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Health Care Providers' Mindfulness and Treatment Outcomes: A Critical Review of the Research Literature

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Abstract A systematic and critical review of the research literature evaluated studies on whether mindfulness-based training for health care providers improves their psychosocial functioning. In addition, studies were critiqued that examined whether health care providers who either practice mindfulness or possess greater levels of mindfulness experience better results with their patients than those possessing lower levels of mindfulness or those who do not engage in formal mindfulness practices. Published literature was found using PsychInfo, PubMed, and Ovid electronic databases, as well as by looking through the reference section of relevant articles. Search keywords used were "therapist mindfulness," "outcome(s)," "client outcome(s)," "therapeutic alliance," "mindful therapist," "mindfulness," "therapist training," "health care professionals," "empathy," "therapist empathy," and combinations of these terms. There was no date restriction placed on the searches prior to 2011. Twenty studies met the inclusion criteria. The results tentatively indicate that mental health and health care providers benefit from mindfulness training with no negative results reported. The results are inconclusive as to whether those trained in formal mindfulness practices or who possess higher levels of mindfulness have better treatment outcomes than those who do not. Additional research using randomized controlled designs is needed to further evaluate the role of health care providers' mindfulness in treatment outcomes.

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Introduction

Mindfulness, as a therapeutic intervention, appears to be an effective approach for helping people with a variety of medical problems and psychological disorders (Baer 2003; Black et al. 2009; Labbé 2011). In addition to studies evaluating mindfulness-based stress reduction (MBSR), interventions such as mindfulness-based cognitive therapy (MBCT), acceptance and commitment therapy, dialectical behavior therapy, and even mindfulness-based relationship enhancement have demonstrated improvement in individuals' and couples' overall functioning (Baer 2006). These interventions have been shown to be helpful for a variety of client populations, ranging from children dealing with anger, depression, and anxiety (Semple et al. 2006), to chronically mentally ill adults (Bach et al. 2006), individuals suffering from eating disorders (Kristellar et al. 2006), cancer patients and sufferers of chronic pain (Dahl and Lundgren 2006; Speca et al. 2006), and even troubled couples or perpetrators of intimate partner violence (Carson et al. 2006; Rathus et al. 2006). In sum, mindfulness-based interventions, and those that incorporate mindfulness components, are gaining support as effective treatments for a variety of psychological issues and across a wide range of disorders.

Mindfulness-based interventions are utilized with the intention of creating certain therapeutic gains. In general, mindfulness-based approaches are used to increase one's self-awareness, reduce emotional reactivity and associated negative emotional states, increase compassion and open-

heartedness towards oneself and others, and reduce the propensity to evaluate and criticize experiences, instead offering a sense of curiosity and observation to those who practice mindfulness (Baer 2006). Because of these benefits, it is understandable that mindfulness is now being evaluated as a practice to introduce to health care providers. Health care providers are people who provide direct care to others in need of mental and/or physical treatment and work in careers such as medicine, social work, nursing, counseling, and clinical psychology. Health care providers are at risk for experiencing burnout, fatigue, stress, and emotional dysfunction as a result of providing services to others who are in need of physical and emotional support and care (Cohen-Katz et al. 2005; May and O'Donovan 2007). It is believed that diminished capacity to fulfill their duties in these care-giving roles may negatively affect their own functioning as well as their ability to successfully provide services. Mindfulness training may help health care providers bring beneficial mindfulness qualities to the therapeutic interaction.

The idea for this paper evolved from clinical observation and discussions between the authors about the role of mindfulness in psychotherapy as well as in the therapeutic alliance. The idea exists that health care providers engaging in mindfulness practice on a personal level may be better equipped to provide effective services professionally, even if their patient's therapeutic goals do not specifically include mindfulness. Proponents of mindfulness suggest that health care providers who practice mindfulness will bring certain qualities to the therapeutic interaction that may prove beneficial for those patients seen by "mindful" health care providers (Woods 2009). More specifically, mindfulness qualities of non-judgment, patience, beginner's mind, non-striving, acceptance, trust, and letting go may help health care providers be more effective in providing services (Labbé 2011).

