Exploring relations among mindfulness facets and various meditation practices: Do they work in different ways?

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This study aimed to assess the relations among different practice variables, types of meditation, and mindfulness facets. The final sample was composed of 185 participants who completed an online survey, including information on the frequency and duration of each meditation practice, lifetime practice, and the Five Facet Mindfulness Questionnaire. A Multiple Indicators Multiple Causes structural model was specified, estimated, and tested. Results showed that the Model’s overall fit was adequate: \( \chi^2 (1045) = 1542.800 \) (\( p < 0.001 \)), CFI = 0.902, RMSEA = 0.042. Results revealed that mindfulness facets were uniquely related to the different variables and types of meditation. Our findings showed the importance of specific practices in promoting mindfulness, compared to compassion and informal practices, and they pointed out which one fits each mindfulness facet better.

1. Introduction

In recent years meditation practice has experienced a considerable increase in Western culture. Benefits for physical and psychological health have been well documented in a wide range of clinical and non-clinical populations (Demarzo et al., 2015; Khoury et al., 2013). Mindfulness-based interventions (MBIs) refer to a range of clinical interventions –such as mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1990) or mindfulness-based cognitive therapy (MBCT; Teasdale, Segal, & Williams, 1995) – whose central component is training in mindfulness skills (Baer, 2003; Cullen, 2011). Mindfulness...
can be understood as a disposition or trait as well as a state (Brown & Ryan, 2003; Kiken, Garland, Bluth, Palsson, & Gaylord, 2015). Specifically, dispositional or trait-mindfulness have been found to be related to the amount of meditation practice (Baer, Carmody, & Hunsinger, 2012; Carmody & Baer, 2008; Vettese, Toneatto, Stea, Nguyen, & Wang, 2009), and levels of acquired DM are also globally related to the efficacy of MBIs (Gu, Strauss, Bond, & Cavanagh, 2015; van der Velden et al., 2015).

Dispositional mindfulness (DM) is a multifaceted construct that can be divided into five facets: Observing, Describing, Acting with awareness, Non-judging of inner experience, and Non-reactivity to inner experience (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). Regarding mindfulness facets and their relationship with meditation practice, Baer et al. (2008) and Lykins and Baer (2009) pointed out that the five facets of mindfulness showed significant associations with meditation experience in long-term meditation practitioners. Specifically, the authors suggest that three of the five facets (Observing, Non-judging, and Non-reactivity) are especially helpful in understanding the changes that occur with long-term meditation practice, and that they are related to symptom reduction and improved psychological functioning (Baer, 2007). Indeed, Lilja, Lundh, Joseffson, and Falkenström (2013), using a person-oriented analysis method, found that Observing is an essential dimension in samples of meditators, independently from Non-judging. Similarly, Soler et al. (2014) reported that meditators obtained significantly higher scores than non-meditators on all facets of the FFMQ (especially on Observing and Non-reactivity). However, the authors indicated that not all practice variables are equally relevant in terms of developing DM. Frequency and lifetime practice, but not session length or meditation type, were associated with higher mindfulness skills (all of them except Describing, which was only related to years of education). By contrast, meditation session length was related only to the development of Observing. Unfortunately, Soler et al. (2014) did not report the different meditation techniques that participants practiced. Similarly, DM has also been associated with the frequency of meditation, rather than with accumulated practice over years, using the Comprehensive Inventory of Mindfulness Experience (CHIME, Bergomi, Tschacher, & Kupper, 2015). Moreover, in the correlation analyses in this latter study, a practice variable that combined information on average session duration and frequency of practice yielded the strongest associations with mindfulness. However, this positive relationship between practice and benefits of MBIs (including DM) has not always been fully supported (Vettese et al., 2009). As pointed out previously (Dobkin & Zhao, 2011), such inconsistencies among studies may also reflect different definitions of the practices and different methodologies used to measure them (e.g., daily logs, follow-up surveys).

