Psychotherapy Research
Publication details, including instructions for authors and subscription information:
http://www.tandfonline.com/loi/tpsr20

Impact of mindfulness training on attentional control and anger regulation processes for psychotherapists in training

Beatriz Rodriguez Vega[a], Javier Melero-Llorente[a], Carmen Bayon Perez[a], Susana Cebolla[a], Jorge Mira[a], Carla Valverde[a] & Alberto Fernández-Liria[b]

[a] Psychiatry, La Paz University Hospital. Idipaz, Madrid, Spain

[b] Principe de Asturias University Hospital, Madrid, Spain

Published online: 18 Oct 2013.

To cite this article: Beatriz Rodriguez Vega, Javier Melero-Llorente, Carmen Bayon Perez, Susana Cebolla, Jorge Mira, Carla Valverde & Alberto Fernández-Liria , Psychotherapy Research (2013): Impact of mindfulness training on attentional control and anger regulation processes for psychotherapists in training, Psychotherapy Research, DOI: 10.1080/10503307.2013.838651

To link to this article: http://dx.doi.org/10.1080/10503307.2013.838651

Psychotherapy Research, 2013
http://dx.doi.org/10.1080/10503307.2013.838651

Routledge
Taylor & Francis Group

EMPIRICAL PAPER

Impact of mindfulness training on attentional control and anger regulation processes for psychotherapists in training

BEATRIZ RODRIGUEZ VEGA[1]*, JAVIER MELERO-LLORENTE[1], CARMEN BAYON PEREZ[1], SUSANA CEBOLLA[1], JORGE MIRA[1], CARLA VALVERDE[1] & ALBERTO FERNÁNDEZ-LIRIA[2]

[1]*Psychiatry, La Paz University Hospital. Idipaz, Madrid, Spain* & [2]*Principe de Asturias University Hospital, Madrid, Spain*

(Received 18 August 2012; revised 24 June 2013; accepted 22 August 2013)

Abstract
Objectives: Little empirical literature focuses on psychotherapists' cultivation of internal states of mind necessary for controlling attention and responding empathically to the client. We explore the effects of mindfulness training on emotional and attentional measures in Spanish resident intern psychiatrists and clinical psychologists. **Method:** One hundred and three residents were assigned to an experimental group (n = 60) that completed an 8-week mindfulness training versus a wait-list control group (n = 43). We evaluated emotional variables (sadness, anxiety, and anger, using standard instruments), state of mindfulness (using the Mindfulness Awareness Attention Scale), and attentional control variables using objective measures such as a continuous performance task and the Stroop task before and after mindfulness training. **Results:** Our study provides data that suggest that mindfulness training significantly improves measures of trait anger and attentional control. **Conclusions:** Further research is needed to replicate these findings, explore the effects of mindfulness training on other aspects of emotional regulation and cognition, and evaluate the impact of these effects within clinical situations.

Keywords: attentional control; mindfulness; anger; depression; psychotherapist in training

Introduction

Training in psychotherapy is a key element of educational programs for psychiatrists and clinical psychologists. It also is a highly complex task (Grepmair et al., 2007). Psychotherapist training programs have changed the training requirements in recent years, expecting residents to achieve differing levels of expertise in specific psychotherapies, demonstrate empathy and rapport, and develop trusting and ethical therapeutic relationships with patients (Accreditation Council for Graduate Medical Education: Program requirements for graduate medical education in psychiatry, 2007; Royal College of Physicians and Surgeons of Canada: Specialty Training Requirements in Psychiatry, 2008.).

More than technical considerations or factors such as the establishment of a therapeutic alliance, the characteristics of a therapist are of greater influence to the course of therapy, accounting for up to 20% of the variance in results (Lambert, Norcross, & Goldfried, 1992; Lambert & Olges, 2004; Norcross & Lambert, 2011). Some of the skills considered to be essential for an effective therapist are maintaining an attentive presence, having both a cognitive and affective empathic response (Greason & Cashwell, 2009; Lambert & Barley, 2001; Orlinsky, Grave, & Parks, 1994; Rogers, 1957, 1975; Wampold, 2001; Watson, 2001), and acquiring the flexibility to move between mind and body, thoughts and feelings, and the intrapersonal and interpersonal world (Royal College of Psychiatrists, 2006; UEMS Section for Psychiatry, 2005). Moreover, the therapist's empathy, respect, genuineness, and attention to goals and tasks in treatment and ruptures in the alliance predict

*Correspondence concerning this article should be addressed to Beatriz Rodriguez Vega, La Paz University Hospital. IdiPaz. Autonoma University, Psychiatry, Paseo de la Castellana 261, Madrid, 28046 Spain. Email: beatrizrvega@gmail.com

positive outcomes in psychotherapy (Ackerman & Hilsenroth, 2003; Weerasekera, Manring, & Lynn, 2010). However, the literature on psychotherapy training contains more studies on the acquisition of specific psychotherapeutic techniques (Fernandez Liria, Rodriguez-Vega, Ortiz-Sanchez, Baldor Tubet, & Gonzalez-Juarez, 2010; Rimondini, Del Piccolo, Goss, Mazzi, Paccaloni, & Zimmermann, 2010) than on initiatives to acquire and develop personal skills and attitudes (Grepmair et al., 2007; Lecic-Tosevski, Pejovic-Milovancevic, Tenjovic, Draganic-Gajic, & Christodoulou, 2005; Twemlow, 2001). Most of the training literature focuses on developing external and observable empathic responses (mirroring, reflection of feeling) without paying much attention to the cultivation of internal states of mind necessary for controlling attention and for having a multidimensional (cognitive and affective) empathic response (Greason & Cashwell, 2009).

Mindfulness is defined as "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience, moment to moment" (Kabat-Zinn, 1990). Including mindfulness in therapist training may positively influence therapeutic outcomes (Grepmair et al., 2007), because it has been proposed as a common factor in psychotherapy (Martin, 1997). Mindfulness is broadly consistent with the recommendations of classic and modern authors on the therapist's attitude toward the patient. Freud (1912) proposed that the therapist should maintain ungrounded attention, unintentionality, apathy without therapeutic ambition, and low activation of attention, and should discard his or her own expectations or tendencies. Wilfred R. Bion (Bion, 1967) suggested that analysts settle into the observational and research task "without memory, desire or understanding" (as referred to by Gonzalez-Torres, 2011). Gilligan (1995) stated that an essential element in the therapeutic relationship is the relaxation of the psychotherapist as he or she relieves physical and emotional tensions and focuses on breathing. Karson and Fox (2010) described what they call "cognitive presence," which involves paying attention to interpersonal relationships and emotional reactions without reacting personally, and minimizing distractions stemming from the therapist's personal life. Ryan, Safran, Doran, and Muran (2012) found that therapist dispositional mindfulness may be an important pre-treatment variable in psychotherapy outcomes.

Mindfulness-based stress reduction (MBSR), probably the most widely recognized mindfulness intervention, is an 8-week program that combines mindfulness meditation and gentle yoga. Studies of MBSR for health care professionals report reduced state and trait anxiety, negative affect, perceived stress, and rumination (Shapiro, Astin, Bishop, & Cordova, 2005; Shapiro, Brown, & Biegel, 2007), as well as increased empathy and improved listening skills (Newsome, Christopher, Dahlen, & Christopher, 2006; Davis & Hayes, 2011). Safran, Muran, Stevens, and Rothman (2007) propose mindfulness techniques as a way to increase the therapist's awareness of self and of his/her experience, as well as awareness of the moment-by-moment interactions in the therapist–patient dyad (Safran et al., 2007). Other theorized benefits of mindfulness training are improving affect tolerance (Fulton, 2005), flexibility (Adele & Feldman, 2004), equanimity (Morgan & Morgan, 2005), concentration and mental clarity (Young, 1997), emotional intelligence (Walsh & Shapiro, 2006), coping with anxiety and anger contratransference reaction (Corcoran, Farb, Anderson, & Segal, 2010; Farb et al., 2010; Chambers, Lo, & Allen, 2008), and the ability to relate to others and one's self with kindness, acceptance, and compassion (Fulton, 2005; Wallace, 2001).

