

Effectiveness of a Mindfulness Education Program in Primary Health Care Professionals: A Pragmatic Controlled Trial

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Introduction: Burnout is a very prevalent type of stress among health professionals. It affects their well-being, performance, and attitude toward patients. This study assessed the effectiveness of a training program for primary health care professionals designed to reduce burnout and mood disturbance, increase empathy, and develop mindfulness.

Methods: Pragmatic randomized controlled trial with pre- and postintervention measurements of 68 primary health care professionals (43 in the intervention and 25 in the control group) in Spain. The intervention consisted of presentations of clinically relevant topics, mindfulness-based coping strategies, mindfulness practice, yoga, and group discussions (8 sessions of 2.5 hours per week plus a 1-day session of 8 hours). Outcome measures included the Maslach Burnout Inventory, Profile of Mood States, Jefferson Scale of Physician Empathy, Baer's Five Facets Mindfulness Questionnaire, and a questionnaire on changes in personal habits and mindfulness practice. Measurements were performed at baseline and after 8 weeks.

Results: The intervention group improved in the 4 scales measured. The magnitude of the change was large in total mood disturbance (difference between groups -7.1 ; standardized effect-size [SES] 1.15) and mindfulness (difference between groups 11; SES 0.9) and moderate in the burnout (difference between groups -7 ; SES 0.74) and empathy scales (difference between groups 5.2; SES 0.71). No significant differences were found in the control group.

Discussion: Our study supports the use of mindfulness-based programs as part of continuing professional education to reduce and prevent burnout, promote positive attitudes among health professionals, strengthen patient-provider relationships, and enhance well-being.

Key Words: evaluation-educational intervention, innovative educational intervention, interprofessional education, burnout, mindfulness, pragmatic controlled trial

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Introduction

Burnout is very prevalent among health professionals. Three main features define this syndrome: emotional exhaustion, depersonalization, and a sense of low personal accomplishment.¹ Clinical manifestations of burnout include mood, metabolic, and cardiovascular disturbances.² Burnout affects the patient-provider relationship and is associated with decreased empathy,³ increased risk of error,⁴ lower quality of health care^{5,6} and higher per-patient pharmacy expenditures.⁷

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The prevalence of burnout is particularly high among primary health care providers.⁸ Several studies conducted in the Spanish public health system indicate that up to 23% to 42% of professionals suffer from burnout, with emotional exhaustion as the most salient feature.^{9,10} Although some studies about burnout prevalence have been published, very few indicate how to reduce or prevent it. Continuing education and continuing professional development programs could contribute to avoiding demoralization and preventing burnout.¹¹ In Spain, some institutions offer psychological therapy or training in coping strategies to reduce burnout among health professionals.¹² Recently, interventions focused on enhancing self-awareness among health professionals to ameliorate patient-provider relationships, help them deal with complex situations, and minimize countertransference (therapist's attitudes, feelings, and thoughts in relation to the patient) have been tested.¹³ Self-awareness may prevent rumination (ie, excessive brooding over negative events that results in anxiety and depression episodes),¹⁴ while contributing to self-regulation of negative emotions, enhancing well-being^{15,16} professionalism, and increasing quality of care delivered.^{17,18}

One study used the mindfulness-based psychoeducational intervention created by Krasner and colleagues at the University of Rochester Medical Center with the aim of reducing stress levels and promoting self-awareness in primary health care professionals.^{19,20} Despite the limitations of this study (not randomized or controlled; participants were general practitioners from a single location), this intervention was successful in decreasing burnout and mood disturbance while increasing empathy and mindfulness.

Considering the success of Krasner's approach and our experience with a mindfulness-based intervention for health professionals^{21,22} known as Mindfulness-Based Stress Reduction (MBSR), we adapted Krasner's 8-week intensive component to a different social and economic setting—Spain—which has a distinctly Mediterranean culture and a health care system with universal coverage. We offered the intervention to primary health care professionals comprising physicians, nurses, social workers, and clinical psychologists. A control group was included. Our clinical outcomes were the same as in Krasner's study: burnout, mood disturbance, empathy, and mindfulness. In addition, we investigated whether the amount of practice at home affected attitudes associated with the program.