MBIs use several types of meditation to achieve their objectives (for example, the cultivation of mindfulness in daily life), although meditation is “an umbrella term that encompasses a family of practices that share some distinctive features, but that vary in important ways in their purpose and practice” (Ospina et al., 2007). According to Sedlmeier et al. (2012), it is quite difficult to find an approach to meditation that can be reduced to a single mechanism. Meditation practices used in MBIs can be divided into three families: focused attention meditation (FA), open monitoring meditation (OM), and compassion meditation (CM) (Lippelt, Hommel, & Colzato, 2014). FA or concentrative meditation involves a narrowing attentional scope and the cultivation of one-pointed concentration on a single object or event, such as breathing sensations or a candle flame, bringing the attention back to that object or sensation when one is distracted by external stimuli or inner thoughts (Dahl, Lutz, & Davidsonson, 2015; Lee et al., 2012; Tops, Boksem, Quirin, IJzerman, & Koole, 2014). As some authors point out, FA is the starting point for any novice meditator, but this focus will subsequently be gradually reduced, while emphasizing the activity of awareness monitoring (i.e., OM) (Lippelt et al., 2014; Lutz, Brefczynski-Lewis, Johnstone, & Davidson, 2008; Vago & Silbersweig, 2012). During OM, the attentional scope is expanded, and the meditator remains attentive to any experience that might arise (perceptions, thoughts, emotional content and/or subjective awareness), without selecting, over-identifying, judging, or focusing on any particular object (Dahl et al., 2015; Lippelt et al., 2014). Meditative techniques lie somewhere on a continuum between the poles of these two general methods: FA and OM (Andresen, 2000; Chiesa & Malinowski, 2011; Shapiro & Walsh, 1984; Wallace, 1999). In this regard, CM incorporates elements of both FA and OM (Vago & Silbersweig, 2012), as it focuses on cultivating the recognition of and desire to relieve pain and suffering for the self and others, which gives rise to pro-social behaviours (Goetz, Keltner, & Simon-Thomas, 2010; Lama, 2001; Lutz et al., 2008). Compassion practices (i.e., self-compassion, compassion for others, loving kindness, etc.) can be classified as constructive types of meditation (Dahl et al., 2015) that may involve cognitive, affective, and behavioural features. They can be complementary practices in MBI or delivered in specific programs for clinical and non-clinical populations (Leaviss & Uttley, 2015). Finally, there is another meditation technique that has a relevant place in all MBI curricula and is a combination of FA and OM: Informal practice (IP). This kind of practice involves the integration of mindfulness skills into everyday life (Kabat-Zinn, 1994). IP can manifest itself in many ways, such as “noticing one’s body while walking, being aware of thoughts and feelings while washing the dishes, bringing attention to one’s breath upon awakening” (Salmon, Santorelli, & Kabat-Zinn, 1998). IP is part of both MBCT and MBSR, but it plays a crucial role in Dialectical Behavior Therapy, where FA, OM and CM have less importance, and IP is the main way to learn mindfulness (Linehan, 1993, 2014). Taking into account that there are different types or families of meditation (FA, OM, CM and IP) involved in MBIs, there are few data about how different meditation practices relate to different facets of DM. Furthermore, not only is the type of meditation relevant, but also other practice variables, such as frequency, session length, or lifetime practice (Baer et al., 2006, 2008; Lykins & Baer, 2009; Soler et al., 2014).

Some authors have shown that different meditation practices have distinct effects on psychological and physiological variables (Lutz et al., 2008). Related to FA, OM, and CM practices, research shows differential effects of these practices on attention, conflict monitoring, and creativity, revealing that different kinds of meditations are associated with different neural structures and different patterns of electroencephalographic activity (Lee et al., 2012; Lippelt et al., 2014). Feldman and
colleagues compare FA to CM using the Toronto Mindfulness Scale (TMS, Lau et al., 2006), showing that FA practice is associated with a greater increase in decentering (Feldman, Greenson, & Senville, 2010). However, very little is known about the relation between different meditation techniques and DM. In this sense, Carmody and Baer (2008) reported the association between specific meditation techniques (i.e., body scan, mindful movement, sitting meditation, and IP) and some facets of the FFMQ, finding that formal meditation practices were globally related (but with different weights) to all the mindfulness facets, except describing. However, Carmody and Baer focused more on particular meditation techniques used in MBIs than on the mechanisms of meditation practice (i.e., FA or OM). For this reason, we do not select techniques, but rather meditation practices based on their mechanisms, following traditional approaches and recent scientific studies (i.e., Lippelt et al., 2014; Wallace, 1999).

