weekly during the training phase.

Randomization and Blinding

The random sequence was generated by an online application (randomizer.org), used by an independent assessor blinded to the study. Afterwards, the assignment to each experimental condition was communicated to the principal researcher, who designated a code to each participant to conceal his or her identity. This researcher was also in charge of requesting the different measures from the participants during the study. For their part, both the participants and the instructor were blinded to the design and the assigned experimental condition.

Program

The training was the standardized protocol of the MBMB Level 1 program (Segovia, 2017). Briefly, the training is conducted in 12 stages. In the first, the practitioner focuses attention on the breath and trains in cognitive defusion and equanimity based on the attitude of not resisting but not surrendering to thoughts (No R-No R rule), refocusing attention to the breath with equanimity. Thus, mental wandering is defusion just at the time the practitioner is aware of what he is thinking. In the second stage, to prevent intrusive thoughts, the practitioner introduces a labeling as "in" and "out" while breathing and maintains the cultivation of cognitive defusion based on the No R-No R attitude. The third and fourth stages are aimed at further enhancing vagal activity and concentration by bringing attention to the exhalation and counting exhalations. During the fifth and sixth, the practitioner maintains attention on the exhalation, preventing intrusion of thoughts and wandering with the *AH* mantra while exhaling, and discovering the Still Point (natural moment of apnea between the end of the exhalation and the spontaneous beginning of the inhalation). In the seventh stage, the practitioner is invited to realizes that in the moment of the still point, the mind is naturally calm, silent, still. In this way the mantra *AH* is associated with the stillness of the mind (classic conditioning that helps to calm down in everyday life). The next three stages are oriented to generate a loop of serenity that allows the practitioner to attend to the breath with the mind in silence, without digression. Finally, in the last three stages, the initiation is performed, pointing out the mindful awareness (serene, awake and equanimous consciousness) and inviting the practitioner to recognize it and rest in it.

Participants received 38 hours of instruction, weekly one-hour group sessions for 38 weeks. In addition, subjects were invited to made a commitment to practice at least fifty minutes per week between sessions.

Instructor

The program was conducted by a physician, with extensive meditative experience and certified as an instructor of the MBMB program.

Measurements

In the study, episodic and momentary ecological assessment were taken. The episodic assessment was aimed at measuring changes at the group level, and the momentary ecological assessment was taken to explore individual changes in the participants.

Episodic Assessment

The episodic assessment was performed twice, i.e., in pre and post-training. Full version of the scales was used, completed with paper and pencil at the training site. The measures used were as follows:

Five Facets of Mindfulness Questionnaire (FFMQ; Baer et al., 2006) Spanish version of Cebolla et al. (2012). It is a questionnaire composed of 39 items which evaluate five facets of mindfulness: 1) observe, 2) describe, 3) act with awareness, 4) non-judging of inner experience, and 5) non-reactivity of inner experience. The items are answered on a five-point Likert scale (from 1 = *never* or *very rarely true* to 5 = *very often* or *always true*). A high score indicates a greater capacity to remain aware of the here and now (39 – 195). The Spanish validation has shown adequate reliability values (with a Cronbach's alpha of .88 for the global scale), convergent and divergent validity.

Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), Spanish version of Soler et al. (2012). It consists of a 15-item unifactorial self-report scale that assesses the disposition

of individuals to be attentive and aware of the present moment daily. Its response format is Likert-type, six-point, where the subject indicates the degree of frequency with which each of the statements takes place (1 = *almost always;* 6 = *almost never*). The higher the score obtained, the greater the dispositional ability to be fully conscious (15 – 90). The Spanish validation has shown adequate values of validity (convergent and divergent) and reliability (Cronbach's alpha of .897 and stability coefficient of .823).

Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014) Spanish version of Romero-Moreno et al. (2014). It is a unidimensional questionnaire that assesses cognitive fusion, *i.e.*, the extent to which the subject's behavior is hindered by his or her thinking. It is composed of 7 seven-point Likert-type scale items (from 1 = *never* to 7 = *always*). The sum total of the responses indicates the level of cognitive fusion, the more positive the index the lower the score (7 – 49). The Spanish version of this instrument has a Cronbach's Alpha of .87, as well as adequate criterion and construct validity.