Hick and Bien (2008) suggest that health care providers' own mindfulness practice can positively impact the therapeutic alliance with patients, assist therapists in cultivating critical therapeutic skills such as unconditional positive regard and empathic understanding, and improve overall provision of a variety of therapeutic interventions. It is thought that this positive treatment outcome is due to the development of the health care providers' own attention and affect regulation, acceptance, and non-judging of patient experiences, comfort with facing difficult experiences, decreased reactivity to negative events, increased capability for empathic responding, increased metacognitive awareness, and overall improvement in the therapeutic alliance (Stauffer 2008; Turner 2009). These processes and therapist characteristics have been shown to be beneficial from an evidence-based perspective on psychotherapy. Based on this idea, one could conclude that health care providers' mindfulness may eventually relate to a stronger therapeutic alliance and even better treatment outcomes (Duncan et al. 2009). However, the research is currently mixed when one evaluates the role of therapist mindfulness as related to treatment outcomes. In a panel discussion on clinical application of mindfulness, Epstein suggested that therapists who practice mindfulness in their private lives may come across as arrogant or rigid when interacting with their own clients while providing therapy unrelated to mindfulness (as cited in Dimidjian and Linehan 2003). On the other hand, many health care providers that use mindfulness-based approaches with their patients believe their own mindfulness practice is crucial for positive treatment outcome. At least two types of mindfulness-based therapy approaches require health care providers to engage in their own mindfulness practice. MBSR and MBCT stress the importance of the health care providers practicing mindfulness (Baer 2006).

The review of the literature was conducted to address two hypotheses. First, mindfulness-based training for health care providers of medical and mental health services improves their psychosocial functioning. Second, health care providers who either practice mindfulness or possess greater levels of mindfulness experience better results with their patients than those possessing lower levels of mindfulness or those who do not practice mindfulness. Since this is a new, yet burgeoning area of interest, a critical review of the literature at this time would be helpful in determining initial findings and questions for future research. For example, what type and duration of mindfulness training should health care professionals have in order to improve treatment outcome? How often should health care professionals engage in formal mindfulness meditation?

Method

The published research literature was found using PsychInfo, PubMed, and Ovid electronic databases, as well as by looking through the reference sections of relevant articles. Search keywords used to find articles were "therapist mindfulness," "outcome(s)," "client outcome (s)," "therapeutic alliance," "mindful therapist," "mindfulness," "therapist training," "health care professionals," "empathy," "therapist empathy," and combinations of these terms. There was no date restriction prior to 2011 placed on the searches, such that all potentially related articles were located, regardless of research date. Included in the search results were several dissertations, which were obtained and included in the review. Only research written in English was used, and studies were included that used small samples and quasi-experimental designs. Finally, only studies that specifically used, measured, or evaluated

"mindfulness" were considered. Other types of meditation and relaxation practices were not included. Twenty studies meeting these criteria were found and are included in the current review.

Results

Information on all 20 studies reviewed can be found in Tables 1, 2, and 3. Results of the reviewed studies were divided into two categories in order to address the hypotheses stated in the "Introduction." The first category evaluates the effects of mindfulness training on the psychosocial functioning of healthcare providers in both medical and mental health care. The second category evaluates studies that examined the impact of healthcare providers' mindfulness on treatment outcomes.

Mindfulness Training for Health Care Providers

Eleven studies were found that evaluated the impact of mindfulness-based interventions on the well-being of health care providers of medical and mental health services. However, five of these studies reported on the benefits of teaching mindfulness to health care providers who were not mental health providers. These studies were examined since there are similarities in the roles of health and mental health providers. Similarities between health and mental health providers are that they both focus on the patient as well as helping patients heal and/or improve their functioning.

Mindfulness Training with Health Care Providers of Medical Services Refer to Table 1 for a summary of studies in this category. Participants in these studies included a variety of medical staff, including physicians, nurse leaders, nurses, and other health care staff. In general, exposure to mindfulness-based interventions appeared to benefit the psychosocial functioning of the participants. Perceived job stress, distress, and burnout all decreased following experience with a mindfulness-based intervention (Galantino et al. 2005; Schenström et al. 2006; Shapiro et al. 2005). Following intervention, participants' scores on measures of negative mood states and psychological symptoms, such as exhaustion, anger, depression, anxiety, and tension were also reduced (Galantino et al. 2005; Pipe et al. 2009). Additionally, mindfulness-based interventions appeared to benefit these participants by increasing positive aspects of psychosocial functioning. Increases were seen in ratings of well-being, self-acceptance, self-compassion, empathy, and life satisfaction (Cohen-Katz et al. 2005; Schenström et al. 2006; Shapiro et al. 2005). Improvements were also reported in relation to interactions with others, with participants reporting greater efficacy in creating a caring environment, increased capacity for empathy and appreciation of others, and improvement in the ability to be present in relationships without becoming reactive or defensive (Cohen-Katz et al. 2005; Pipe et al. 2009). Mindfulness-based interventions appeared to benefit these participants through both the reduction of negative symptoms and increases in positive experiences of self and others (Schenström et al. 2006; Galantino et al. 2005).