Methods

Design

We conducted a pragmatic randomized controlled clinical trial with pre- and postintervention measurements among primary health care professionals working in the public health

system in Spain between September 2010 and February 2012.

Inclusion Criteria

Subjects had to be practicing primary health care professionals and willing to attend at least 80% of the educational program, do the required practice at home, and respond to the questionnaires included in the study.

Participants and Recruitment Strategy

Advertisements about the mindfulness education program were posted on Web sites frequently consulted by primary health care professionals (Catalan Health Institute, Institut Universitari d'Investigació en Atenció Primària–IDIAP [Institut Universitari d'Investigació en Atenció Primària [Institute for Research in Primary Care] Jordi Gol, Catalan Society of Family and Community Medicine). Moreover, invitations for participation were sent by e-mail to the directors of 284 primary health care centers in Catalonia.

Of the 78 professionals who contacted the research group and received information about the study, 10 were excluded because they were not in clinical practice.

After recruitment, a stratified randomization scheme was used in relation to occupation (physician, nurse, other) and primary health care centers. The number of participants in the intervention group (43) was larger than expected due to the high interest in the mindfulness educational program and the convenience of its schedule. The intervention was delivered twice on the same day (morning and afternoon). This allowed us to limit the number of participants to about 20 as recommended for educational interventions of this type and take into consideration the work schedule of each participant. The intervention was essentially the same in both groups and was delivered by the same instructor. There were no significant differences between intervention groups in demographic characteristics or in the baseline scores on the outcome measures. The number of participant in each group was 21 and 22. The control group consisted of the remaining 25 subjects, who were offered the intervention after the completion of the study.

Outcome Measures

We used validated Spanish versions of the following self-administered questionnaires for the intervention and control group pre- (baseline) and postintervention (after 8 weeks).

- *Burnout* was measured with the Maslach Burnout Inventory²³ (MBI) of 22 items, with a Cronbach's alpha of 0.85 (range of possible scores = 0 to 140) and 3 subscales (emotional exhaustion, depersonalization, and personal accomplishment). Higher

scores on the first 2 the subscales and lower scores on personal accomplishment indicate a higher degree of burnout.

- For *mood disturbance*, we used a short version of the POMS Questionnaire,²⁴ comprising 15 items with a Cronbach's alpha of 0.9 (range = 0 to 60). This questionnaire evaluates distress using 5 subscales: tension-anxiety, depression-dejection, anger-hostility, vigor-activity, and fatigue-inertia. A worse mood state is indicated by higher scores on all subscales, except for vigor-activity.
- To measure *empathy* we used the Jefferson Questionnaire consisting of 20 items,^{25,26} with a Cronbach's alpha of 0.74 (range = 0 to 140) and 3 subscales: compassionate care, perspective taking, and "standing in the patient's shoes." Higher scores indicate a higher degree of empathy.
- For *mindfulness* we used the Five Facets Mindfulness Questionnaire (FFMQ), which has 39 items,^{26,27} a Cronbach's alpha of 0.88 (range = 39 to 195), which assessed 5 facets of a general tendency to be mindful in daily life: observing, describing, acting with awareness, nonjudging, and nonreactivity. Items are rated on a 5-point Likert-type scale ranging from 1 (never or very rarely true) to 5 (very often or always true). Higher values indicate a higher degree of mindfulness.
- To evaluate the intervention, we used a translated version of a questionnaire from the University of Massachusetts Center for Mindfulness.¹⁹ This questionnaire includes items with a Likert-type scale for the participants to describe how they feel after the program compared to before the intervention; the questionnaire also reports changes in the participants' self-perception on well-being, energy, and activity. Participants were also asked to score on a scale from 1 to 10 (1 = least useful; 10 = most useful) the usefulness of the program materials (body scan, meditation, and yoga CDs) and the program activities (breathing awareness, body scan, openness, different types of meditation, yoga, discussion with a partner and in group). Frequency of practice, duration, and technique of meditation and yoga were recorded.

Intervention Design

The intervention was modeled after the intensive phase of Krasner's study,¹⁹ which emphasizes mindfulness in everyday activities and includes contemplation-meditation exercises such as mindfulness meditation, where participants focus on the present-moment experience and contemplate nonjudgmentally bodily sensations, breathing, sounds, and thoughts.