Satisfaction With Life Scale (SWLS; Diener et al., 1985), Spanish version of Núñez et al. (2010). It is a 5-item single-factor scale that assesses subjective well-being. It is answered with a seven-point Likert scale (from 1 = *totally disagree* to 7 = *totally agree*). The higher the score, the higher the life satisfaction index (5 – 35). The Spanish adaptation has a Cronbach's alpha of .85 and a stability coefficient of .69.

State-Trait Anxiety Inventory (STAI; Spielberger et al., 1970), Spanish version of Guillén-Riquelme & Buela-Casal (2011). The STAI consists of two scales, assessing anxiety as a state (STAI-E) and as a trait (STAI-R). Each scale has 20 four-point Likert-type items (from 0 = *not at all* to 3 = *very much*). Anxiety, in both cases, is higher the higher the score obtained (0 – 60). The scale has a Cronbach's alpha of .90 in the case of the STAI-R and .94 in the case of the STAI-E.

Perceived Stress Scale (PSS; Cohen et al., 1983). Adapted to Spanish by Remor (2006), the PSS assesses perceived stress through a single-factor scale of 14 5-point Likert-type items (from 0 = *never* to 4 = *very often*). The higher the score obtained, the higher the perceived level of stress (0 – 56). The Cronbach's alpha of this version is .81, with a stability coefficient of .73.

Neuroticism Scale of the "NEO Personality Inventory Revised" (NEO-PI-R; Costa et al., 1995), Spanish version by Cordero et al. (2008). The NEO-PI-R inventory consists of 240 items, 48 of which measure neuroticism. The response format is a five-point Likert-type (from 1 = *strongly disagree* to 5 = *strongly agree*). Its correction returns a profile of typical scaled scores (25 – 75). The Cronbach's alpha of the neuroticism factor is .87.

Ecological Momentary Assessment

Ecological momentary assessment took place daily throughout the establishment of the baseline. Throughout the training, these measurements were performed twice a week, following the recommendations of Kratochwill et al. (2010). An *ad hoc* questionnaire was designed for this evaluation. Specifically, from the instruments used for the episodic assessment, the item that most saturated in each variable was selected (*i.e.*, one item in the case of unidimensional instruments, and one item for each factor in the case of multidimensional instruments). The selected items include measures of the five facets of mindfulness (observe, describe, act with awareness, non-judging of inner experience, and non-reactivity inner experience), state-anxiety, life satisfaction and stress. In all cases, the measurement scale of the original instrument was used.

On the other hand, and to reduce the burden of daily measurements, the trait constructs (trait-anxiety, cognitive fusion and neuroticism) were not included in this assessment, as no significant changes can be expected in the short time. Finally, the assessment process was performed by sending a personalized Google Questionnaires link to each participant's smartphone.

Data Analysis

Changes in the study variables were investigated at both the individual and group level. At the individual level, we use the nonoverlap of all pairs (NAP) index (Parker & Vannest, 2009)an index of data overlap between phases in single-case research, is demonstrated and field tested with 200 published AB contrasts. NAP is a novel application of an established effect size known in various forms as Area Under the Curve (AUC. The recommended cutoff points for interpreting effect sizes obtained using the NAPs are as follows: < .65 (small effect), .66 – .92 (moderate effect) and > .93 (large effect). Also, NAP scores below .50 are considered as "deterioration", indicating that the subject has experienced a deterioration in the score of the variable analyzed. The NAP index was calculated for all variables for which repeated measures were taken (both at baseline and training): observing, describing, acting, non-judging and non-reacting, anxiety (state), life satisfaction and stress. Higher values in the NAP indices reflect changes in the expected direction (including anxiety and stress, whose values were inverted for correct analysis).

For the calculation of pre- and post-training changes at the group level, the data were analyzed using the IBM SPSS Statistics 25 statistical package. Changes between levels were also analyzed to determine the evolution of changes over time, as well as to deduce the effects of each level. Due to the sample size, the nonparametric Wilcoxon t-test for related samples (bilateral) was applied. The confidence level was 95%. The effect size and statistical power were calculated using the G*Power 3.1 program. The effect size (Cohen's d_z) was interpreted qualitatively according to the standardization indicated in Cohen (1988), *i.e.*, small for scores of .20, medium for .50, and large for .80 or higher. The power of the test was considered sufficiently powerful with values at or above .80.