Mindfulness practices also benefit cognitive functions including attention and memory (Gunaratana, 1993; Kapleau, 1965; Teasdale, Segal, & Williams, 1995). To cultivate mindful awareness, attention must be combined with a non-judgmental approach and openness to the flow of one's experiences. Development of attentional control and inhibition of unnecessary elaborative processing appear to influence the psychological benefits of mindfulness training such as reduced cognitive reactivity (Raes, Dewulf, Van Heeringen, & Williams, 2009), avoidance, and rumination (Kumar, Feldman, & C., H. S., 2008; Baer, 2003; Bishop, Lau, & Shapiro, 2004; Chiesa, Calati, & Serretti, 2011). In this study, we used the Stroop task to assess inhibition of the elaborative process (Anderson, 2007). The Stroop task measures the selective attention and inhibition of automatized responses needed to avoid dwelling on thoughts or feelings outside the present moment (Bishop et al., 2004; Polak, 2009). Sustained attention, defined as the capacity to maintain vigilance over time (Posner & Rothbart, 1992), is an aspect of attention that is related to the practice of both mindfulness and psychotherapy; it refers to the ability to maintain awareness of current experience (Bishop et al., 2004; Polak, 2009; Schmertz, 2006). The continuous performance test (CPT) is a computer-administered test that evaluates sustained attention and inhibition of response (Strauss, Sherman, & Spreen, 2006). It has been used in clinical practice for measuring attention in Attention Deficit Hyperactivity Disorder (ADHD), schizophrenia, brain injury and other conditions (Borgaro et al., 2003) and it is one of the most widely used

methods to study attention in experimental settings (Ogg et al., 2008). As a form of receptive awareness, "mindfulness can facilitate the creation of an interval of time or a gap wherein one is able to view one's mental landscape including one's behavioral options rather than simply react to interpersonal events" (Brown & Ryan, 2003).

Present study. Practising mindfulness could be a step forward in terms of cultivating therapist attitudes that are in keeping with both empirical data from recent investigation and classic views of psychotherapy. Inclusion of meditation techniques in psychotherapy training would allow therapists to develop attentional and perceptual skills and an improved ability to self-analyse (Twemlow, 2001). We hypothesize that mindful skills may help the therapist to maintain an attentive presence and to have an empathic response, which are necessary to avoid an automatic reaction to emotionally disturbing content in therapy. According to this, Mrazek, Franklin, Phillips, Baird, and Schooler (2013) claim that improvements in performance among participants following mindfulness training are mediated by reduced mind-wandering. Other authors consider that mindfulness promotes a mental state of metacognitive supervision that can alter the automatic circuits created by repetitive thought (Davis & Nolen-Hoesksema, 2000; Fresco, Frankel, Mennin, Turk, & Heimberg, 2002; Kendal & Ingram, 1989; Segal, Williams, & Teasdale, 2002; Teasdale, 1988).

To date, few studies have evaluated the influence of mindfulness training on the psychotherapist's internal variables. Future research should include more intervention studies in which therapists receive training in mindfulness skills and use forms of data collection, beyond self-reports, to consider the effect of mindfulness on training outcomes (Davis & Hayes, 2011; Greason & Cashwell, 2009). The main goal of the present study is to analyse the effect of mindfulness training via a structured MBSR-based program (Kabat-Zinn, 1990) on emotional variables (anxiety, sadness, and anger), attentional variables (performance tests of sustained attention and attentional control), and state of mindfulness in a group of resident clinical psychologists and resident psychiatrists within the Spanish National Health System. We predicted that scores of anxiety, anger, and depression would decrease after MBSR training and scores of mindfulness state would increase. With respect to attentional variables, we predicted that participants who received MBSR training would show greater attentional control than the control group, as reflected by fewer errors and perseverations in the Stroop task and less variability in reaction time consistency in the continuous performance test.

Method

Study Location and Participants

The study was performed at La Paz University Hospital, Madrid, Spain. The Psychiatry Department includes a Psychotherapy Unit in which psychiatry and clinical psychology residents from Spanish and Latin American hospitals train. A mindfulness-training course based on an MBSR program is offered three times per year as part of the psychotherapy training program. The MBSR course is described by Kabat-Zinn (1990) and involves eight weekly, 2.5-hour classes involving formal meditation practices (e.g., body scanning; mindful hatha yoga exercises; and mindfulness of breathing, bodily sensations, sounds, and thoughts) as well as informal practices that encourage the application of mindfulness skills in everyday life (e.g., eating mindfully) so as to cope more effectively with stress and anxiety.

One hundred and three participants were consecutively recruited for the study. Participants came from different hospitals in Spain and Latin America to do a 3–6-month stay at our Psychotherapy Unit in La Paz Hospital and the Mindfulness course is offered as a main component of the formation. The lack of randomization of our study is related to our wish to accomplish both research evaluation and the training therapist's needs, following Keune et al.'s statement that "educational research studies should have educational value for the study subject"(Keune et al., 2013).

The first 60 registrants were assigned to the experimental group—following the order of his/her arrival at the Psycotherapy Unit—while the remaining 43 residents were assigned to the wait-list control group. The experimental group participated in three MBSR courses (20 participants in each) that were carried out in co-therapy by the same experienced therapist. She has done personal mindfulness practice and training in the Tibetan tradition, has well-developed learner-centred teaching skills in working with classes and with groups, and has attended the MBSR 8-week Practicum at the Center for Mindfulness in Medicine (UMass). All participants provided informed consent. None had prior experience with any form of meditation, yoga, tai chi, or Qigong. They were asked not to engage in other forms of meditation during the study.

Two participants in the experimental group were excluded from the study since they had more than two absences from the MBSR program. The experimental group included 58 participants, consisting of 33 resident psychiatrists and 25 resident clinical psychologists (42 women/16 men; mean age 29.6 ± 5.6 years). The control group included 43 participants

(24 resident psychiatrists and 19 resident clinical psychologists) with a mean age of 28.4 ± 4.02 years. The female/male ratio was 33/10. There were no significant differences between the groups with respect to these variables. All participants completed self-report questionnaires and attentional tasks immediately before starting the program (Time 1) and at the time of the final session (Time 2).

Source of Funding and Ethical Considerations

The study was performed in accordance with the Declaration of Helsinki and legislation pertaining to ethics in the medical profession. The local ethics committee approved the study design and we asked the informed consent from residents. As Keune et al. (2013) claim, informed consent is important in the trainee population for minimizing the coercion on research study participants. The study was conducted independently of any institutional influence and was not supported financially by any funding source.

Attentional Measures

We created computerised versions of a continuous performance task (CPT) and a test based on the Stroop paradigm (Stroop, 1935) using The Psychology Experiment Building Language (Mueller, 2009). The order in which tests were taken was counterbalanced across participants, although each participant took the tests in the same order at Time 1 and Time 2. Variables such as time of day and the computer equipment that was used were controlled to ensure experimental rigour.