In summary, there is a noteworthy gap in the literature about how specific meditation practices influence outcomes and, especially, DM. Given the crucial mechanistic role of DM in MBIs, it seems necessary to evaluate this domain. This study aims to assess the relations among different meditation practice variables (i.e., frequency, time session length, and lifetime practice), types of techniques (i.e., FA, OM, CM and IP), and dispositional mindfulness dimensions. Our hypothesis is that different types of meditation and different practice profiles (in relation to frequency, length of sessions, and lifetime experience) will have distinct impacts on mindfulness facets.

2. Method

2.1. Design, procedure, and sample

Participants completed an assessment protocol via a commercial online survey system (www.surveymonkey.com) posted on several Spanish websites about mindfulness, meditation, and psychology, as well as on non-professional social networks. A total of 599 subjects accessed the website, 487 voluntarily agreed to participate, and 365 completed the survey. The only inclusion criteria were to have at least one year of experience with meditation and answer the survey completely. The final sample was composed of 185 participants, 63.8% women. Mean age was 44.72 (SD = 10.11). Regarding education, 89.8% were university graduates, whereas only 9.7% had secondary studies, and 0.5% had primary education.

2.2. Instruments

Among the information included in the survey, variables on the amount of meditation practice were used to assess different meditation practices (FA, OM, CM and IP), frequency (every day, 3 or 4 times a week, once a week or less, 2 or 3 times per month, sporadically, or never), duration of each session (in minutes), and lifetime practice (in years). A brief description of each meditation practice was included in order to guarantee the understanding and standardization of the concepts among participants.

To measure dispositional mindfulness, the Five Facet Mindfulness questionnaire was used (FFMQ; Aguado et al., 2015; Baer et al., 2006; Cebolla et al., 2012). It is a 39-item questionnaire that assesses five different facets of mindfulness: Observing, which refers to the subject’s capacity to pay attention to internal and external experiences such as sensations, thoughts, or emotions; Describing, which measures the ability to describe events and personal responses in words; Acting with awareness, which includes focusing on the activity being carried out instead of behaving automatically; Non-judging of inner experience, which refers to the ability to take a non-evaluative stance toward thoughts and feelings; Non-reactivity to inner experience, allowing thoughts and feelings to come and go without getting caught up in them or carried away by them (Baer et al., 2008). Internal consistency of the FFMQ subscales for the current sample was good to excellent, with Cronbach’s alphas ranging from 0.79 (Observe) to 0.94 (Non-judging inner experience).

2.3. Data analyses

Given the number of different indicators for the different meditation practices and the available number of subjects, the model with all the potential indicators would be too large to be estimated with confidence. Therefore, some data-screening was carried out prior to model specification, specifically, correlations among the predictors (frequencies of the four different meditation practices, duration in minutes for each type of practice, and time practicing). Only the statistically significant correlations were included in the model.

Next, a Multiple Indicators Multiple Causes (MIMIC) structural model was specified, estimated, and tested, using maximum likelihood with robust corrections for the standard errors and fit indices, a procedure that deals well with non-normality in the data (Finney & Di Stefano, 2006). The model established relations among the different meditation practice profiles and the mindfulness dimensions measured by the FFMQ. Although multiple regression or path analysis could also have been used for the prediction of the five facets of mindfulness, MIMIC models allow the prediction of mindfulness in a context free of measurement error in the dependent variable, and they make it possible to consider unique relations with particular mindfulness indicators (items) while offering an elegant solution for all the variables in a single statistical model.