The intervention was structured as a continuing education course with group psychoeducational activities.²⁸ It lasted a total of 28 hours and consisted of 8 weekly sessions of 2.5 hours each and an intensive 8-hour session where participants followed guided silent mindfulness practice.

Each weekly session included four types of activities:

1. *Educational presentation*: Topics included awareness of thoughts and feelings, perceptual biases and filters, dealing with pleasant and unpleasant events, conflict management,

burnout prevention, setting boundaries, exploring self-care, caring for suffering patients and end-of-life care examination. These themes were related to the experiential exercises that comprised most of the session time.

2. *Formal mindfulness meditation*: Mindfulness includes the capacity for lowering one's own reactivity to challenging experiences; the ability to notice, observe, and experience bodily sensations, thoughts, and feelings even when unpleasant; acting with awareness and attention (not being on autopilot); and focusing on experience, not on labels or judgments.
3. *Narrative and appreciative inquiry exercises*: In each session, participants were asked to write brief stories about personal experiences in medical practice focusing on topics discussed in the presentation. The participants shared their experiences with a partner and in small groups. Equally important as telling stories was listening to others. Participants were instructed to listen intentionally to understand the experience of the narrator and to avoid interruptions.
4. *Discussion*: Participants shared their experiences in group and discussed the effects of mindfulness practice.

Participants received a CD with a recording of the exercises, an explanatory book, and instructions to practice at home between sessions. The study participants were offered the course free of charge, although they had to pay 49 euros (US\$68) for the materials (CD and books). The instructor was a certified MBSR teacher.

Statistical Analysis

Descriptive analyses were made to summarize the information about the study population and the program evaluation questionnaire of the University of Massachusetts. The qualitative variables are expressed as number (percentages), and the quantitative variables as means (SD).

Differences between groups were analyzed using the chi-square test for categorical data and the Student's *t*-test for continuous data.

The intervention effect after the 8 weeks was assessed using the change in scores (final minus baseline) in the intervention group minus the change in the control group and the standardized effect size (SES). SES is calculated as the mean difference between the intervention and the control groups, divided by the standard deviation (SD) of the control group. The SES is a standardized measure of the change that allows comparison between groups, between measures in the same study and between different studies.²⁹

The standardized response mean (SRM) was used to measure the effect size within-group comparisons. The SRM was calculated as the mean change divided by the SD of the change. Cohen's *d* allows classification of effect size as small (0.2 to 0.5), moderate (0.5 to 0.8), and large (0.8 or over); these criteria can also be applied to SRM.^{2,30} The

significance level for all tests was set at 5%, two-tailed. The statistics package IBM SPSS Statistics v.19 was used.

Ethical and Funding Considerations

The study was conducted according to the tenets established by the Declaration of Helsinki and Good Research Practice Guidelines. The study protocol was approved by the Clinical Research Ethics Committee of the Institute–IDIAP Jordi Gol. Participants were given written information and were informed about the motivations and implications of the study prior to consenting to participate. Confidentiality and anonymity followed Spanish laws of personal data protection. Identification data could be accessed only by the investigators. The study was funded by the Catalan Health Institute.

Results

The 68 participants had a mean age of 47 years (SD 8.0); 92% were women, 60% were physicians, 33.3% were nurses, and 6.7% were social workers and clinical psychologists. Baseline measurements did not show significant differences between groups in age, occupation, and scores in any scale or subscale (TABLE 1).

Attendance at the sessions was 92%. All participants completed the intervention and none of the participants missed more than 2 sessions.

The following results were observed in the intervention group:

1. *Burnout* decreased by 6.0 points (95% confidence interval [CI] –10.4 to –1.5), a small but statistically significant change (SRM 0.43). This reduction was also found in the subscales emotional exhaustion and depersonalization; personal accomplishment also improved. Compared with the control group, the intervention group decreased by 7.0 points (95% CI –13.4 to –0.6), with moderate effect size (SES 0.74) (TABLE 2).
2. *Mood disturbance* decreased by 6.5 points (95% CI –9.8 to –3.3), a moderate change (SRM 0.62). This reduction was also observed in the following subscales: depression, anger, tension, and fatigue. There was no significant change in the vigor subscale. The intervention group decreased by 7.1 points (95% CI –11.3 to –3) ($p < 0.01$), compared with the control group with large effect size (SES 1.15) (TABLE 3).
3. *Empathy* increased by 3.5 points (95% CI –0.1 to 7), a nonsignificant small change (SRM 0.31). This improvement was significant only in the compassionate care subscale. Compared to the control group, the increase in the intervention group raises to 5.2 (95% CI: 0.2 to 10.3), with moderate effect size (SES 0.71) (TABLE 4).
4. *Mindfulness* increased by 12.0 points (95% CI 6.0 to 18.1), a moderate change (SRM 0.65). Except for describing, all subscales improved. When compared to the control group, the

TABLE 1. Baseline Characteristics of the Control and the Intervention Groups

	Control group <i>N</i> = 25	Intervention group <i>N</i> = 43	<i>p</i> value*
Age (years)	46.9 (6.7)	48.8 (7.8)	0.308
Occupation, <i>n</i> (%)			
Nurse	6 (24.0)	17 (39.5)	0.139
Physician	18 (72.0)	23 (53.5)	
Other	1 (4.0)	3 (7.0)	
<i>Maslach Burnout Inventory</i>			
Total	74.2 (15.3)	73.6 (15.3)	0.885
Emotional exhaustion	26.0 (12.5)	25.1 (11.6)	0.763
Depersonalization	9.0 (5.4)	9.8 (6.3)	0.608
Personal accomplishment	39.2 (6.0)	38.8 (6.7)	0.801
<i>Profile of Mood States</i>			
Total mood disturbance	22.0 (9.9)	21.0 (9.1)	0.668
Tension-Anxiety	4.6 (2.6)	4.6 (2.5)	0.977
Depression-Dejection	2.9 (2.6)	2.6 (2.2)	0.616
Anger-Hostility	4.1 (2.8)	3.4 (2.5)	0.296
Vigor-Activity	6.5 (2.2)	7.0 (2.3)	0.337
Fatigue-Inertia	5.0 (2.6)	5.5 (2.7)	0.430
<i>Jefferson Scale of Physician Empathy</i>			
Total	120.3 (10.2)	119.7 (12.8)	0.835
Perspective taking	59.5 (7.0)	54.8 (6.4)	0.859
Compassionate care	47.2 (4.9)	47.3 (5.1)	0.881
Standing in the patient's shoes	13.6 (0.9)	13.1 (1.8)	0.204
<i>Five Facets Mindfulness Questionnaire</i>			
Total	121.1 (13.6)	129.2 (22.1)	0.104
Observing	24.5 (4.3)	26.1 (8.6)	0.373
Describing	26.4 (5.2)	28.2 (5.7)	0.208
Acting with awareness	23.9 (6.7)	25.3 (5.9)	0.356
Nonjudging	26.5 (6.3)	27.1 (7.8)	0.749
Nonreactivity	19.8 (2.9)	21.9 (4.3)	0.032

Maslach Burnout Inventory of 22 items. Values range from 0 to 140.

Higher scores indicate a higher degree of burnout or their subscales except for personal accomplishment.

Profile of Mood States of 15 items. Values range from 0 to 60.

Higher scores indicate a higher degree of empathy or their subscales.

Jefferson Scale of Physician Empathy of 20 items. Values range from 0 to 140.

Higher scores indicate a worse mood state or their subscales except for vigor-activity.

Five Facets Mindfulness Questionnaire of 39 items. Values range from 39 to 195.

Higher values indicate a higher degree of mindfulness or their subscales.

P value calculated according to the Student's *t*-test to compare independent means or the chi-square test.

Note: The baseline data of this sample might not coincide with the scores of the scales used during follow up due to the patients from the intervention group who dropped out. Values represent the mean (standard deviation) unless otherwise specified.