Continuous Performance Test (CPT, Rosvold, Mirsky, Sarason, Bransome, & Beck 1956). This is based on the commercial version by Conners (2000). This paradigm was developed by the authors for the assesment of vigilance and has been employed in countless experimental studies (Strauss et al., 2006). Each participant completed a total of 360 trials in which he or she pressed the space bar as quickly as possible each time a letter appeared on screen, unless it was the letter "X." This distractor stimulus appeared on 10% of the trials. The duration of each stimulus was 250 ms and the inter-stimulus interval (ISI) varied between 1000 ms, 2000 ms, and 4000 ms. Based on the responses and reaction times, we computed the following measures using methods proposed by Conners (2000): Percentage of omissions, percentage of commissions, reaction time (RT), *d′* (calculated using the procedures outlined by Macmillan and Creelman, 2005, for experiments with yes/no responses), Beta (based on the procedures used for *d′*). Given the need for measures that are highly sensitive to intra-individual changes, we also computed the following measures: *SE of the predicted RT by sub-block* (a measure of reaction time consistency across the 18 subsets, calculated using the standard error of RTs for the 18 subsets in the regression) and *SE of the predicted RT by ISI* (a measure of reaction time consistency across the three inter-stimulus intervals, calculated using the standard error of RTs for the three ISIs in the regression). Lower variability of the reaction time is expected.

Stroop task. This cognitive-attentional control measure evaluates the participants' ability to task-switch, keeping a goal in mind and inhibit a habitual response in favour of a less familiar one (Strauss et al., 2006). The stimuli in the Stroop task were congruent, incongruent, or neutral. Participants first completed 20 congruent trials, which were not included in the analysis, as a training sample. If at any point in the task an erroneous response was made, the word "INCORRECT" appeared on the screen for 50 ms and the trial was repeated until the correct response was made. After the initial trials were complete, participants were asked to respond with the colour of the ink (the "name colour" condition) for 60 trials, randomly arranged, of which 20 were congruent, 20 were incongruent, and 20 were neutral. Immediately afterwards participants were asked to respond with the text of the word (the "read word" condition) for 60 trials, randomly arranged, of which 20 were congruent, 20 were incongruent, and 20 were neutral. The following measures were obtained: *colour RT* (average reaction time in the "name colour" condition), *word RT* (average reaction time in the "read word" condition), *congruent RT* (average reaction time for congruent stimuli in word condition), *incongruent RT* (average reaction time for incongruent stimuli in word condition), *neutral RT* (average reaction time for neutral stimuli in word condition), *errors* (number of incorrect trials), and *perseverations* (number of errors that were repeated after receiving "INCORRECT" feedback). Better attentional control in task switching is expected. This would be manifested by a higher RT in the "read word" condition, specifically in neutral stimuli (the only new ones after changing the condition), as well as a lower number of errors and perseverations.

Emotional Measures

State-Trait Anxiety Inventory (STAI). The STAI (Spielberger, Gorsuch & Lushene, 1982; translated into Spanish by Seisdedos, 1988) is a self-report instrument measuring state anxiety (SA)

and trait anxiety (TA). An internal consistency of .93 for the State scale and .87 for the Trait scale and a test-retest reliability of the Trait scale of .86 are reported (Seisdedos, 1988). STAI shows high convergence validity with other anxiety scales such as the Manifest Anxiety Scale (Spielberger, Reheiser, Ritterband, Sydeman, & Unger, 1995). Lower scores are expected in the experimental group after training.

State-Trait Anger Expression Inventory-2 (STAXI-2). The STAXI-2 (Spielberger, 1999) consists of a State Anger scale, which comprises three subscales (Feeling Angry, Feeling like Expressing Anger Verbally, and Feeling like Expressing Anger Physically); a Trait Anger scale, which comprises two subscales (Angry Temperament and Angry Reaction); and the following subscales: Anger Expression-Out, Anger Expression-In, Anger Control-Out, and Anger Control-In. Cronbach's alpha coefficient for the subscales ranges from .69 to .85 (data from Spanish translation by Miguel-Tobal, Casado, Cano-Vindel, & Spielberger, 2001). The scale's structure has been validated through confirmatory factor analysis in North American (Forgays, Spielberger, Ottaway, & Forgays, 1998) and Spanish-speaking samples (Oliva, Hernández, & Calleja, 2010). Lower anger scores are expected in the experimental group after training.

Beck Depression Inventory (BDI). The BDI (Beck & Steer, 1993) is a widely used screening instrument for depression in adults. The Spanish version has an internal consistency of .83 in a Spanish general population sample and a test-retest reliability of .72 after 1 month, .60 after 2 months, and .69 after 3 months (Sanz & Vazquez, 1998). BDI shows a high content and discriminative validity for depressed participants and healthy controls (Richter, Werner, Heerlein, Kraus, & Sauer, 1998). Lower scores are expected in the experimental group after training.

Mindful Attention Awareness Scale (MAAS). We used the MAAS (Brown & Ryan, 2003) to measure mindfulness. The MAAS is a 15-item, single-factor, self-report measure assessing individual differences in the frequency of mindful states over time. The questionnaire assesses a core characteristic of dispositional mindfulness: namely, open or receptive awareness of and attention to what is taking place in the present. Soler et al. (2012) report the MAAS Spanish version as having an internal consistency of .89, a test-retest reliability of .82 and also a high convergent validity with the Five Facets Mindfulness Questionnaire (Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006). We choose this instrument because it is brief, frequently used in research and has shown well-established reliability and validity. Higher scores are expected in the experimental group after the training, compared with the control group.

Data Analysis

We analysed the data using linear mixed models (SPSS 20.0 Mixed Model Analysis with restricted maximum likelihood estimation), controlling for baseline measurement. There was one repeated measure (Time 1 vs. Time 2) and one between-subjects factor (experimental group vs. control group) for all measures. This procedure was particularly well-suited for controlling for variables such as possible practice effects. Effects attributed to training are seen in the Time*Group interaction, with a confidence level of 95%. We conducted post-hoc analyses for all measures and adjusted the *p*-values for multiple comparisons using the Bonferroni method.

Results

Attentional Measures

Table I presents the data from the attentional tasks.

Continuous Performance Test. There were no significant Time*Group interaction for the CPT variables. However, post-hoc analysis displayed a significant change in the experimental group from Time 1 to Time 2 in Commissions ($p < .001$), d' ($p = .006$), Beta ($p = .001$) and *SE* of the predicted RT by ISI ($p = .018$), without significant changes in the control group. As these changes do not attain the sufficient significance in Time*Group interaction, the results do not support the hypotheses concerning the effects on sustained attention.

Stroop task. There was a significant Time*Group interaction for the variable Errors [$F(1, 82.613) = 7.48$, $p = .008$]. Post-hoc analyses revealed significant group-differences at Time 2 [$p = .012$] but not Time 1 [$p = .849$]. Changes in the number of errors from Time 1 to Time 2 did not reach significance in the control group [$p = .109$] but did so in the experimental group [$p = .023$]. We also found a significant Time*Group interaction for the variable Perseverations [$F(1, 70.681) = 6.05$, $p = .016$]. Post-hoc analyses revealed no significant group difference at Time 1 [$p = .183$] either at Time 2 [$p = .117$]. There was no change in the number of perseverations from Test 1 to Test 2 in the experimental group [$p = .164$]