In order to assess the model’s overall fit, several fit criteria were used (Hu & Bentler, 1999; Tanaka, 1993): (a) the chi-squared statistic (Kline, 1998); (b) the comparative fit index (CFI; Bentler, 1990), with above 0.90 indicating adequate fit
(and, ideally, greater than 0.95; Hu & Bentler, 1999); and (c) the root mean squared error of approximation (RMSEA; Steiger & Lind, 1980), with values of 0.05 or less for adequate fit. Even though the most common index is the chi-squared test, several problems with its use have been pointed out in the literature: its restrictive assumptions, problems with sample size, etc. Along these lines, there is a strong consensus that no single measure of model fit should be used exclusively (Tanaka, 1993). Hu and Bentler (1999) established some widely used guidelines for model fit that simultaneously employ the CFI and RMSEA values, with CFI < 0.90 (ideally < 0.95) and RMSEA < 0.08 indicating good fit.

3. Results

All the participants selected for this study have at least one year of meditation experience. Specifically, lifetime practice was as follows: between 1 and 5 years (42.2%), between 5 and 10 years (17.3%), and more than 10 years (40.5%). Participants meditate every day (55.1%), 3 or 4 times a week (30.8%), or once a week or less (14.1%). No differences were found for age \( F(2, 179) = 1.218; p = 0.298 \), sex \( \chi^2(2185) = 0.309; p = 0.857 \), or education level \( \chi^2(8185) = 5.847; p = 0.664 \) in the meditation frequencies. Minutes per session ranged from 5 to 100 \( (M = 39.65; SD = 24.22) \). Table 1 shows meditation indicators (frequency and minutes per session) by type of practice. Differences in minutes per session were found between FA and CM \( (t(184) = 3.14; p < 0.05) \), and IP \( (t(184) = -4.86; p < 0.01) \); between OM and CM \( (t(184) = 4.42; p < 0.01) \), and IP \( (t(184) = -3.87; p < 0.01) \); and between CM and IP \( (t(184) = -7.22; p < 0.01) \). See Table 1 for more details.

Correlations among independent variables were calculated (see Table 2), and statistically significant correlations were added for free estimation in the model.

The MIMIC model tested the relations among the study variables and the five dimensions of mindfulness. Thus, the rationale guiding the model was partially exploratory, given the large number of potential predictors. Therefore, the main aim was to study potential meditation practices as mindfulness predictors in order to obtain useful information for future clinical guidelines. In this regard, no previous insights were found in the scientific literature, and effects of all the independent variables on the five facets of mindfulness were specified.

The model’s overall fit was adequate: \( \chi^2(1045) = 1542.800 \) \( (p < 0.001) \), CFI = 0.902, RMSEA = 0.042 (95% confidence interval = 0.038–0.047). The measurement part of the model showed reliable factor loadings, with values ranging from 0.441 (item 11) to 0.687 (item 15) for the dimension of observe; 0.610 (item 22) to 0.830 (item 37) for describe; 0.665 (item 23) to 0.799 (item 28) for acting with awareness; 0.702 (item 3) to 0.870 (item 25) for non-judging inner experience; and from 0.470 (item 4) to 0.787 (item 33) for non-reactivity to inner experience. Correlations among factors were positive and statistically significant, as expected (see Table 3).

Regarding predictors of the mindfulness dimensions, the main predictor of Observing was minutes of FA \( (\gamma = 0.258, p = 0.003) \), and frequency of IP was a marginal predictor \( (\gamma = 0.160, p = 0.053) \), with 17.8% of the explained variance. Describing was not statistically predicted. The main predictor of Acting with awareness was again minutes of FA practice \( (\gamma = 0.291, p < 0.001) \); total lifetime practice also had a statistically significant effect \( (\gamma = 0.181, p = 0.005) \). The amount of variance explained was 14.3%. Non-judging inner experience was predicted by frequency of FA practice \( (\gamma = -0.165, p = 0.021) \), frequency of OM \( (\gamma = 0.156, p = 0.043) \), and minutes of FA practice \( (0.154, p = 0.016) \), with similar effects and a total explained variance of 7.8%. Finally, Non-reactivity to inner experience was predicted by frequency of OM practice \( (\gamma = 0.179, p = 0.031) \), and marginally by minutes of FA practice \( (\gamma = 0.154, p = 0.057) \). In all, 16.4% of the variance in Non-reactivity to inner experience was explained. This information can be found in Fig. 1.