Mindfulness Training with Health Care Providers of Mental Health Services Refer to Table 2 for a summary of the studies in this category. Based on the reviewed literature, mindfulness training appears to benefit healthcare providers of mental health services. As with healthcare providers of medical services, those providers of mental health services exposed to mindfulness-based interventions reported decreases in stress, anxiety, rumination, and overall negative affect (Christopher et al. 2006; Hyden 2009; Shapiro et al. 2007). Improvements in psychosocial functioning were also seen through increases in positive aspects of psychosocial functioning. Following participation in mindfulness-based interventions, individuals reported increases in feelings of calmness, self-compassion, positive affect, and improvements in overall physical and mental health (McCollum and Gehart 2010; Schure et al. 2008; Shapiro et al. 2007). Additionally, in the absence of a mindfulness-based intervention, therapists possessing higher levels of trait-level mindfulness reported lower levels of work-related burnout and higher levels of job satisfaction and positive affect (May and O'Donovan 2007).

In addition to the personal benefits of the interventions, participants also indicated the mindfulness training would be beneficial in their delivery of mental health services. Participants reported an increased capability for conceptualizing their client's cases, increased attention to the therapy process, increased awareness of their own and clients' experiences throughout therapy, and increased ability to be in the moment of the therapy setting (Christopher et al. 2006; McCollum and Gehart 2010; Schure et al. 2008). Following mindfulness-based training, individuals also stated plans to continue a personal mindfulness practice and incorporate mindfulness techniques into therapy they provide in the future (Schure et al. 2008). In addition to improving psychosocial functioning, experience with mindfulness-based interventions also appeared to positively influence participants' perceptions of their therapeutic interactions.

Health Care Providers and Treatment Outcomes

Nine studies were found that evaluated the relationship between therapist mindfulness, therapeutic alliance, and

Table 1 Mindfulness training with health providers of medical services

Study	Research question	Number	Age range (year), Mean (SD); gender	Participant description	Treatment length/ setting/type	Study design	Measures	General findings
Cohen-Katz et al. (2005)	Effects of MBSR on nurse stress and burnout	25	30–64 years; 100% female	Nurses and other health professionals from hospital and health network	Eight weekly MBSR sessions	Qualitative	Qualitative interview, focus group questions assessing how daily life changed, ways of thinking changed, qualitative evaluation forms	Increase in self-awareness, self-acceptance, self-compassion Presence Increased empathy
Galantino et al.(2005)	Effect of mindfulness meditations program on health-care professionals' reported stress symptoms and salivary cortisol	84	22–75 years; 96% female	Administrative and direct-care university hospital employees	Eight weekly 2-h mindfulness meditation classes based on MBSR and CT	Pre-post, no control	Salivary cortisol POMS-SF MBI IRI	No change in salivary cortisol Decrease in emotional exhaustion, anger, tension, confusion, depression, and fatigue
Pipe et al. (2009)	Effect of mindfulness on nurse leaders' perceptions of stress	32	33–60 years, 50.2 (6.56); 100% female	Nursing leaders from healthcare system in southwest USA	Four weekly 2-h sessions based on MBSR	RCT, wait-list condition; Tx $N=15$, Control $N=17$	SCL-90-R CES	Improvement in scores on 9 scales of SCL-90-R Improvement in scores on CES
Schenström et al. (2006)	Impact of MBC-Attitude training program on health care personnel's stress, well-being, and caregiver-patient relationship	52	28–58 years; 73% female	29 doctors, 23 other health care staff	Mindfulness-Based Cognitive Attitude course based on MBSR; 50 h total, 3 2-day workshops, 1 1-day workshop, 2 to 4 weeks between	Pre/post/follow-up, no control	MAAS WHO-5 Well-being Questionnaire VAS of perceived stress	Increase in mindfulness and subjective well-being Decrease in perceived stress in/out workplace
Shapiro et al. (2005)	Effects of MBSR on health care professionals' stress, quality of life, and self-compassion	38	18–65 years	Health care professionals (physicians, nurses, social workers, physical therapists, psychologists)	8 2-h sessions, once a week	RCT, wait-list condition; Tx: $N=18$ WLC: $N=20$	BSI MBI Perceived Stress Scale, Satisfaction with Life Scale, Self-Compassion Scale	Reduction in stress Increase in self-compassion Greater life satisfaction Decreased job burnout and distress