Table I. Time*Group interactions in attentional measures

Measure	Group	Time 1[2]	Time 2[2]	F[1]	Sig
% Omissions	Experimental	0.315 (0.059)	0.214 (0.062)	0.018	0.892
	Control	0.217 (0.068)	0.133 (0.073)		
% Commissions	Experimental	33.762 (2.640)	23.472 (2.763)	2.48	0.118
	Control	34.678 (3.050)	30.295 (3.200)		
Reaction time (RT)	Experimental	352.87 (5.998)	358.50 (6.160)	1.085	0. 300
	Control	342.13 (6.938)	340.35 (7.192)		
d'	Experimental	2.464 (0.094)	2.777 (0.098)	0.982	0.324
	Control	2.441 (0.108)	2.585 (0.115)		
Beta	Experimental	0.266 (0.042)	0.446 (0.044)	0.762	0.385
	Control	0.257 (0.048)	0.370 (0.052)		
SE of the predicted RT	Experimental	77.735 (2.819)	73.449 (2.914)	0.443	0.508
by sub-block	Control	73.166 (3.257)	71.436 (3.407)		
SE of the predicted RT	Experimental	75.975 (2.709)	69.931 (2.807)	0.712	0.401
by ISI	Control	70.676 (3.129)	67.891 (3.284)		
Colour RT	Experimental	803.35 (24.946)	746.59 (25.687)	0.421	0.518
	Control	708.81 (29.156)	675.15 (30.631)		
Word RT	Experimental	887.14 (28.074)	905.926 (28.579)	9.695	0.003
	Control	890.91 (32.883)	817.11 (33.891)		
Congruent RT	Experimental	740.46 (24.073)	802.346 (24.615)	9.904	0.002
	Control	775.21 (28.173)	745.86 (29.253)		
Incongruent RT	Experimental	1072.69 (41.865)	1021.49 (42.858)	0.648	0.423
	Control	1029.84 (48.985)	936.80 (50.963)		
Neutral RT	Experimental	849.46 (29.926)	891.09 (30.800)	10.236	0.002
	Control	867.66 (34.979)	773.96 (36.720)		
Errors	Experimental	5.594 (0.567)	4.226 (0.587)	7.486	0.008
	Control	5.429 (0.662)	6.563 (0.702)		
Perseverations	Experimental	0.600 (0.130)	0.379 (0.135)	6.051	0.016
	Control	0.333 (0.151)	0.712 (0.162)		

[1] For Time*Group interaction.
[2] Estimated means (standard error).
Note: RT, reaction time (ms); *SE*, standard error; ISI, inter-stimulus interval.

but there was a significant increase in the control group [$p = .046$].

There was also a significant Time*Group interaction for word RT [F (1, 83.976) = 9.69, $p = .003$], congruent RT [F (1, 88.617) = 9.9, $p = .002$] and neutral RT [F(1, 86.369) = 10.23, $p = .002$]. Neutral stimuli are the only stimuli that are different in the "name colour" and "read word" portions of the Stroop task. Post-hoc analyses revealed no significant group differences at Time 1 for either measure variables. There was a significant group difference at Time 2 for word RT [$p = .047$] and neutral RT [$p = .016$]. RTs in the experimental group did not change from Test 1 to Test 2, except an increase of RT in the congruent RT [$p = .001$]. In the control group, RTs significantly decreased in Time 2 vs. Time 1: word RT [$p = .002$] and neutral RT [$p = .005$]. These results support our hypothesis as the control group exhibits lower RT and more errors.

Emotional Measures

Table II presents the data from the emotional measures. No significant changes were observed on the STAI-Trait, but there was a significant Time*Group interaction for State Anxiety [F(1, 83.292) = 12.02, $p = .001$], BDI [F(1, 81.213) = 6.33, $p = .014$] and Trait Anger [F(1, 81.405) = 7.79, $p = .007$]. Post-hoc analyses revealed no significant group differences at Time 1 for either State Anxiety and BDI variables. There was a significant group difference at Time 2 for State Anxiety [$p = .002$] and BDI [$p = .003$]. In the experimental group, scores significantly decreased in Time 2 vs. Time 1 for State anxiety [$p = .002$] and BDI [$p = .029$], but not in the control group.

Post-hoc analyses revealed no significant group differences in Trait Anger at either Time 1 [$p = .401$] or Time 2 [$p = .283$]. The observed interaction could be explained by a significant decrease in the scores in the experimental group from Test 1 to Test 2 [$p < .001$] but not in the control group [$p = .983$]. Within the STAXI scale, the Time*Group interaction effect is manifested in the same way in the Angry Reaction subscale [F(1, 83.733) = 9.72, $p = .002$] as there is a significant decrease in the scores in the experimental group from Test 1 to Test 2 [$p < .001$] but not in the control group [$p = .658$]. However, this is not the case in the Angry Temperament subscale. These results indicate that although

Table II. Time*Group interactions in measures of depression. anxiety. and anger

Measure	Group	Time 1[2]	Time 2[2]	F[1]	Sig
STAI: State Anxiety	Experimental	17.480 (0.981)	14.393 (1.065)	12.024	0.001
	Control	17.360 (1.146)	19.391 (1.156)		
STAI: Trait Anxiety	Experimental	18.340 (1.079)	16.235 (1.119)	2.742	0.102
	Control	19.699 (1.242)	19.240 (1.247)		
BDI	Experimental	3.649 (0.601)	2.548 (0.645)	6.337	0.014
	Control	4.643 (0.700)	5.402 (0.704)		
STAXI-2: State Anger	Experimental	16.533 (0.422)	16.184 (0.461)	1.228	0.271
	Control	16.896 (0.494)	17.294 (0.498)		
Feeling angry	Experimental	5.791 (0.219)	5.685 (0.245)	1.204	0.276
	Control	5.924 (0.258)	6.279 (0.261)		
Feeling like Expressing Anger Verbally	Experimental	5.486 (0.188)	5.323 (0.203)	0.907	0.344
	Control	5.786 (0.219)	5.888 (0.221)		
Feeling like Expressing Anger Physically	Experimental	5.204 (0.086)	5.160 (0.096)	0.012	0.913
	Control	5.176 (0.101)	5.152 (0.102)		
STAXI-2: Trait Anger	Experimental	17.238 (0.454)	15.881 (0.476)	7.793	0.007
	Control	16.653 (0.524)	16.646 (0.526)		
Angry Temperament	Experimental	6.970 (0.282)	6.746 (0.301)	0.049	0.826
	Control	7.236 (0.328)	7.092 (0.330)		
Angry Reaction	Experimental	10.279 (0.327)	9.135 (0.348)	9.725	0.002
	Control	9.424 (0.380)	9.559 (0.382)		
STAXI-2: Anger Expression-Out	Experimental	10.065 (0.324)	9.981 (0.349)	1.179	0.281
	Control	10.569 (0.378)	10.978 (0.381)		
STAXI-: Anger Expression-In	Experimental	11.163 (0.428)	10.492 (0.454)	0.279	0.599
	Control	11.848 (0.496)	11.453 (0.499)		
STAXI-: Anger Control-Out	Experimental	18.598 (0.507)	19.101 (0.547)	3.202	0.077
	Control	18.769 (0.591)	17.981 (0.596)		
STAXI-2: Anger Control-In	Experimental	13.063 (0.509)	14.039 (0.559)	2.794	0.098
	Control	13.639 (0.597)	13.189 (0.603)		
MAAS	Experimental	55.211 (1.383)	62.338 (1.518)	26.243	
	Control	54.288 (1.619)	51.359 (1.644)		<0.001

[1] For Time*Group interaction.
[2] Estimated means (standard error).

we didn't find any differences between groups in trait anxiety, we found a significant change in the Angry Reaction subscale of Trait Anger, in anxiety state and in depression scores

Mindfulness Attitude

With respect to the level of mindfulness, there was a significant Time*Group interaction for the MAAS [$F(1, 83.107) = 26.24$, $p < .001$]. Post-hoc analyses revealed a significant group difference at Time 2 [$p < .001$]. The scores in the experimental group increased significantly from Test 1 to Test 2 [$p < .001$]. The participants in the experimental group demonstrated an increase in mindfulness as measured by the MAAS, supporting the proposed hypothesis.

Discussion

We evaluated the effect of moderate, brief mindfulness training via an 8-week meditation program on emotional and attentional control measures in a group of therapists-in-training in Spain. The results show that mindfulness training in participants with no prior meditation experience improved anger management and attentional control (specifically, task switching).