Results

Retention

The study began with the participation of twelve subjects. However, during the study three of them dropped out for reasons unrelated to the training. Thus, the final sample consisted of nine participants.

Changes at the Individual Level

Table 1 shows the NAP indices. As can be seen, training produced small changes (.50 ≤ NAP ≤ .65) in 29 measures, and moderate (.66 ≤ NAP ≤ .92) in 34. Also, deterioration indices were found in 9 measures (NAP < .50).

Table 1
Calculation of NAP Indices Comparing Baselines and Training Effects

Dependent Variable	ID	NAP	NAP Interpretation	*Z*	*p*	85% IC	90% IC
Observe	1	.65	Small	4.76	.00	.43	.87
	2	.61	Small	4.50	.00	.39	.84
	3	.83	Moderate	3.77	.00	.63	1.00
	4	.83	Moderate	3.78	.00	.63	1.00
	5	.62	Small	1.51	.00	.42	.82
	6	.43	Deterioration	-0.76	.00	-.64	.24
	7	.79	Moderate	3.81	.00	.61	.98
	8	.80	Moderate	4.16	.00	.62	.99
	9	.85	Moderate	4.07	.00	.66	1.00
Describe	1	.35	Deterioration	-2.63	.01	-.14	.59
	2	.50	Small	0.00	1.00	-.49	.49
	3	.76	Moderate	0.00	.34	.56	.97
	4	.72	Moderate	2.65	.00	.51	.92
	5	.58	Small	4.77	.00	.38	.79
	6	.70	Moderate	2.38	.00	.50	.90
	7	.73	Moderate	3.12	.00	.54	.92
	8	.50	Small	4.42	.00	.31	.69
	9	.65	Small	2.14	.00	.46	.84
Act with awareness	1	.43	Deterioration	-0.84	.00	-.74	.24
	2	.54	Small	3.95	.00	.31	.76
	3	.71	Moderate	2.65	.01	.50	.91
	4	.56	Small	4.56	.00	.39	.76
	5	.58	Small	4.77	.00	.38	.79
	6	.47	Deterioration	3.82	.00	-.54	.34
	7	.68	Moderate	2.42	.00	.50	.87
	8	.58	Small	1.10	.00	.40	.77
	9	.80	Moderate	3.80	.00	.62	.99
Non-judging of inner experience	1	.77	Moderate	2.94	.00	.55	.99
	2	.78	Moderate	3.15	.00	.55	1.00
	3	.80	Moderate	3.77	.00	.60	1.00
	4	.53	Small	4.31	.00	.33	.73
	5	.75	Moderate	3.06	.00	.55	.95
	6	.75	Moderate	3.02	.00	.55	.95
	7	.63	Small	1.73	.00	.44	.81
	8	.43	Deterioration	-0.95	.00	.25	.62
	9	.70	Moderate	2.77	.00	.51	.88
Non-reacting of inner experience	1	.29	Deterioration	-2.52	.03	-1.00	-.26
	2	.69	Moderate	2.10	.00	.47	.91
	3	.78	Moderate	3.40	.00	.58	.98
	4	.50	Small	0.00	1.00	.30	.70
	5	.75	Moderate	3.17	.00	.55	.95
	6	.68	Moderate	2.27	.00	.48	.88
	7	.52	Small	4.65	.00	.34	.71
	8	.28	Deterioration	-3.00	.01	.10	.47
	9	.81	Moderate	4.16	.00	.62	.99

Table 1
Calculation of NAP Indices Comparing Baselines and Training Effects (Continued)