Table 2 Mindfulness training with healthcare providers of mental health services

Study	Research question	Number	Age range (year), mean (SD); gender	Participant description	Treatment length/ setting/type	Study design	Measures	General findings
Christopher et al. (2006)	Impact of mindfulness-based self-care course on counseling students' personal lives, stress levels, and clinical training	11	Early 20s-mid-50s; 73% female	1st and 2nd year master's level graduate students in mental health, school, and family counseling	Once weekly two-hour and 15 min Mind/ Body Medicine course based loosely on MBSR; taught yoga, meditation, body scan, and qigong; during one semester	Qualitative, convenience sample	Focus group questions assessing students' reasons for taking course, first thing that came to mind when thinking of course, thing liked most about the course, thing liked least about the course, strengths and weaknesses of course	Reported greater awareness of self and clients, ability to stay focused in moment, better equipped to deal with stress
Hyden (2009)	The effects of mindfulness on beginning therapists' anxiety levels within therapy sessions	20	24–56 years; 60% female	Psychology graduate students in practicum or on internship	3-h mindfulness training	Pre-, Post-assessment	POMS MAAS	As state mindfulness levels increased, state anxiety levels decreased
May and O'Donovan (2007)	Relationships between mindfulness, wellbeing, burnout and job satisfaction of therapists	58	22–63; 81% female	Psychologists, counselors and social workers in private and public practice	–	Survey	MAAS CAMS-R SWLS PANAS MSQ MBI	Positive correlation between higher levels of mindfulness and life satisfaction, positive effect, job satisfaction, and burnout
McCollum and Gehart (2010)	Effects of teaching mindfulness on therapeutic presence	13	22–60 years; 54% male	Master's level graduate students	15–30 min discussion of practice and experiential practice during weekly practicum	Qualitative	Journal writings extracted from required weekly journal entries reporting daily mindfulness practices and reflection on experiences	Development of ability to be present Feeling calmer, slowing down Increased "being" mode Increased compassion and acceptance toward self and client
Schure et al. (2008)	The influence of teaching hatha yoga, meditation, and qigong to counseling graduate students	33	Early 20s to mid-50s; 82% female	1st and 2nd year master's level grad students in mental health, school, and marriage and family counseling	Twice-weekly, 75mins, 15 weeks, based on MBSR using yoga, sitting meditation, qigong, relaxation techniques	Qualitative, convenience sample	Journal writings responding to questions of how life changed due to course, how affected by practices learned in course, how course affected work with clients, how practices will be incorporated into career plans	Increases in physical health, ability to deal with negative emotions, clarity of thought, capacity for reflection, increased sense of purpose, increase comfort in session, ability to be focused Belief professional lives would benefit

Shapiro et al. (2007)	The effects of MBSR on therapists in training	54	29.2 (9.07); 89% female	Master's level counseling psychology students	10 weekly 3-h courses, MBSR began week 3	Prospective, nonrandomized, cohort-controlled; (Tx: *N*=22 Control: *N*=32)	MAAS	Decreases in perceived stress, negative affect, state and trait anxiety, rumination
							PANAS	Increase in positive affect and self-compassion
							Perceived Stress Scale STAI RRQ	Increases in mindfulness

treatment outcomes for health care providers of mental health services. These health care providers were either therapists-in-training or licensed therapists. Refer to Table 3 for a summary of the studies in this category. Greason and Cashwell (2009) evaluated how mindfulness impacts therapeutic functioning. They assert mindfulness helps cultivate key counseling skills through increased therapist attention, empathy, and self-efficacy. They surveyed master's level counselors-in-training on these factors. Results of the survey indicated that empathy did not predict counseling self-efficacy, but mindful attention did significantly predict empathy. Greason and Cashwell (2009) conclude that overall mindfulness is related to attention and empathy, such that mindfulness practice should be considered a skill that would assist in the overall therapeutic relationship. They suggest mindfulness may do so by increasing the amount of directed attention a counselor can sustain while working with a client and through cultivating better therapeutic alliance via increased empathy.