Our findings are consistent with previous research. In studies involving mindfulness training delivered via meditation programs, significant benefits have been observed in groups receiving mindfulness training in comparison with no treatment (Chambers et al., 2008; Jha, Krompinger, & Baime, 2007) and relaxation control groups (Tang et al., 2007). We followed the recommendations of previous authors (Chiesa et al., 2011) by using a standardized version of mindfulness training (the MBSR program) to reduce discrepancies due to systematic differences in mindfulness protocols. We also describe the experience of the teacher who guides the courses because a sustained engagement with the practice of mindfulness becomes an essential part of teaching and is required in all of standard criteria for teaching mindfulness (Crane et al., 2012)

With respect to emotional variables, we found a significant change ($p = .001$) for the STAI-State measure. However, this may be a spurious finding,

related to the timing of the evaluation, which immediately followed the last practice session in the experimental group. In the same way, a significant change in depression scores measured by BDI (Time*Group interaction, $p = .014$) is observed, which, however, has a limited clinical significance (as the decrease in scores for the experimental group goes from an average of 3.64 points in Time 1 to 2.54 in Time 2 when the scale's range spans from 0 to 63 points). No significant group differences were observed in the measure of trait Anxiety, which may be related to the characteristics of the sample (e.g., a floor effect may have obscured relatively subtle changes). Hofmann, Sawyer, Witt, and Oh (2010) states that mindfulness-based therapy was moderately strong among individuals with disorders other than anxiety disorders or depression but who had elevated levels of symptoms of anxiety and depression (effect sizes of .67 and .53, respectively). However, these effects were not significantly greater than those of individuals with lower pre-treatment levels of anxiety and depression (0.53 and .50). It is possible that mindfulness-based therapy is associated with a general reduction in stress, possibly achieved by encouraging participants to relate differently to their symptoms so that their consequences are less disturbing (Hofmann et al., 2010).

We found a training effect on the Trait Anger scale and the Angry Reaction subscale of the STAXI-2 (Time*Group interaction, $p = .007$ and $p = .002$, respectively). These findings confirm the suggestion of other authors (Baer, 2003) that participants in MBSR training do not undergo a change in the experience of anger or their attempts to control it; rather, they show a reduced tendency toward angry reactions.

With respect to the mindfulness attitude, another interesting finding is the significant change in the level of mindfulness in the experimental group as measured by the MAAS (Time*Group interaction, $p < .001$). Other studies have shown that MBSR training for health care professionals effectively teaches self-care to therapists-in-training by reducing perceived stress, rumination, and trait anxiety, and increasing self-compassion. All of these effects are related to an increase in mindfulness as measured by the MAAS (Shapiro et al., 2007). Shapiro *et al.* (2005) found that health care professionals who were assigned to stress reduction training following the MBSR program reported a decrease in perceived stress and an increase in self-compassion as compared to participants on the wait-list. However, Shapiro's study did not include objective measures of neuropsychological performance.

With respect to attention control, we observed in the post-hoc analysis of CPT variables that participants in the experimental group reduced the number of errors of commission ($p < .001$), increased the detectability (d', $p = .006$), displayed a more conservative answering style (Beta, $p = .001$) and a lower variability in reaction times (*SE* of the predicted RT by ISI, $p = .018$), without significant changes in the control group. Nevertheless, given the presence of small statistically insignificant changes in the control group, the direct comparison between the two groups does not achieve statistical significance in the Time*Group interaction. This analysis is carried out with the purpose of controlling the effects of practice due to the repetition of the measures and, therefore, the results do not support the proposed hypothesis concerning the changes in sustained attention attributable to training.

In the Stroop test, the experimental group took longer to respond but committed fewer errors on Time 2 whereas the control group responded more quickly and exhibited a significantly higher error rate (Time*Group interaction, $p = .008$). These findings are similar to those of other studies. Wenk-Sormaz (2005) reported significant improvements in measures of executive attention in participants in mindfulness training as compared to controls. These effects were not mediated by changes in arousal. Similarly, Moore and Malinowski (2009) observed positive correlations between mindfulness and Stroop scores, as well as higher self-reported levels of mindfulness, in participants receiving mindfulness training. Van den Hurk, Giommi, Gielen, Speckens, & Barendregt (2010) reported that Vipassana meditation practice tended to be associated with fewer errors on the Stroop task. Brown and Ryan (2003) postulated that mindfulness may aid in the creation of a time interval or a gap within which a person is able to view his or her own behavioural choices rather than simply reacting to internal or external stimuli. Semple (2010) reported that training in mindfulness and 4 weeks of twice-daily practice was associated with significantly greater discrimination in a signal detection task and significant improvements in sustained attention, as compared to relaxation or wait-list control groups. As Kane and Engle (2003) point out, Stroop interference is determined jointly by two mechanisms: A response-competition mechanism reflected in the regular shift of the latency distribution between incongruent and neutral trials, and a goal-maintenance mechanism reflected in error rates and also potentially in the latency distribution.

We observed changes related to the second mechanism and therefore propose that in the "read word" condition, changes observed in Stroop task performance following mindfulness training (Time*Group interaction, $p = .003$) may be related to a greater

capacity for task switching and greater attentional control during the task. These changes may be mediated by inhibition of irrelevant elaborative processing. We observed the same effect in the reaction time (RT) to neutral stimuli, which are different in the "name colour" condition and the "read word" condition (Time*Group interaction, $p = .002$). This effect is consistent with the proposed mechanism of a time-gap in the processing of novelty (either stimuli or task), which would be expected to promote greater resistance to "task inertia" (Allport, Styles, & Hsieh, 1994), lower error rates, and increasing RTs.

Mindfulness practice can help therapists manage difficult moments in therapy by allowing them to make a STOP (Stop, Observe, Take a breath and Proceed) as our results with the Stroop test show. We found that all of these skills are basic and key elements for coping with difficult moments in therapy, as it allows the therapist to stop, see more clearly the specific clinical situation and avoid his or her automatic reactions. Significant psychological benefits following mindfulness training seem to depend, at least partially, on the development of attentional control and other cognitive executive functions (Baer, 2003). As an example, the reduction of excessive elaborative processing of negative stimuli (Ellis & Ashbrook, 1988) might allow limited processing resources to be directed instead towards selecting and executing an optimal response to environmental contingencies. By decreasing reactivity to external stimuli, mindfulness could help foster an attitude of greater caution and fewer intrusive responses, which some authors have associated with better outcomes in long-term therapy (Heinonen, Lindfors, Laaksonen, & Knekt, 2012).

Based on these findings it is worth mentioning that changes in emotional and attentional variables may have an impact on therapist-dependent variables and should be considered in psychotherapy training.

Limitations of the Study

We acknowledge several limitations of our study. First, the group sizes may limit the statistical power of the analyses. Second, the lack of randomization could influence the validity and reliability of our results. This was a self-selected sample. Assignment to the experimental or control group depended on the order in which participants arrived at the psychotherapy unit and so the order in which they registered for the mindfulness course. Participants applied for the stay at the Psychotherapy Training Unit of La Paz University Hospital 1 year before their arrival, so we could not do a random assinnment from an ethical point of view.To cope with this difficulty we did a comparison with a wait-list control group, and in this way we know that we are doing *action-research* based in a naturalistic environment. We want to accomplish both requirements: The research evaluation and the training therapist's needs. Third, the use of a wait-list control group does not control for nonspecific effects of mindfulness training. In other words, it is difficult to ascertain the extent to which a different intervention, such as simple relaxation, could lead to similar outcomes. We should note, however, that studies comparing mindfulness practices with relaxation, rest, or different types of meditation practices (Chan & Woollacott, 2007; Ortner, Kilner, & Zelazo, 2007; Tang et al., 2007; Valentine & Sweet, 1999) have either reported significant improvements in cognitive performance in practitioners of mindfulness meditation as compared with controls, or different patterns of cognitive abilities following different types of meditation training. Thus, our findings are unlikely to be nonspecific effects of mindfulness training.