TABLE 2. *Maslach Burnout Inventory* Change in Scores Within and Between Groups

Score	Intervention group <i>N</i> = 43				Control group <i>N</i> = 25				Difference between groups (change in intervention – change in control)	
	Baseline mean (SD)	Post mean (SD)	Difference (post-baseline)		Baseline mean (SD)	Post mean (SD)	Difference (post-baseline)		Mean (95% CI)	SES ^b
			mean (95% CI)	SRM ^a			mean (95% CI)	SRM ^a		
Total	73.4 (15.5)	67.4 (14.5)	–6.0 (–10.4 to –1.5) ^d	0.43	74.2 (15.3)	75.2 (15.7)	1.0 (–3.0–5.0)	–0.11	–7 (–13.4 to –0.6) ^c	0.74
Emotional exhaustion	25.1(11.6)	19.5 (11.0)	–5.5 (–8.7 to –2.4) ^d	0.55	26.0 (12.5)	26.7 (13.6)	0.7 (–1.7–3.2)	–0.12	–6.2 (–10.2 to –2.3) ^d	1.05
Depersonalization	9.8 (6.3)	7.2 (5.5)	–2.5 (–4.0 to –1.1) ^d	0.55	9.0 (5.4)	9.0 (5.7)	0.0 (–1.6–1.6)	0.00	–2.5 (–4.8 to –0.3) ^f	0.65
Personal accom- plishment	38.8 (6.8)	40.9 (4.7)	2.1 (0.6–3.7) ^d	0.43	39.3 (6.0)	39.5 (6.0)	0.3 (–1.2–1.8)	0.08	1.8 (–0.5–4.1)	0.52

Abbreviations: SD, standard deviation; CI, confidence interval; SRM, standardized response mean; SES, standardized effect size.

Maslach Burnout Inventory of 22 items. Value range from 0 to 140. Higher scores indicate a higher degree of burnout or their subscales except for personal accomplishment.

Negative differences indicate improvement (Burnout decrease), except for personal accomplishment, where higher scores indicate a higher sense of personal accomplishment.

^aSRM: standardized response mean. The SRM was calculated as the mean change in score divided by the SD of the change.

^bSES: standardized effect size. The SES was calculated as the mean difference between the intervention and the control groups, divided by the standard deviation (SD) of the control group.

Positive values of SRM and SES indicate improvement, negative values indicate worsening.

Values 0.2 to 0.5 represent small changes, 0.5 to 0.8 moderate changes, and > 0.8 large changes.

^c*p* < 0.05; ^d*p* < 0.01.

increase was 11.0 points (95% CI: 3 to 19), with large effect size (SES 0.90) (TABLE 5).

No significant differences in any of the scales were observed in the control group.

When participants in the intervention group were asked to evaluate the program, all reported feeling better after the intervention: 87.8% felt that their overall energy had increased, and 65.7% reported improved activity levels; 76% indicated attitude changes, and up to 44.7% manifested an improvement in “taking care of oneself”; and 87.2% of the participants reported to have learned coping strategies during the program, such as communication and time-management skills, handling stressful situations, and correction of bad habits.

The program was rated 8.9 on a scale from 0 (low) to 10 (high). Self-reported adherence to mindfulness exercises was high: 85.1% practiced contemplation-meditation for 30 to 45 minutes with a CD regularly at the end of the intervention, 70.2% used breathing awareness, for 5 to 15 minutes in everyday life, and 61.7% practiced stretching exercises for 30 to 40 minutes regularly.

Discussion

The mindfulness program decreased burnout and mood disturbance and improved empathy and mindfulness, fostering a positive change in the attitude of participants.

Burnout and Mood Disturbance Reduction

Our baseline burnout data show an average emotional exhaustion of 25.1 (range 22 to 31), high depersonalization levels (9.8, range > 9) and a low sense of personal accomplishment (38.8, range > 35). These data are comparable to burnout levels reported for other samples of Spanish health care professionals.^{31,32}

As a result of the intervention, the burnout components improved significantly. Participants attained low levels of emotional exhaustion and medium-low levels of depersonalization, whereas personal accomplishment improved just within its range. The effect size observed in our 8-week intervention is similar to that reported in Krasner’s study (Cohen’s *d* 0.44 to 0.62 in the subscales).¹⁹