Dependent Variable	ID	NAP	NAP Interpretation	*Z*	*p*	85% IC	90% IC
State-Anxiety	1	.82	Moderate	3.36	.00	.60	.99
	2	.52	Small	0.16	.00	.29	.74
	3	.77	Moderate	3.40	.00	.57	.97
	4	.50	Small	4.06	.00	.30	.70
	5	.58	Small	4.74	.00	.38	.78
	6	.58	Small	4.72	.00	.38	.78
	7	.55	Small	4.88	.00	.37	.74
	8	.50	Small	4.42	.00	.31	.69
	9	.77	Moderate	3.46	.00	.59	.96
Life satisfaction	1	.50	Small	3.68	.00	.28	.73
	2	.81	Moderate	3.36	.00	.59	1.00
	3	.50	Small	4.07	.00	.30	.70
	4	.71	Moderate	2.65	.00	.51	.92
	5	.50	Small	4.07	.00	.30	.70
	6	.56	Small	4.56	.00	.36	.76
	7	.83	Moderate	4.16	.00	.64	.00
	8	.53	Small	4.68	.00	.34	.72
	9	.15	Deterioration	-4.16	.19	-.04	.33
Stress	1	.88	Moderate	3.36	.00	.66	1.00
	2	.75	Moderate	2.94	.00	.53	.97
	3	.79	Moderate	3.78	.00	.59	.99
	4	.56	Small	4.54	.00	.36	.76
	5	.59	Small	4.81	.00	.39	.79
	6	.68	Moderate	2.27	.02	.49	.89
	7	.64	Small	1.82	.00	.45	.83
	8	.49	Deterioration	-0.09	.93	-.42	.38
	9	.89	Moderate	4.16	.00	.71	1.00

Focusing on the specific changes, the mindfulness "observe" skill experienced small changes in 3 participants, moderate changes in 5, and deterioration in 1. In "describe", there was deterioration in 1 subject, small improvements in 4, and a moderate change in 4 others. In "act with awareness", there was deterioration in one participant's score, improving slightly in 5 and moderately in 5. In the subscale "non-judging of inner experience", small changes were found in 2 individuals, deterioration in 1, and moderate improvement in 6. "non-reactivity of inner experience" showed small changes in 2 participants, deterioration in 2, and moderate improvement in 5.

With respect to state-anxiety, improvements were moderate in 3 participants and small in the remaining 6. Additionally, the decrease in stress was small in 3 participants and moderate in 5, although 1 subject experienced a worsening of his score. Finally, life satisfaction deteriorated in one person, and had a small change in 5 subjects, as well as moderate in the remaining 3.

Changes at the Group Level

Comparing the pre- and post-intervention mean scores of the nine subjects, significant increases were observed in mindfulness (FFMQ and MAAS), and life satisfaction (SWLS). Also, there were reductions in cognitive fusion (CFQ), state-anxiety (STAI-S), perceived stress (PSS) and the "neuroticism" factor (NEO-PI-R). In trait-anxiety (STAI-T), although not significantly, there was a trend towards improvement (Table 2). Table 3 details the pre- and post-training scores of all participants.

Table 2
Pre - Post Changes in all Measures

Measure	Pre-test		Post-test				Effect Size		Statistical Power
	M	*SD*	*M*	*SD*	*Z*	*p*	Cohen's d_z	*ρ*	(1-*β*)
FFMQ	122.78	16.31	146.56	12.71	-2.67	.01	1.20	.74	.86
Observe	25.00	5.59	29.33	3.78	-2.32	.02	.69	.41	.42
Describe	26.22	4.74	30.56	3.09	-2.32	.02	.80	.45	.53
Act with awareness	25.44	8.22	32.00	4.30	-2.06	.04	.78	.18	.52
Non-judging of inner experience	20.78	2.59	23.44	1.59	-1.79	.07	1.34	-.08	.93
Non-reacting of inner experience	25.33	8.00	31.22	5.83	-2.44	.02	.64	.64	.37
MAAS	54.56	14.28	67.56	10.24	-2.31	.02	.76	.44	.49
CFQ	25.67	7.21	20.22	7.00	-2.08	.04	.51	.79	.25
NEUROTICISM	59.00	8.09	51.22	7.12	-2.67	.01	.75	.71	.49
STAI-S	24.44	11.85	14.89	8.98	-2.67	.01	.74	.90	.47
STAI-T	24.11	10.37	21.78	9.83	-0.89	.37	.22	.77	.09
PSS	26.78	9.99	22.11	7.34	-2.24	.03	.35	.83	.15
SWLS	21.67	6.00	25.56	3.05	-2.39	.02	.60	.77	.33

Abbreviations: FFMQ, Five Facets Mindfulness Questionnaire; MAAS, Mindfulness Attention Awareness Scale; CFQ, Cognitive Fusion Questionnaire; STAI-S, State-Trait Anxiety Inventory (State); STAI-T, State-Trait Anxiety Inventory (Trait); PSS, Perceived Stress Scale; SWLS, Satisfaction With Life Scale.