Our results provide empirical data on emotional and attentional changes in therapists-in-training after MBSR-based mindfulness training. Aggs and Bambling (2010) note that "the development of a therapist-specific mindfulness program will provide the basis for further investigations into whether teaching mindfulness to therapists translates into enhanced client outcomes." Our study was not designed to directly examine the effects of changes in anger and attentional variables on the clinical work of resident interns as psychotherapists. Further research is needed to evaluate the repercussions of these changes on psychotherapeutic practice and outcomes. It will be important to identify a specificity profile of different components of mindfulness so as to understand which meditation practices best cultivate different types of cognitive and emotional skills. It will also be of interest to understand how the unique cognitive and affective styles of individuals could be matched to specific forms of meditation.

Conclusions

Our study provides preliminary support for the notion that mindfulness training that follows an MBSR-based model provides significant benefits on several measures of anger regulation and attentional control in a group of psychotherapists-in-training. Participants trained in mindfulness practice were less likely to react angrily and more able to stop these reactions and also made fewer errors on tasks requiring task switching and novelty processing. Further research is needed to replicate these findings, explore the effects of mindfulness training on

other aspects of emotional regulation and cognition, and evaluate the impact of these effects within actual or simulated clinical situations.

Acknowledgments

We thank the resident intern psychiatrists and clinical psychologists who participated in this study. We thank Dra Rosario Madero and Elia Pérez for statistical advice. We have no relationships to report that may be perceived as a conflict of interest. This study was not supported financially by any funding sources.

References

Ackerman, S. J., & Hilsenroth, M. J. (2003). A review of therapist characteristics and techniques positively impacting the therapeutic alliance. *Clinical Psychology Review*, *23*, 1–33. doi:10.1016/S0272-7358(02)00146-0

Accreditation Council for Graduate Medical Education. (2007). Program requirements for graduate medical education in psychiatry. Retrieved from www.acgme.org/.

Adele, M. H., & Feldman, G. (2004). Clarifying the construct of mindfulness in the context of emotion regulation and the process of change in therapy. *Clinical Psychology*, *11*, 255–262. doi:10.1093/clipsy.bph080

Allport, D. A., Styles, E. A., & Hsieh, S. (1994). Shifting intentional set: Exploring the dynamiccontrol of tasks. In C. Umilta & M. Moscovitch (Eds.), *Attention and performance*. Cambridge, MA: MIT Press.

Aggs, C., & Bambling, M. (2010). Teaching mindfulness to psychotherapists in clinical practice. The Mindful Therapy Programme. *Counselling and Psychotherapy Research*, *10*, 278–286. doi:10.1080/14733145.2010.485690

Anderson, N. D., Lau, M. A., Segal, Z. V., & Bishop, S. R. (2007). Mindfulness-based stress reduction and attentional control. *Clinical Psychology and Psychotherapy*, *14*, 449–463. doi:10.1002/cpp.544

Baer, R. A. (2003). Mindfulness training as a clinical intervention: A conceptual and empirical review. *Clinical Psychology: Science and Practice*, *10*, 125–143. doi:10.1093/clipsy.bpg015

Baer, R. A., Smith, G. T., Hopkins, J., Krietemeyer, J., & Toney, L. (2006). Using self-report assessment method to explore facets of mindfulness. *Assessment*, *13*, 27–45. doi:10.1177/1073191105283504

Beck, A. T., & Steer, R. A. (1993). *Beck Depression Inventory. Manual*. San Antonio, TX: The Psychological Corporation.

Bion, W. R. (1967). Notes on memory and desire. *The Psychoanalytic Forum*, *2*, Autumn.

Bishop, S. R., Lau, M., & Shapiro, S. (2004). Mindfulness: A proposed operational definition. *Clinical Psychology*, *11*, 230–241.

Borgaro, S., Pogge, D. L., DeLuca, V. A., Bilginer, L., Stokes, J., & Harvey, F. D. (2003). Convergence of different versions of the continuous performance test: Clinical and scientific implications. *Journal of Clinical and Experimental Neuropsychology*, *25*, 283–292. doi:10.1076/jcen.25.2.283.13646

Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. *Journal of Personality and Social Psychology*, *84*, 822–848. doi:10.1037/0022-3514.84.4.822

Chambers, R., Lo, B. C. Y., & Allen, N. B. (2008). The impact of intensive mindfulness training on attentional control, cognitive style and affect. *Cognitive Therapy & Research*, *32*, 303–322. doi:10.1007/s10608-007-9119-0

Chan, D., & Woollacott, M. (2007). Effects of level of meditation experience on attentional focus: Is the efficiency of executive or orientation networks improved? *Journal of Alternative and Complementary Medicine*, *13*, 651–657. doi:10.1089/acm.2007.7022

Chiesa, A., Calati, R., & Serretti, A. (2011). Does mindfulness training improve cognitive abilities? A systematic review of neuropsychological findings. *Clinical PsychologyReview*, *31*, 449–464.

Conners, C. K. (2000). *Conners' Continuous Performance Test-II*. Toronto: Multi-Health Systems.

Corcoran, K. M., Farb, N., Anderson, A., & Segal, Z. V. (2010). Mindfulness and emotion regulation: Outcomes and possible mediating mechanisms. In A. M. Kring & D. M. Sloan (Eds.), *Emotion regulation and psychopathology: A transdiagnositc approach to etiology and treatment* (pp. 339–355). New York: Guilford Press.

Crane, R. S., Kuyken, W., Mark, J., Williams, G., Hastings, R. P., Cooper, L., & Fennell, M. V. (2012). Competence in teaching mindfulness-based courses: Concepts, development and assessment. *Mindfulness*, *3*, 76–84. doi:10.1007/s12671-011-0073-2

Davis D. M., & Hayes, J. A. (2011). What are the benefits of mindfulness? A practice review of psychotherapy-related research. *Psychotherapy*, *8*, 198–208. doi:10.1037/a0022062

Davis, E. N., & Nolen-Hoesksema, S. (2000). Cognitive inflexibility among ruminators and non-ruminators. *Cognitive Therapy and Research*, *24*, 699–711. doi:10.1023/A:1005591412406

Ellis, H. C., & Ashbrook, P. W. (1988). Resource allocation model of the effects of depressed mood states on memory. In K. Fiedleer &. J. P. Forgas (Eds.), *Affect, cognition and social behavior* (pp. 25–43). Tornonto: Hogrefe.

Farb, N. A. S., Anderson, A. K., Mayberg, H., Bean, J., McKeon, D., & Segal, Z. V. (2010). Minding one's emotions: Mindfulness training alters the neural expression of sadness. *Emotion*, *10*, 25–33. doi:10.1037/a0017151

Fernandez-Liria, A., Rodriguez-Vega, B., Ortiz-Sanchez, D., Baldor Tubet, I., & Gonzalez-Juarez, C. (2010). Effectiveness of a structured training program in psychotherapeutic skills used in clinical interviews for psychiatry and clinical psychology residents. *Psychotherapy Research*, *20*, 113–121. doi:10.1080/10503300903131907

Forgays, D. K., Spielberger, C. D., Ottaway, S. A., & Forgays, D. G. (1998). Factor structure of the State-Trait Anger Expression Inventory for middle-aged men and women. *Assessment*, *5*, 141–155. doi:10.1177/107319119800500205

Fresco, D. M., Frankel, A. N., Mennin, D. S., Turk, C. L., & Heimberg, R. G. (2002). Distinct and overlapping features of rumination and worry: The relationship of cognitive production to negative affective styles. *Cognitive Therapy and Research*, *26*, 179–188. doi:10.1023/A:1014517718949

Freud, S. (1912). Ratschläge für den Arztbeiderpsychoanalytischen Behandlung. In S. Freud (Ed.), *Studienausgabe. Ergänzungs-band. Schriftenzur Behandlungstechnik*. Frankfurt am Main: Fischer.