Grepmair et al. (2007b) conducted a preliminary study that evaluated the influence of mindfulness training on treatment results of patients. Therapists-in-training were instructed in mindfulness, and the patients seen by these therapists were included in the study. Following the intervention, the patients that received treatment following the therapists' mindfulness intervention rated their own individual therapy experience significantly higher than those patients who were treated prior to the therapists' mindfulness training. Likewise, the patients seen after the therapists' training reported greater understanding of their own psychodynamics, difficulties, and progress, and reported greater skills in developing new behaviors. These patients also showed a greater rate of change on scales of the Symptom Checklist-90-Revised (SCL-90-R). Grepmair et al. (2007b) interpret these results as indicative of the potential for mindfulness practice to positively impact patients' treatment outcome. They propose that promotion of mindfulness for therapists-in-training can affect the course of therapy as well as influence the overall treatment results for clients, through furthering the personal role of the therapist in treatment. However, half of the patients included in the study were treated prior to their therapists' training in meditation, while the other patients were treated during the learning phase of the meditation. As there was no random assignment of participants, patient improvement may have resulted from therapists' improvement in therapeutic skills over time, with therapists becoming more skilled at the same time the study was progressing.

Following the earlier preliminary study, Grepmair et al. (2007a) again examined whether promoting mindfulness in therapists-in-training influences the outcomes of those patients being treated. Therapists-in-training were randomly assigned to the either the control group or experimental

Table 3 Healthcare providers and treatment outcomes

Study	Research question	Number	Age range (year), mean (SD); GENDER	Participant description	Treatment length/ setting/type	Study design	Measures	General findings
Aiken (2006)	Determine if whether or not mindfulness meditation facilitates or contributes to a psychotherapist's cultivation of therapeutic empathy	6	48–70 years; 50% male	5 marriage and family practitioners, 1 licensed psychologist	Therapist experience: Mindfulness Meditation Retreats (15–140); 10–12 hour days meditation (70–1400); 10 years experience minimum	Qualitative	Qualitative interview	Suggestion that mindfulness contributes to therapist's ability to: feel client's inner experience, communicate that awareness, be more present to pain and suffering of client, help clients become better able to be present
Bruce (2008)	Correlations between therapist mindfulness and (1) therapeutic alliance, and (2) therapeutic outcome	Therapists *N*=20; Patients *N*=186	Patients: 18–75 years; 66% female	Doctoral and master's level therapists and data from their patients	–	Survey	MAAS	Greater mindfulness scores on MAAS and FFMQ not related to early working alliance
							FFMQ HAM-D WAI-C WAI-T SCID IDS-R	Patients of therapists displaying greater mindfulness did not exhibit greater therapeutic outcome in terms of depressive symptoms
Greason and Cashwell (2009)	Relationships between mindfulness, attention, empathy, and counseling self-efficacy	179	29.86 (6.94); 86% female	Master's level counseling interns and doctoral level students	–	Exploratory, survey	FFMQ	Mindfulness predicted attention and empathy
							CAS IRI	Mindfulness predicted counseling self-efficacy
							CASES	
Grepmair et al. (2007a)	Whether, and to what extent, promoting mindfulness in therapists influences treatment results of patients	Trainees *N*=18; Patients *N*=124	Trainees Tx: 29.3 (3.2) Control: 30.4 (2.9); 100% female	Psychotherapists in training, at least bachelor's level, on internship and their hospitalized patients	5-days/week, hourly Zen meditation, 9 weeks	RCT; Tx: Trainees *N*=9, Patients *N*=63; Control: Trainees *N*=9, Patients *N*=61	SCL-90-R STEP VEV (subjectively perceived changes)	Those treated by trainees in meditation condition scored higher on assessment of individual therapy, better results on 8 SCL-90-R scales, subjective experience of progress
Grepmair et al. (2007b)	Whether promotion of mindfulness in psychotherapists in training can influence treatment results of their patients	Trainees *N*=9; Patients *N*=113		Psychotherapists in training, at least bachelor's level, on internship and their hospitalized patients	5 days/week, hourly Zen meditation, 9 weeks	Historical control (pre-Zen introduction); Tx *N*=58, Control *N*=55	SCL-90-R STEP VEV (subjectively perceived changes)	Those treated by trainees in meditation condition scored higher on assessment of individual therapy, better results on 5 SCL-90-R scales, subjective experience of progress