Table 3
Pre-Post Changes Experienced by Participants on Each Measure

Measure	Fase	P1	P2	P3	P4	P5	P6	P7	P8	P9
FFMQ	Pre	117	138	95	135	118	131	126	143	102
	Post	123	167	139	155	145	143	156	152	139
Observe	Pre	20	26	18	20	31	27	31	32	20
	Post	22	32	27	33	33	27	32	31	27
Describe	Pre	31	29	24	16	27	30	23	30	26
	Post	30	32	32	25	26	34	31	33	32
Act with awareness	Pre	29	38	16	34	25	29	22	24	12
	Post	26	40	31	36	30	28	35	31	31
Non-judging	Pre	17	21	19	26	21	20	19	23	21
	Post	21	24	24	21	24	23	26	24	24
Non-reacting	Pre	20	24	18	39	14	25	31	34	23
	Post	24	39	25	40	32	31	32	33	25
MAAS	Pre	56	82	41	72	45	54	44	56	41
	Post	51	85	62	74	67	64	79	64	62
CFQ	Pre	27	21	35	14	28	26	21	22	37
	Post	29	7	26	19	24	20	13	18	26
Neuroticism	Pre	60	47	71	57	68	58	51	53	66
	Post	49	40	66	47	54	56	50	49	50
STAI-E	Pre	42	9	41	15	20	31	15	18	29
	Post	35	3	19	12	13	13	11	9	19
STAI-R	Pre	27	11	41	16	32	24	15	16	35
	Post	34	5	32	21	17	25	13	17	32
PSS	Pre	29	12	44	22	31	26	21	18	38
	Post	22	12	33	16	22	24	15	22	33
SWLS	Pre	25	28	15	20	27	11	27	27	18
	Post	27	26	24	22	30	21	29	27	24

Abbreviations: see Table 2.

Discussion

The aim of this study was to assess the effects of mindfulness training following the Level 1 curriculum of the Mindfulness-based Mental Balance® (MBMB) program in people with no previous meditation experience.

With respect to the group episodic assessment, training produced significant changes in most of the dependent variables, with generalized small to medium effect sizes. It is worth highlighting that the change in the global mindfulness score (FFMQ) (d_z = 1.20), as well as in the describing and not reacting skills had large effect sizes (d_z = .80 and d_z = 1.34, respectively). Similarly, the change in the mindful acting score quantitatively approached a large effect size (d_z = .78).

Taking the effect sizes as a reference, we can hypothesize that the systematized practice of MBMB Level 1 enhances in the first instance the capacity to maintain a balanced emotional tone (equanimity), requiring a little more time to consolidate concentration (observe). This assumption is in line with Creswell et al. (2014), who found that novice practitioners made greater efforts than experts to stay focused on the object of attention, which implied a certain degree of stress. Another evidence that could support the above hypothesis is the effect size shown by the MAAS scale (focused on the observational aspect of mindfulness). In this sense, the change was medium (d_z = .76).

If it is true that MBMB Level 1 strengthens emotional regulation, we would expect improvement in the variables neuroticism, anxiety and perceived stress. Regarding neuroticism, significant changes were found in our study, with a medium effect size (d_z = .75). However, as this variable is a personality trait, the changes experienced may not be sustained over time. This is most likely to be transitory at this point in the training, requiring more time for the change to consolidate in the long term.

The findings in anxiety indicate a significant change with medium effect size in its anxiety-state scale (d_z = .74), but not in the trait scale (consistent with a temporal change in neuroticism)

(d_z = .22). This change in state-anxiety can be interpreted as an indicator of a lower activity of the Default Mode Network (Saviola et al., 2020), with a consequent lower irruption of thoughts. Likewise, levels of perceived stress also decreased significantly, although with a small effect size (d_z = .35). This smaller change in stress could be linked to the effect size experienced by the subscale "non-reactivity of inner experience" of mindfulness, like to the evidence found by Ede et al. (2020).

These data support the hypothesis we advanced earlier, reinforcing the idea that MBMB Level 1 promotes equanimity in the first instance, and to a lesser extent concentration. On the other hand, this points to the fact that this meditative system effectively fulfills its design intention, that is, to increase parasympathetic tone (vagal brake) to subsequently observe the contents of consciousness in relative mental quiet.

Finally, in relation to anxiety, the effect sizes we have found in our study are higher than those shown by MBSR and MBCT (Goyal et al., 2014), both at two months (d = .38) and at six months (d = .22). This means that MBMB could be more effective in reducing anxiety than the usual MBIs, something that should be analyzed in future studies.