Fulton, P. R. (2005). Mindfulness as clinical training. In C. K. Germer, R. D. Siegel, & P. R. Fulton (Eds.), *Mindfulness and psychotherapy* (pp. 55–72). New York: Guilford Press.

Gilligan, S. G. (1995). *Therapeutic trances: The cooperation principle in Ericksonian hypnotherapy*. Heidelberg: Auer.

Greason, P. B., & Cashwell, C. S. (2009). Mindfulness and counseling self-efficacy: The mediating role of attention and empathy. *Counselor Education and Supervision*, *49*, 2–19. doi:10.1002/j.1556-6978.2009.tb00083.x

Grepmair, L., Mitterlehner, F., Loew, T., Bachler, E., Rother, W., & Nickel, M. (2007). Promoting mindfulness in

psychotherapists in training influences the treatment results of their patients: a randomized, double-blind, controlled study. *Psychotherapy and Psychosomatics*, *76*, 332–338. doi:10.1159/000107560

Gonzalez-Torres, M. A. (2011). Psychoanalysis and neuroscience. Friends or enemies? *International Forum of Psychoanalysis*. doi:10.1080/0803706X.2011.602359

Gunaratana, V. H. (1993). *Mindfulness in plain English*. Somerville, MA: Wisdom Publications.

Heinonen, E., Lindfors, O., Laaksonen, M. A., & Knekt, P. (2012). Therapists' professional and personal characteristics as predictors of outcome in short- and long-term psychotherapy. *Journal of Affective Disorders*, *138*, 301–312. doi:10.1016/j.jad.2012.01.023

Hofmann, S. G., Sawyer, A. T., Witt, A., & Oh, D. (2010). The effect of mindfulness-based therapy on anxiety and depression: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, *78*, 169–183. doi:10.1037/a0018555

Jha, A. P., Krompinger, J., & Baime, M. J. (2007). Mindfulness training modifies subsystems of attention. *Cognitive & Affective Behavior & Neuroscience*, *7*, 109–119. doi:10.3758/CABN.7.2.109

Kabat-Zinn, J. (1990). *Full catastrophe living: Using the wisdom of your body and mind to face stress, pain and illness*. New York: Dell.

Kane, M. J., & Engle, R. W. (2003). Working-memory capacity and the control of attention: The contributions of goal neglect, response competition and task set to Stroop interference. *Journal of Experimental Psychology: General*, *132*, 47–70. doi:10.1037/0096-3445.132.1.47

Kapleau, P. (1965). *The three pillars of Zen: Teaching, practice and enlightenment*. Boston, MA: Bacon Press.

Karson, M., & Fox, J. (2010). Common skills that underlie the common factors of successful psychotherapy. *American Journal of Psychotherapy*, *64*, 269–281.

Kendall, P., & Imgram, R. (1989). Cognitive-behavioural perspectives: Theory and Research on depresion and anxiety. In P. C. Kendall & D. Watson (Eds.), *Anxiety and depression: Distinctive and overlapping features* (pp. 27–53). San Diego, CA: Academic Press.

Keune, J. D., Brunsvold, M. E., Hohmann, E., James, R., Korndorffer, J., Weinstein, D. F., & Smink, D. S. (2013). The ethics of conducting graduate medical education research on residents. *Academic Medicine*, *88*, 449–453. doi:10.1097/ACM.0b013e3182854bef

Kumar, S. M., Feldman, G. C., & Hayes, A. (2008). Changes in mindfulness end emotion regulation in an exposure based cognitive therapy or depression. *Cognitive Therapy & Research*, *32*, 734–744. doi:10.1007/s10608-008-9190-1

Lambert, M. J., & Barley, D. E. (2001). Research summary on the therapeutic relationship and psychotherapy outcome. *Psychotherapy*, *38*, 357–361. doi:10.1037/0033-3204.38.4.357

Lambert, M., Norcross, J. C., & Goldfried, M. R. (1992). Psychotherapy outcome research. *Handbook of psychotherapy integration* (pp. 94–129). New York: Basic Books.

Lambert, M. J., & Olges, B. M. (2004). The efficacy and effectiveness of psychotherapy. *Bergin and Garfield's handbook of psychotherapy and behavior change* (pp. 139–193). New York: Wiley.

Lecic-Tosevski, D., Pejovic-Milovancevic, M., Tenjovic, L., Draganic-Gajic, S., & Christodoulou, G. N. (2005). Personality characteristics of psychiatric trainees. *Psychotherapy and Psychosomatics*, *74*, 129–130. doi:10.1159/000083173

Macmillan, N. A., & Creelman, C. D. (2005). *Detection theory: A user's guide* (2nd ed.). Mahwah, NJ: Lawrence Erlbaum.

Martin, J. R. (1997). Mindfulness: A proposed common factor. *Journal of Psychotherapy Integration*, *7*, 291–312. doi:10.1023/B:JOPI.0000010885.18025.bc

Miguel-Tobal, J. J., Casado, M. I., Cano-Vindel, A., & Spielberger, C. D. (2001). STAXI-2. Inventario de expresión de ira estado-rasgo. Madrid: TEA.

Moore, A., & Malinowski, P. (2009). Meditation, mindfulness and cognitive flexibility. *Consciousness and Cognition*, *18*, 176–186. doi:10.1016/j.concog.2008.12.008

Morgan, W. D., & Morgan, S. T. (2005). Cultivating attention and empathy. In C. K.Germer, R. D. Siegel, & P. R. Fulton (Eds.), *Mindfulness and psychotherapy* (pp. 73–90). New York, NY: Guilford Press.

Mrazek, M. D., Franklin, M. S., Phillips, D. T., Baird, B., & Schooler, J. W. (2013). Mindfulness training improves working memory capacity and GRE performance while reducing mind wandering. *Psychological Science*, *24*, 776–781. doi:10.1177/0956797612459659

Mueller, S. T. (2009). *The psychology experiment building language*. Retrieved from http://pebl.sf.net

Newsome, S., Christopher, J. C., Dahlen, P., & Christopher, S. (2006). Teaching counselors self-care through mindfulness practices: The application of mindfulness-based stress reduction to counselor training. *Teachers College Record*, *108*, 1881–1900. doi:10.1111/j.1467-9620.2006.00766.x

Norcross, J., & Lambert, M. (2011). Evidence-based therapy relationships. In J. Norcross (Ed.), *Psychotherapy relationships that work: Evidence based responsiveness* (2nd ed., pp. 3–21). New York: Oxford University Press.

Ogg, R. J., Zou, P., Allen, D. N., Hutchins, S. B., Dutkiewicz, R. M., & Mulhern, R. K. (2008). Neural correlates of a clinical continuous performance test. *Magnetic Resonance Imaging*, *26*, 504–512. doi:10.1016/j.mri.2007.09.004

Oliva, F. J., Hernandez, M. R., & Calleja, N. (2010). Validation of the mexican version of the State-Trait Anger Expression Inventory (STAXI-2). *Acta Colombiana de Psicología*, *13*, 107–117.

Orlinsky, D. E., Grawe, L., & Parks, B. K. (1994). Process and outcome in psychotherapy-Noch einmal. In A. E. Bergin & S. L. Garfield (Eds.), *Handbook of psychotherapy and behavior change* (4th ed., pp. 270–376). New York: Wiley.

Ortner, C. N. M., Kilner, S. J., & Zelazo, P. D. (2007). Mindfulness meditation and reduced emotional interference on a cognitive task. *Motivation and Emotion*, *31*, 271–283. doi:10.1007/s11031-007-9076-7

Polak, E. L. (2009). Impact of two sessions of mindfulness training on attention. *Open Access Dissertations*, Paper 251.

Posner, M. I., & Rothbart, M. K. (1992). Attention and conscious experience. In A. D. Milner & M. D. Rugg (Eds.), *The neuropsychology of consciousness* (pp. 91–112). London: Academic.