4. Discussion

The purpose of the present study was to investigate the relationship between different practice variables (frequency, length of session, and lifetime practice) and types of meditation (FA, OM, CM and IP) in dispositional mindfulness dimen-

<table>
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<th>Table 1</th>
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<td>Meditation indicators (frequency and minutes) by type of meditation practice.</td>
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<tr>
<td>Frequency</td>
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Notes: FA = focused attention; OM = open monitoring; CM = compassion meditation; IP = informal practice.
sions. In general, results point out the relative importance of FA and OM practices, in contrast to CM and IP, in predicting specific facets of dispositional mindfulness (DM).

Results reveal that facets of DM were related in a unique way with the different variables of practice and types of meditation. Specifically, Observing was predicted by minutes of FA practice and IP frequency. The main predictors of Acting with awareness were minutes of FA practice and lifetime practice. Non-judging inner experience was predicted by frequency of FA practice, frequency of OM, and minutes of FA. Finally, Non-reactivity to inner experience was predicted by frequency of OM practice and minutes of FA practice. Describing was not predicted by any indicator of meditation practice. Compassion practice had no influence on the mindfulness dimensions in our study.

Our findings partially agree with Soler et al. (2014), whose authors found that the most relevant variables were frequency of practice and lifetime meditation experience, which influenced the majority of the mindfulness facets (all of them except Describing). By contrast, meditation session length was related only to the development of Observing. However, the type of meditation practiced was not reported in this latter study.

Regarding the effect of previous experience on DM, Baer et al. (2008) and Lykins and Baer (2009) showed significant relationships between all five mindfulness facets and meditation experience in long-term meditation practitioners, and Soler et al. (2014) reported that Observing and Non-reactivity may be especially sensitive to months of previous mindfulness practice. However, unlike in these studies, we only found a predictive effect of total lifetime practice on the Acting with awareness facet. Another interesting result is related to Describing because the role of Describing in mindfulness is complex, raising the question of whether Describing should or should not be considered a feature of mindfulness (Cardaciottto, Herbert, Forman, Moitra, & Farrow, 2008; Soler et al., 2014).

Table 2

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<tr>
<td>1 F-FA</td>
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<td>2 F-OM</td>
<td>0.347**</td>
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<td>3 F-CM</td>
<td>0.302**</td>
<td>0.407**</td>
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<td>4 F-IP</td>
<td>0.281**</td>
<td>0.432**</td>
<td>0.438**</td>
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<td>5 Min-FA</td>
<td>0.442**</td>
<td>0.179</td>
<td>0.086</td>
<td>0.153</td>
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<td>6 Min-OM</td>
<td>0.061</td>
<td>0.515**</td>
<td>0.181</td>
<td>0.250</td>
<td>0.274**</td>
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<td>7 Min-CM</td>
<td>0.123</td>
<td>0.317</td>
<td>0.565</td>
<td>0.321</td>
<td>0.181</td>
<td>0.299</td>
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<td>8 Min-IP</td>
<td>0.120</td>
<td>0.299</td>
<td>0.230</td>
<td>0.509</td>
<td>0.164</td>
<td>0.283</td>
<td>0.336**</td>
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<td>9 Months of practice</td>
<td>0.059</td>
<td>-0.002</td>
<td>-0.026</td>
<td>-0.079</td>
<td>0.015</td>
<td>0.056</td>
<td>0.168</td>
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Notes: F-FA = Frequency of focused attention; F-OM = Frequency of open monitoring; F-CM = Frequency of compassion meditation; F-IP = Frequency of informal practice; Min-FA = Minute session of focused attention; Min-OM = Minute session of open monitoring; Min-C = Minute session of compassion meditation; Min-IP = Minute session of informal practice. 

"p < 0.05. 
**p < 0.01.