TABLE 3. Profile of Mood States Change in Scores Within and Between Groups

Score	Intervention group <i>N</i> = 43				Control group <i>N</i> = 25				Difference between groups (change in intervention – change in control)	
	Baseline		Difference		Baseline		Difference		Mean (95% CI)	SES ^b
	mean (SD)	Post mean (SD)	(post-baseline) mean (95% CI)	SRM ^a	mean (SD)	Post mean (SD)	(post-baseline) mean (95% CI)	SRM ^a		
Total mood disturbance	21.4 (8.8)	14.9 (7.5)	–6.5 (–9.8 to –3.3) ^c	0.62	21.5 (10.3)	22.1 (10.1)	0.6 (–2.1–3.3)	–0.10	–7.1 (–11.3 to –3) ^d	1.15
Tension-Anxiety	4.6 (2.5)	2.8 (2.0)	–1.7 (–2.5 to –1) ^c	0.69	4.4 (2.6)	4.5 (2.4)	0.1 (–0.6–0.8)	–0.05	–1.9 (–3.0 to –0.7) ^d	1.07
Depression- Dejection	2.6 (2.2)	1.6 (1.8)	–1.0 (–1.7 to –0.2) ^c	0.41	2.5 (2.3)	2.5 (2.4)	0.0 (–0.8–0.8)	0.00	–1 (–2.1–0.16)	0.56
Anger-Hostility	3.5 (2.5)	2.4 (1.9)	–1.1 (–2 to –0.1) ^c	0.35	4.1 (2.8)	4.0 (2.7)	–0.1 (–1.0–0.8)	0.04	–1 (–2.2–0.3)	0.49
Vigor-Activity	7.0 (2.3)	7.5 (2.2)	0.5 (–0.4–1.3)	0.17	6.6 (2.3)	6.4 (2.4)	–0.2 (–0.9–0.4)	–0.16	0.7 (–0.3–1.7)	0.50
Fatigue-Inertia	5.5 (2.7)	3.3 (2.3)	–2.2 (–3.1 to –1.3) ^c	0.73	4.9 (2.6)	5.3 (3.0)	0.4 (–0.7–1.4)	–0.14	–2.6 (–4 to –1.1) ^d	1.00

Abbreviations: SD, standard deviation; CI, confidence interval; SRM, standardized response mean; SES, standardized effect size.

Profile of Mood States of 15 items. Value range from 0 to 60. Higher scores indicate a worse mood state or their subscales except for vigor-activity.

Negative differences indicate improvement except for vigor, where positive differences indicate improvement.

^aSRM: standardized response mean. The SRM was calculated as the mean change in score divided by the SD of the change.

^bSES: standardized effect size. The SES was calculated as the mean difference between the intervention and the control groups, divided by the standard deviation (SD) of the control group.

Positive values of SRM and SES indicate improvement, negative values indicate worsening.

Values 0.2 to 0.5 represent small changes, 0.5 to 0.8 moderate changes, and > 0.8 large changes.

^c*p* < 0.05; ^d *p* < 0.01; ^e *p* < 0.001.

Compared to similar populations in the United States,^{19,31,33} our participants showed a higher degree of mood disturbance, notably anger and depression, than their American counterparts. This difference may be due to cultural variations in the expression of emotions concerning working conditions. However, the moderate change obtained in the intervention group is similar to that of Krasner's study,¹⁹ where data show a change of 0.69 in Cohen's *d*, while ours resulted in an SRM of 0.62.

Empathy Improvement

The baseline empathy in our sample was 119.5, in the 75 percentile in relation to 2 previously published studies, one with resident doctors²⁶ and the other with medical students.²⁵ This high preintervention level of empathy might be attributed to the high percentage of women in the group, since women usually score higher in empathy.^{25,26} Also, most of the participants had previous training in communication skills. Although empathy increased by 3.5 points, similarly to Krasner's study,¹⁹ only the compassionate care subscale reached

statistical significance, a larger effect than that reported in Krasner's study.

Mindfulness Development

The baseline level of mindfulness in our study was close to the mean in the Spanish population.³⁴ The change in mindfulness (SRM 0.65) was higher than that reported in other studies.¹⁶ The baseline values and the level of change obtained were similar to Krasner's study.¹⁹ However, Krasner's intervention lasted for a whole year, whereas our results were measured after the first 8-week intensive phase. Moreover, Krasner's study used only 2 subscales: observing and nonreactivity. We used all subscales (observing, describing, acting with awareness, nonjudging, and nonreactivity) and found significant differences in all except describing.