Plummer (2009)	Relationship between therapists' level of mindfulness and personal meditation practice and the level of empathy received by their clients	Therapists N=25; Clients N=43	Therapists: 35–69 years, 52.68 (9.56); 76% female Clients: 19–63 years, 37.02(12.35); 77% female	25 therapists (Psy. D., Ph.D., Ed.D.) and 43 of their clients	–	Online survey	FFMQ	Therapist's level of mindfulness does not predict any of the four relationship variables assessed by the BLRI
							BLRI (empathy, congruence, regard, and unconditionality)	Therapists who report experience with mindfulness received as less empathic
							Questions about experience/ practice with mindfulness meditation	
Stanley et al. (2006)	Relation between therapist mindfulness and client outcome	Trainees N=23, Clients N=144	Clients: 17–59 years, 26.7 (9.0); 53% female	Doctoral students in clinical psychology and their adult outpatients	–	Survey	MAAS CGI GAF	Therapist mindfulness not a predictor of positive client outcome; greater therapist mindfulness associated with worse client outcome (GAF and CGI)
Stratton (2006)	Relationship between therapist mindfulness and client outcome	24	40.2 (12.7)	Therapists in university counseling center	–	Survey, Convenience sample	MAAS MMS OQ-45	No correlation found between therapist mindfulness and client outcome scores
Wexler (2006)	Relationship between therapist mindfulness and quality of therapeutic alliance	19	49 (12.25); 58% male	Therapist–client dyads (MSW, MA, Ph.D., Psy.D., Ed. D., Th.D., MD)	–	Survey	WAI-C WAI-T MAAS	Significant positive correlation found between both client and therapist perception of the alliance and therapist mindfulness

group, in which meditation training was intended to promote mindfulness. As before, all patients of both groups of therapists were followed during the time of the study. Those patients being treated by therapists who were engaged in the mindfulness training again showed significant symptom reduction on SCL-90-R scales compared with patients of therapists in the control group. As before, the patients scored higher on a measure designed to evaluate their individual therapy sessions with the therapists receiving the mindfulness training. Grepmair et al. (2007a) propose that these results indicate mindfulness training, and the promotion of mindfulness in therapists-in-training positively impacts the course of therapy and also the treatment results of patients.

Just as treatment outcome is an important variable to measure, there has also been discussion of the role that mindfulness may play in the therapeutic alliance by encouraging the therapists' increased attention and empathy, and reducing reactivity to negative events. Therapist–client dyads were studied, evaluating the relationship between therapist mindfulness and the quality of the therapeutic alliance (Wexler 2006). Significant positive correlations were found between overall therapists' mindfulness and both the clients' and therapists' perceptions of the alliance.

Other research has suggested that therapists who utilize mindfulness practice in their personal lives do indeed perceive some of these components to be influential in the overall therapeutic relationship. Aiken (2006) used a qualitative approach to evaluate those qualities that therapists felt they possessed as a result of practicing mindfulness. Psychotherapists, who also identified themselves as experienced mindfulness practitioners, were asked to discuss their mindfulness practice, and how they feel this practice has facilitated or influenced their cultivation of empathy. These meditators concluded that mindfulness contributes to empathy by allowing full awareness of experiences in the mind and body, by the therapist's own ability to use mindfulness to slow clients down and help clients learn about themselves, by cultivation of a nonjudgmental presence with the client's experiences, by assisting the client in being calmer and less reactive, and by developing loving kindness.

Stanley et al. (2006) investigated the impact of therapist mindfulness on therapy outcome. Doctoral level trainees in a university outpatient community mental health center provided manualized psychotherapy to adult clients. Therapists' mindfulness was measured, as was clients' symptom severity, symptom improvement, and overall functioning. None of the analyses conducted by Stanley et al. (2006) showed support for the role of therapist mindfulness as a significant predictor of positive treatment outcomes. In fact, greater therapist mindfulness was associated with worse treatment outcome. The relationship between therapist mindfulness and clients' self-reported improvement was also evaluated. In this case, the direction of the effect was such that lower levels of therapist mindfulness were actually related to better treatment outcome, as reported by the clients themselves. In sum, therapist mindfulness was a significant predictor of clients' global functioning at termination, and the relationship between mindfulness and outcome was negative. Stanley et al. (2006) conclude that none of the analyses they conducted gave support to the idea that higher levels of therapist mindfulness contribute to better therapeutic outcomes when manualized treatments are used.