Table 3

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<tbody>
<tr>
<td>1 Observing</td>
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<td>2 Describing</td>
<td>0.366**</td>
<td>-</td>
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<td>3 Acting with awareness</td>
<td>0.513</td>
<td>0.294</td>
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<td>4 Non-judging inner experience</td>
<td>0.305</td>
<td>0.332</td>
<td>0.410</td>
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<tr>
<td>5 Non-reactivity to inner experience</td>
<td>0.565</td>
<td>0.372</td>
<td>0.591</td>
<td>0.519</td>
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Notes: **p < 0.01.
Regarding CM practices, it should be pointed out that compassion practice was not related to dispositional mindfulness. This result suggests a complex relationship between compassion and mindfulness, as Campos et al. (2016) pointed out, and even its role as a relevant pedagogical tool for teaching mindfulness (Feliu-Soler et al., 2016). As FA and OM training is commonly used as a preliminary phase to the practice of CM (Hofmann, Grossman & Hinton, 2011), this could undermine the effects of CM practice on dispositional mindfulness, as those participants who practiced CM had probably already reached high levels of DM because of their previous FA, OM or IP practice. Thus, it is very difficult to determine specific effects. Curiously, in Feliu-Soler et al.’s study (2016), adding 3 sessions of CM to previous Mindfulness training caused a higher impact on one aspect of mindfulness (i.e. acceptance) than on other compassion-related variables, suggesting that these practices may enhance each other in some way. Further research should be carried out with larger samples and including more individuals with higher levels of CM practice in order to specifically study the relationship between CM practice and dispositional compassion and mindfulness.

Some limitations and methodological issues should be taken into account. The first is the relatively small sample size recruited on the Internet, which was probably more heterogeneous and may have resulted in a selection bias producing the underrepresentation of specific groups of people or meditation types, even though some studies confirm the reliability of data obtained from this source (Ritter, Lorig, Laurent, & Matthews, 2004). Second, indicators of meditation practice were reported through a recall method. This factor is especially complex when measuring informal practice, which is related to the third study limitation. We included informal practice, based on the literature, to consider the usefulness of this kind of meditation practice, although more effort should be made to improve its measurement, as other authors have pointed out (e.g. Carmody & Baer, 2008). Thus, the third limitation refers to the difficulties in measuring specific effects of practices because most participants combine the four types in their daily practice. Future studies should address this issue. The fourth limitation is that lifetime practice in months was used in a model as a general factor, without specifying the types of practice. Finally, meditators’ expectations were not taken into account. Authors have shown that meditators’ expectations about
the effects of their practice might lead to an overestimation of these associations (Bergomi et al., 2015; Grossman, 2008). Moreover, other limitations of this study are the cross-sectional design, which does not allow causal relations, and concerns about the real accuracy of the mindfulness construct, due to doubts about its operationalization and the validation of current measurement instruments (Goldberg et al., 2015).

Despite these limitations, this study has a number of strong points. For example, the statistical methodology is quite robust and integrates all the relationships among the variables. The meditation practices classification used was based on traditional sources and the most widely used methods. Thus, we focused only on the action mechanism, rather than teaching contexts, in order to unify the results. To our knowledge, this is the first study to explore the relationship between meditation variables and practices and mindfulness facets.

In summary, the results of this study are in line with previous studies that showed the differential efficacy of meditation practices in promoting dispositional mindfulness (Baer, 2007; Lykins & Baer, 2009; Soler et al., 2014). Furthermore, this study pointed out which practice better fits each mindfulness facet, in addition to answering the question about which indicators of meditation practices (i.e., session length, frequency of practice or meditation experience) predict specific mindfulness facets. This is a key issue in understanding the relationship between mindfulness skills and meditation practice, and it could have several implications. If we know how it works, we can develop more accurate mindfulness teaching methods, choosing which facets we are interested in promoting or enhancing through meditation practices. Moreover, the results provide a starting point for future clinical applications of meditation. Other studies have already shown the relationship between specific facets of mindfulness and specific psychological symptoms, such as depressive, anxious, and stress-related symptomatology (Cash & Whittingham, 2010; Colgan, Christopher, Michael, & Wahbeh, 2015).

Our preliminary findings suggest future implications for the improvement of MBI programs, such as how to tailor interventions addressed to specific participants’ needs or mindfulness facets, decrease or increase the minutes of practice or sessions, extend the knowledge about the effects of each meditation practice, and better adjust the participants’ expectations about the practice.

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References