The results of this study show that mindfulness training promotes self-awareness in health professionals and helps them acknowledge psychological distress and notice barriers to both effective patient-provider relationships and clinical decision making.¹³ Mindfulness proposes an attentive

TABLE 4. Jefferson Scale of Physician Empathy Change in Scores Within and Between Groups

Score	Intervention group <i>N</i> = 43				Control group <i>N</i> = 25				Difference Between Groups (Change in Intervention – Change in Control)		
	Baseline mean (SD)	Post mean (SD)	Difference (post-baseline)		Baseline mean (SD)	Post mean (SD)	Difference (post-baseline)		SRM ^a	Mean (95% CI)	SES ^b
			mean (95% CI)	SRM ^a			mean (95% CI)	SRM ^a			
Total	119.5 (13.1)	123.0 (9.2)	3.5 (–0.1–7)	0.31	120.8 (10.1)	119.0 (10.7)	–1.8 (–4.9–1.3)	–0.24	5.2 (0.2–10.3) ^c	0.71	
Perspective taking	54.8 (6.5)	56.1 (5.3)	1.2 (–0.6–3.1)	0.21	59.8 (7.0)	59.6 (6.3)	–0.2 (–2.5–2.1)	–0.15	1.4 (–1.5–4.3)	0.26	
Compassionate care	47.2 (5.1)	49.0 (3.9)	1.8 (0.2–3.4) ^c	0.35	47.4 (4.9)	46.9 (4.6)	–0.5 (–2.2–1.3)	–0.11	2.3 (–0.2–4.8)	0.55	
Standing in the patient's shoes	13.1 (1.8)	13.5 (1.1)	0.3 (–0.3–0.9)	0.17	13.6 (0.9)	12.5 (3.0)	–1.2 (–2.3 to –0.01) ^c	–0.43	1.5 (0.4–2.6) ^c	0.55	

Abbreviations: SD, standard deviation; CI, confidence interval; SRM, standardized response mean; SES, standardized effect size.

Jefferson Scale of Physician Empathy of 20 items. Value range from 0 to 140. Higher scores indicate a higher degree of empathy or their subscales.

Positive differences indicate improvement.

^aSRM: standardized response mean. The SRM was calculated as the mean change in score divided by the SD of the change.

^bSES: standardized effect size. The SES was calculated as the mean difference between the intervention and the control groups, divided by the standard deviation (SD) of the control group.

Positive values of SRM and SES indicate improvement, negative values indicate worsening.

Values 0.2 to 0.5 represent small changes, 0.5 to 0.8 moderate changes, and > 0.8 large changes.

^c*p* < 0.05.

awareness and a present-moment observation of events, noticing but not attempting to change the bodily sensations, thoughts, and emotions that emerge in response to stress.

We believe that the cultivation of openness and self-observation that results from mindfulness training facilitates self-regulation and improves well-being.^{15,16} Furthermore, research on mindfulness training suggests that acceptance of the negative aspects of some experiences without attempting to change them enhances psychological flexibility and helps redirect behavior toward a desired goal.¹⁸ The combination of mindfulness and psychological flexibility constitutes an adaptive coping strategy to face the psychological distress associated with working at a primary health care unit.

We also believe that the enhanced mindfulness derived from the intervention contributed to changes in attitudes regarding work and personal habits in most participants. Most reports from the participants concerning changes in attitudes were closely related to the three goals of the program: being present, professionalism, and particularly self-care. The participants of the study were primarily concerned about self-

care as a strategy to manage their distress. These results coincide with other studies on MBSR programs for health professionals.²² Our approach strengthens and further develops the results of previous studies^{19,35} by allowing us to distinctly attribute the results to the intervention.