The Relational Frame Theory (RMT) (Hayes et al., 2001) considers that humans suffer from literally believing the content of thoughts and feelings. This psychological process, called cognitive fusion, leads to behavioral regulation based on inflexible verbal rules, rather than by direct experience. The opposite process is defusion, which consists of weakening the control that such verbal rules exert over behavior, making the individual's behavioral repertoire more flexible by enabling regulation by contingencies (Hayes et al., 2012).

We found significant improvements in cognitive fusion, with medium effect size (d_z = 51). This measure is positively related to the level of neuroticism, such that, as indicated by TMR, people with a high level of cognitive fusion are more susceptible to distressing emotions (Huang et al., 2021). Much of the benefits found in levels of cognitive fusion are due to the systematic use of subvocal labels, for example, during inhalation and exhalation, noticing external distractions, or becoming aware of thought irruption. These resources are especially effective for noticing, moment by moment, what emerges in the field of consciousness throughout the meditation, leading to a progressive weakening of the identification with the "self-as-concept" (García-Campayo, 2020). Another key to facilitate cognitive defusion is the pointing out of the mindful state of awareness and its subsequent stabilization, so that the practitioner ends up identifying with the consciousness and not with its contents. This identification also leads to a consequent progressive deconstruction of the self. These improvements are consistent with the postulates of RFT, which predicts an indirect weakening of the conceptual self by using mindfulness and acceptance processes (Hayes et al., 2012).

Another episodic assessment in which significant changes were found was life satisfaction, with a medium effect size (d_z = .60). This improvement is probably due to the symbiosis of all the positive results described above. Thus, after MBMB Level 1, participants would have increased the frequency in which they are in a mindful state of awareness, with a consequent reduction in suffering and increase in subjective well-being.

It is important to note that the individual-level results derived from the NAP indices and the episodic pre–post comparisons capture different dimensions of change and, therefore, should not be interpreted as interchangeable. While pre–post analyses reflect differences between two aggregated time points, the NAP index evaluates the degree of non-overlap between baseline and intervention phases across all repeated observations, making it particularly sensitive to intra-individual variability and non-monotonic change trajectories. Consequently, some participants may show pre–post improvements while still presenting low NAP values due to partial overlap between phases or fluctuating patterns during training, rather than reflecting a true deterioration.

Accordingly, the individual improvements observed across participants are broadly consistent with the group-level findings, although the magnitude of change at the individual level, as indexed by NAP, ranged from small to moderate. This pattern reflects heterogeneity in individual change trajectories rather than uniform or strictly linear improvement, underscoring the value of combining episodic group-level analyses with intensive idiographic approaches to obtain a more nuanced and ecologically valid understanding of the effects of mindfulness training, particularly during early stages of practice and among novice practitioners.

Conclusions

Synthesizing the findings found at the individual and group levels of analysis, this study shows that the Mindfulness-based Mental Balance® program produced significant and moderate improvements in the variables studied. Specifically, it increased the quality and life satisfaction of the individuals, in addition to producing some changes in personality. Similarly, and based on the effects on mindfulness, cognitive fusion, anxiety and perceived stress, MBMB can be considered a training that promotes psychological flexibility and the consequent reduction of suffering. This study also expands the scientific literature on the specific benefits offered by mindfulness meditation based exclusively on breathing, something infrequent in trials conducted with other mindfulness programs, where miscellaneous meditative practices are performed, which makes it difficult to discern the unique effects of each one of them.

This study has some limitations. Firstly, the sample size makes it difficult to generalize the results if they are considered in isolation. For this reason, future research should include replication studies with larger samples, particularly randomized controlled trials, in order to increase statistical power and generalizability. On the other hand, the measures used were exclusively self-report. In future studies, efforts should be made to use complementary measures, in addition to carrying out short- and medium-term follow-up evaluations.

In our opinion, a line of work to follow, both in the case of MBMB and in new generation mindfulness-based programs, should be its evaluation in a soteriological context that pursues the promotion of psychological or eudaimonic well-being, where mindfulness practice is likely to offer its full potential, bringing deeper benefits to practitioners.

Funding

This work did not receive specific funding from public sector agencies, commercial or non-governmental organizations.

Conflict of Interest Statement

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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