Raes, F., Dewulf, D., Van Heeringen, C., & Williams, J. M. (2009). Mindfulness and reduced cognitive reactivity to sad mood: Evidence from a correlational study and a non-randomized waiting list controlled study. *Behaviour Research and Therapy*, *47*, 623–627. doi:10.1016/j.brat.2009.03.007

Richter, P., Werner, J., Heerlein, A., Kraus, A., & Sauer, H. (1998). On the validity of the Beck Depression Inventory. A review. *Psychopathology*, *31*, 160–168. doi:10.1159/000066239

Rimondini, M., Del Piccolo, L., Goss, C., Mazzi, M., Paccaloni, M., & Zimmermann, C. (2010). The evaluation of training in patient-centred interviewing skills for psychiatric residents. *Psychological Medicine*, *40*, 467–476. doi:10.1017/S0033291709990730

Rosvold, H. E., Mirsky, A. F., Sarason, I., Bransome, E. D., & Beck, L. H. A. (1956). Continuous performance test of brain damage. *Journal of Consulting Psychology*, *20*, 343–350. doi:10.1037/h0043220

Royal College of Psychiatrists. (2006). *Specialty curriculum for psychiatry training*. London: Royal College of Psychiatrists.

Royal College of Physicians and Surgeons of Canada. (2008). Specialty Training Requirements in Psychiatry, 2008. Retrieved from www.rcpsc.medical.org/.

Rogers, C. R. (1957). The necessary and sufficient conditions of therapeutic personality change. *Journal of Consulting Psychology*, *21*, 95–103. doi:10.1037/h0045357

Rogers, C. R. (1975). Empathic: An unappreciated way of being. *The Counseling Psychologist*, *5*, 2–10. doi:10.1177/00110000 7500500202

Ryan, A., Safran, J. D., Doran, J. M., & Muran, J. C. (2012). Therapist mindfulness, alliance and treatment outcome. *Psychotherapy Research*, *22*, 289–297. doi:10.1080/10503307.20 11.650653

Safran, J. D., Muran, J. C., Stevens, C., & Rothman, M. (2007). A relational approach to supervision: Addressing ruptures in the alliance. In C. A. Falender & E. P. Shafranske (Eds.), *Casebook for clinical supervision: A competency-based approach* (pp. 137–157). Washington DC: American Psychological Association.

Sanz, J., & Vázquez, C. (1998). Fiabilidad, validez y datos normativos del Inventario para la Depresión de Beck. *Psicothema*, *10*, 303–318.

Schmertz, S. K. (2006). The relation between self-report mindfulness and performance on tasks of attention. *Psychology Theses*, Paper 30.

Segal, Z., Williams, M., & Teasdale, J. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: Guilford Press.

Seisdedos, N. (1988). *Cuestionario de Ansiedad Estado/Rasgo (STAI)*. Madrid: TEA Ediciones.

Semple, R. J. (2010). Does mindfulness meditation enhance attention? A randomized controlled trial. *Mindfulness*, *1*, 121–130. doi:10.1007/s12671-010-0017-2

Shapiro, S. L., Astin, J. A., Bishop, S. R., & Cordova, M. (2005). Mindfulness-based stress reduction for health care professionals: Results from a randomized trial. *International Journal of Stress Management*, *12*, 164–176. doi:10.1037/1072-5245.12.2.164

Shapiro, S. L., Brown, K. W., & Biegel, G. M. (2007). Teaching self-care to caregivers: Effects of mindfulness-based stress reduction on the mental health of therapists in training. *Training and Education in Professional Psychology*, *1*, 105–115. doi:10.1037/1931-3918.1.2.105

Soler, J., Tejedor, R., Feliu-Soler, A., Pascual, J. C., Cebolla, A., Soriano, J., & Alvarez, E. (2012). Propiedades psicométricas de la versión española de la escala Mindful Attention Awareness Scale (MAAS). *Actas españolas de psiquiatría*, *40*, 19–26.

Spielberger, C. D. (1999). *State-trait anger expression inventory-revised*. Odessa, FL: Psychological Assessment Resources.

Spielberger, C. D., Gorsuch, R. L., & Lushene, R. (1982). *Manual del Cuestionario de Ansiedad Estado/Rasgo (STAI)* (3rd ed.). Madrid: TEA.

Spielberger, C. D., Reheiser, E. C., Ritterband, L. M., Sydeman, S. J., & Unger, K. K. (1995). Assessment of emotional states and personality traits: Measuring psychological vital signs. In J. N. Butcher (Ed.), *Clinical personality assessment: Practical approaches*. New York: Oxford University Press.

Strauss, E., Sherman, E. M. S., & Spreen, O. (2006). *A compendium of neuropsychological tests: Administration, norms, and commentary*. New York: Oxford University Press.

Stroop, J. R. (1935). Studies of interference in serial verbal reactions. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *18*, 643–661.

Tang, Y. Y., Ma, Y., Wang, J., Fan, Y., Feng, S., & Lu, Q. (2007). Short-term meditation training improves attention and self-regulation. *Proceedings of the National Academy of Sciences of the USA*, *104*, 17152–17156. doi:10.1073/pnas.0707678104

Teasdale, J. (1988). Cognitive vulnerability to persistent depression. *Cognition and Emotion*, *2*, 247–274. doi:10.1080/ 02699938808410927

Teasdale, J. D., Segal, Z., & Williams, J. M. (1995). How does cognitive therapy prevent depressive relapse and why should attentional control (mindfulness) training help? *Behaviour Research and Therapy*, *33*, 25–39. doi:10.1016/0005-7967(94) E0011-7

Twemlow, S. W. (2001). Training psychotherapists in attributes of "Mind" from Zen and psychoanalytic perspectives, Part I: Core principles, emptiness, impermanence, and paradox. *American Journal of Psychotherapy*, *55*, 1–21.

UEMS Section for Psychiatry. (2005). *The profile of a psychiatrist*. Washington DC: American Psychological Association

Valentine, E. R., & Sweet, P. L. G. (1999). Meditation and attention: A comparison of the effects of concentrative and mindfulness meditation on sustained attention. *Mental Health, Religion, & Culture*, *2*, 59–70. doi:10.1080/136746799084 06332

Van den Hurk, P. A. M., Giommi, F., Gielen, S. C., Speckens, A. E. M., & Barendregt, H. P. (2010). Greater efficiency in attentional processing related to mindfulness meditation. *The Quarterly Journal of Experimental Psychology*, *63*, 1168–1180. doi:10.1080/17470210903249365

Wallace, B. A. (2001). Intersubjectivity in Indo-Tibetan buddhism. *Journal of Consciousness Studies*, *8*, 209–230.

Walsh, R., & Shapiro, S. L. (2006). The meeting of meditative disciplines and western psychology: A mutually enriching dialogue. *American Psychologist*, *61*, 227–239. doi:10.1037/000 3-066X.61.3.227

Wampold, B. E. (2001), *The great psychotherapy debate: Models, methods, and findings*. Mahwah, NJ: Erlbaum.

Watson, J. C. (2001). Revisioning empathy: Theory, research, and practice. In D. Cain & J. Seeman (Eds.), *Handbook of research and practice in humanistic psychotherapy* (pp. 445–472). Washington DC: American Psychological Association.

Weerasekera, P., Manring, J., & Lynn, D. J. (2010). Psychotherapy training for residents: Reconciling requirements with evidence-based, competency-focused practice. *Academic Psychiatry*, *34*, 5–12. doi:10.1176/appi.ap.34.1.5

Wenk-Sormaz, H. (2005). Meditation can reduce habitual responding. *Alternative Therapies in Health and Medicine*, *11*, 42–58.

Young, S. (1997). *The science of enlightenment*. Boulder, CO: Sounds True.