We should also point out the limitations of our research: First, self-administered questionnaires do not measure the effect of the intervention on the participants' actual clinical work or their rapport with patients or with the health care team. Indeed, they indicate only the participants' own perceptions. Second, our sample is relatively small and not gender representative, since most participants were women. Third, since the results were measured immediately after the 8-week intervention, the sustainability of the improvements remains unknown. Fourth, as in any other educational intervention, effects such as the self-selection of participants and the group effect cannot be quantified. Nevertheless, we believe that the selection bias would affect both groups similarly. The lack of an active control group can be seen as a limitation of the study design. However, it is difficult to

TABLE 5. Five Facet Mindfulness Questionnaire Change in Scores Within and Between Groups

Score	Intervention group <i>N</i> = 43				Control group <i>N</i> = 25			Difference between groups (change in intervention – change in control)			
	Baseline mean (SD)	Post mean (SD)	Difference (post-baseline)		Baseline mean (SD)	Post mean (SD)	Difference (post-baseline)		SRM ^a	Mean (95% CI)	SES ^b
			mean (95% CI)	SRM ^a			mean (95% CI)	SRM ^a			
Total	129.6 (22.2)	141.6 (16.5)	12.0 (6.0–18.1) ^c	0.65	120.5 (14.4)	121.6 (16.0)	1.0 (–4.5–6.6)	0.1	11 (3–19) ^d	0.90	
Observing	26.1 (8.6)	30.4 (5.1)	4.3 (1.9–6.6) ^d	0.57	24.5 (4.3)	24.1 (4.5)	–0.4 (–1.8–1.1)	–0.1	4.7 (1.9–7.3) ^d	1.32	
Describing	28.2 (5.7)	28.9 (5.3)	0.7 (–0.8–2.1)	0.15	26.4 (5.2)	26.5 (5.5)	0.1 (–0.7–0.9)	0.1	0.6 (–1.1–2.2)	0.29	
Acting with awareness	25.3 (5.9)	27.4 (4.7)	2.1 (0.4–3.8) ^c	0.38	23.6 (6.8)	23.0 (5.9)	–0.6 (–2.2–1)	–0.2	2.7 (0.2–5.3) ^c	0.74	
Nonjudging	27.1 (8.0)	30.6 (6.2)	3.5 (1.3–5.7) ^d	0.51	26.3 (6.5)	27.4 (6.8)	1.1 (–0.6–2.8)	0.3	2.4 (–0.3–5.1)	0.61	
Nonreactivity	21.9 (4.3)	24.1 (3.0)	2.2 (0.9–3.4) ^d	0.53	19.8 (2.9)	20.2 (3.5)	0.4 (–0.8–1.6)	0.1	1.8 (0.1–3.5) ^c	0.64	

Abbreviations: SD, standard deviation; CI, confidence interval; SRM, standardized response mean; SES, standardized effect size. *Five Facets Mindfulness Questionnaire* of 39 items. Value range from 39 to 195. Higher values indicate a higher degree of mindfulness or their sub-scales. Positive differences indicate improvement.

^aSRM: standardized response mean. The SRM was calculated as the mean change in score divided by the SD of the change.

^bSES: standardized effect size. The SES was calculated as the mean difference between the intervention and the control groups, divided by the standard deviation (SD) of the control group.

Positive values of SRM and SES indicate improvement, negative values indicate worsening.

Values 0.2-0.5 represent small changes, 0.5-0.8 moderate changes, and >0.8 large changes.

^c*p* < 0.05; ^d *p* < 0.01; ^e *p* < 0.001.

include one in this type of educational intervention. In this study, the control group did not receive any type of psychological intervention during follow-up, and data collection from both the intervention and control groups took place simultaneously.

We conclude that a mindfulness-based training course can reduce burnout and improve well-being and at least one facet of empathy among primary health care professionals working in the Spanish public primary health care system after an 8-week intervention educational program. We used a controlled design to prove that the intervention, and not temporal trends, contributed to positive changes in attitudes toward better self-care, being present, and professionalism. The intervention was well accepted and valued, and participants acquired good contemplation-meditation skills. Further research that includes a larger and more representative sample size designed to evaluate also mid- and long-term effects should confirm the generalizability of our approach. Our study suggests that mindfulness based approaches should be adopted as part of continuing professional education to reduce and prevent burnout, promote positive attitudes among

health professionals, strengthen patient-provider relationships, and enhance well-being.

Lessons for Practice

- Our study shows that a group Mindfulness-Based Stress Reduction intervention delivered over an 8-week period significantly reduced burnout rates, improved mood, and promoted positive attitude changes in primary health care professionals in Spain.
- It is important to include psychoeducational programs in continuing professional development to decrease burnout rates and to prevent a downward trend in health care quality and in the well-being of professionals.

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