Stratton (2006) designed a study to evaluate the relationship between trait-level therapist mindfulness and treatment outcomes, as well. Therapists practicing in a university setting participated, completing two separate measures of trait-level mindfulness. Two-year longitudinal data regarding the outcome of these therapists' clients was subsequently retrieved from an archived database maintained on all clients. The data failed to show a correlation between therapist mindfulness and treatment outcome, suggesting that increased levels of trait-level mindfulness are not associated with improved treatment outcomes over time. The data from this study also indicated that the two separate measures of mindfulness did not strongly correlate with one another, suggesting that each assessment tool measured a different construct, and perhaps only one or neither actually tapped into the construct of mindfulness.

Bruce (2008) evaluated the correlations between therapist mindfulness and therapeutic alliance and outcome, with research conducted within a previously designed treatment study for individuals diagnosed with major depression. Therapists' mindfulness was assessed, and these mindfulness scores were then correlated with outcome and alliance measures for patients in each of the therapists' caseloads. Bruce (2008) evaluated the relationship between mindfulness and therapeutic alliance, clients' depressive symptoms, and percentage of client remitters in each therapist's caseload. The data resulted in nonsignificant correlations between mindfulness and all of the variables designed to measure the therapeutic alliance and outcome. Again, this study failed to support the idea that greater therapist mindfulness is related to improvement in treatment outcomes.

Another study evaluated the impact of therapist mindfulness on clients' perceived empathy. Plummer (2009) gathered data from therapists and the therapists' clients. The therapists completed a measure of mindfulness, and clients completed a measure on their perception of receiving regard, unconditionality, empathy, and congruence from their therapist. The results showed that therapist mindfulness was not predictive of any of the four therapeutic factors. In fact, therapists who indicated engaging in mindfulness meditation were perceived as less

empathic than those therapists lacking experience with mindfulness meditation. The more time therapists' spent meditating, the more negative was the client's experience of the therapeutic relationship, and the therapist was also perceived as less genuine.

Discussion

The following sections discuss the results of this literature review in relation to whether mindfulness training improves health care professionals' psychosocial functioning. Also addressed is whether health care providers who practice and/or possess higher levels of mindfulness have better treatment outcomes for their patients than those who do not practice mindfulness or with lower levels of mindfulness. In each section, strengths and limitations of the research studies are examined and potential avenues for new areas of research suggested.

Mindfulness Training for Health Care Providers

The review of the research literature suggests that the first hypothesis was tentatively supported—mindfulness-based training for health care providers of both medical and mental health services improves their psychosocial functioning—positive results were consistently found in all 11 of the studies reviewed. Health care providers reported several specific benefits after participating in mindfulness-based programs including reductions in anxiety, stress, and rumination, and increases in self-compassion, positive emotions, and empathy. There was no indication that health care providers' psychosocial functioning would deteriorate with practicing meditation and mindfulness. Reviewing the methods sections of these studies indicate that mindfulness practices taught to health care providers included the body scan, walking meditation, sitting, yoga, qigong, and other informal mindfulness practices. Some mindfulness-based programs included didactic sessions on theories of mindfulness and research support for mindfulness-based programs. Only one study included a physiological measure, and no changes were found in salivary cortisol.

Mindfulness Training with Health Care Providers of Medical Services The results of the five studies evaluating mindfulness training with health care providers providing medical services suggest that training may decrease caregiver stress, allow caregivers to be more present and compassionate during patient interactions and prove valuable for the overall health care experience (Cohen-Katz et al. 2005; Galantino et al. 2005; Pipe et al. 2009; Schenström et al. 2006; Shapiro et al. 2005). These studies provide some initial evidence that health care providers may benefit from mindfulness training. However, three of these studies used a quasi-experimental approach, and two used a randomized controlled trial. Of the randomized control trials, one studied only nurses and the other included a variety of health care professionals, which may limit generalizing the results to different kinds of health care providers of medical services. In order to conclude at this point whether mindfulness training is an empirically supported intervention for improving health care providers' psychosocial functioning, more randomized, controlled trials need to be conducted. Future studies should also include measures of physical health and effect sizes for all treatment outcome measures.

Mindfulness Training with Health Care Providers of Mental Health Services Six studies evaluating mindfulness training with health care providers of mental health services recruited therapists-in-training and found similar positive results as were found with health care providers of medical services (Christopher et al. 2006; Hyden 2009; May and O'Donovan 2007; McCollum and Gehart 2010; Schure et al. 2008; Shapiro et al. 2007). In order to conclude at this point whether mindfulness training is an empirically supported intervention for health care providers who are therapists, more randomized controlled trials need to be conducted. Also, studies need to include experienced therapists and not just therapists-in-training.

Health Care Providers and Treatment Outcomes

The second hypothesis, that health care providers who either practice mindfulness or possess greater levels of mindfulness will have better results with their clients than those possessing lower ratings of mindfulness or those who do not practice mindfulness, was not clearly supported in the nine studies reviewed (refer to Table 3). The review of the research literature concurs with Labbé (2011) "that the jury is still out on this question" (p 30). The results are mixed, with some studies showing no difference between therapists' lower or higher in mindfulness, some showing a positive correlation between therapist mindfulness and treatment outcomes, and others showing a negative correlation.

The results of this research review suggest there is not a simple connection between health care provider mindfulness and mental health treatment outcomes. Each of the previously mentioned studies presents challenges to the study of therapist mindfulness and treatment outcome. Of the nine studies reviewed, eight were not randomized controlled trials. In addition, mindfulness and treatment outcome were measured using a variety of assessment tools.

Some studies used measures that did not correlate with one another despite being presented as measures of a single construct. Also, the studies varied in their measurement of trait-level mindfulness versus increase in therapist mindfulness following intervention. In the case of mindfulness intervention for mental health practitioners, many lacked a post-treatment assessment to determine if therapist mindfulness did indeed increase following the intervention. All of the studies reviewed had methodological concerns that must be addressed before a clear conclusion can be drawn regarding the relationship between therapist mindfulness and treatment outcomes. For example, Stanley et al. (2006) suggest higher levels of mindfulness may cause therapists to focus more on the moment-to-moment occurrences in the therapeutic experience and, as a result, not attend as well to the treatment protocol, resulting in worse treatment outcomes. Labbé (2011) noted that these researchers did not measure therapists' adherence to the manual, so their argument is not based on adherence data. She offers another interpretation of the results of this study—therapists with lower trait mindfulness may not attend as closely to clients' symptoms at the end of treatment compared to therapists with higher trait mindfulness. Clients who do not feel listened to may not open up to their therapist as much and therefore may be less likely to inform their therapist of symptoms or problems that they are still experiencing at the end of treatment (Hubble et al. 2010). Wexler (2006) concluded, based on her study of therapist mindfulness and the quality of the therapeutic alliance, that greater levels of mindfulness may allow for therapists to be more focused on the communication taking place in the therapy session, conveying a sense of worth to the client. She also suggested that mindfulness may create a sense of partnership between the client and therapist, increasing a therapist's ability to understand and relate to the experiences of the client, hence increasing the perception of empathy.

There are many more issues raised than resolved when examining the studies reviewed. A significant concern is how mindfulness is defined and measured. Questions that need to be addressed in future research include "what is the working definition that researchers use when studying health care provider mindfulness," "how do these definitions reflect the understanding of mindfulness that practitioners use," and "what are the best measures of mindfulness?" There may be a disconnect between current measures used in the studies reviewed and the complex understanding of mindfulness that is expressed by practitioners of mindfulness. Aspects of mindfulness that may be helpful to the client in therapy may not be assessed by the mindfulness measures being used. Only two of the studies reviewed included process measures to assess clients' perception of the therapist as well as interpersonal interactions in the therapy session.

Five of the nine studies evaluated therapists-in-training, possible confounding lack of clinical experience with therapist mindfulness. All but one study used quasi-experimental designs so that other important factors that might have played a role in both treatment outcomes and health care provider mindfulness were not controlled for. Five of the nine studies were dissertations and may have lacked scientific rigor and external peer review. The one study that did use a randomized controlled design did report positive treatment outcome for therapists that were trained in mindfulness versus those who were not. Mindfulness as a construct needs to be evaluated more thoroughly in future research studies, along with the relationship of health care providers' personal levels of mindfulness and the treatment outcomes of their clients.

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