A PRELIMINARY INVESTIGATION OF COMPRESSED MINDFULNESS-BASED STRESS REDUCTION (cMBSR) WITH PEDIATRIC MEDICAL SOCIAL WORKERS

BY

Kelly Trowbridge
M.S.W., University of Kansas, 1999
B.S., University of Wisconsin-Madison, 1994

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Lisa Mische Lawson, PhD, CTRS, Chairperson

Winnie Dunn, PhD, OTR, FAOTA

Jianghua He, PhD

Lauren Little, PhD, OTR/L

George Turner, PhD, MSW, LCSW, LSCSW

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Date Defended

The Dissertation Committee for Kelly Trowbridge
certifies that this is the approved version of the following dissertation:

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Lisa Mische Lawson, PhD, CTRS (Chairperson)

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Abstract

Mindfulness practices, including mindfulness meditation, show promise for decreasing stress among health care providers. The standard course of Jon Kabat-Zinn's Mindfulness-Based Stress Reduction (MBSR) requires a participant commitment to eight weeks of instruction comprised of one two-and-a-half hour per week class, a single day retreat, and 45 minutes of practice for six of seven days each week. Studies of abbreviated MBSR typically investigate the "dosing" of instruction and practice required to demonstrate stress reduction effects. This exploratory study investigates the effectiveness of a two-day compressed MBSR course (cMBSR) on pediatric health care social workers. Using t-tests, researchers measured the effect of cMBSR on a) positive and negative experiences in pediatric social work, b) perceived stress, c) mindfulness, and d) caring self-efficacy (as a component of patient- and family-centered care). Results included significant differences between the pre and post intervention outcome variables on the ProQOL Secondary Traumatic Stress subscale, the Mindful Attention and Awareness Scale, and the Caring Effectiveness Scale. Findings partially supported the effect of the cMBSR intervention and found adequate evidence for the feasibility of a more rigorous study of cMBSR.

Key words: Mindfulness, health care social work, mindfulness-based stress reduction

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where I am now. Without her tremendous support, especially over the last two years, I can't imagine the therapist, researcher, or individual I would be today.

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Executive Summary

A health care professional's attention to the physical, emotional, and cognitive reactions he or she experiences during a day of work may improve his or her quality of care while also enhancing well-being (Krasner et al., 2009). Increased attention to events experienced in the current moment decreases the reflexive response that often occurs when an individual is jarred out of the thinking mind (Kabat-Zinn, 2005). Through increased awareness and intentional action, professionals begin recognizing limiting assumptions and reactions. Subsequently, more unique relationships with patients and families arise. (Trowbridge & Mische-Lawson, 2014).

Jon Kabat-Zinn introduced mindfulness-based stress reduction (MBSR) at the University of Massachusetts Stress Reduction Clinic in 1979 (Kabat-Zinn, 2011). MBSR participants learn throughout an eight-week course to attend to the relationship between the body, emotions, and the thinking mind. However, the twenty-six hour attendance commitment, in addition to daily home practice time, often prevents health care providers from participating in a standard MBSR course (Carmody & Baer, 2009; Shapiro, Astin, Bishop, & Cordova, 2005). My dissertation research investigates the feasibility of providing a two-day modified intervention, modeled on mindfulness-based stress reduction, to pediatric health care social workers. A series of papers led to this study.

The first manuscript entitled, "Children with Medical Complexity: A Systematic Review of the Literature," reviewed the quantitative literature on children with medical complexity (CMC). Using the Pediatric Self-Management Model, I summarized quantitative evidence into facilitators and barriers to self-management. Current research evidence leads health care providers to focus assessment and support on the caregiving burden in families with CMC,

missing opportunities to build on an existing foundation of family self-management by highlighting current family function and adaption. In conducting this review, I saw the shift to a more strengths-based, self-directed, self-management paradigm for families with CMC was too great a leap for most social workers working with families with CMC in medical settings. The manuscript introduced a model for social work with families with CMC in response to these findings. This re-envisioned model refocuses the health care provider to a view of the child with medical complexity as already whole rather than needing to be made whole, a perspective vastly different than typically deficit-based areas of medical specialty or service provision.

As I concluded the first review, I recognized for social workers working with families with CMC, the practiced "use of self" (Heydt & Sherman, 2005) was a precursor to responding to the model. The complicated interplay of the desires in pediatrics to fix and rescue with the cultural and societal beliefs about disability often blurs social workers' motivations for helping and reasons for desiring change in families with CMC. In the midst of job expectations and relationships with both families and colleagues, it often becomes difficult to recognize the personal characteristics and beliefs influencing work with families. Heydt and Sherman (2005) describe the "conscious use of self" in social work as a self-awareness that facilitates the investigation of personal patterns, attitudes, and behaviors. The use of self also requires a social worker to reflect on how these patterns, attitudes, and behaviors appear both intentionally and unintentionally in his or her work and the potential interpretation by those served. Leading to my second review, mindfulness and mindfulness meditation appeared as a potential intervention to assist social workers in reconnecting with the use of self (a focus in social work education) as skill for working with families with CMC.

The second manuscript entitled "Mindfulness-Based Interventions with Social Workers

and the Potential for Enhanced Patient-Centered Care: A Systematic Review of the Literature" explored the use of mindfulness and the effectiveness of Mindfulness-Based Interventions (MBIs) among social workers as well as the relationship of mindfulness to patient-centered care. Research with medical providers, such as physicians and nurses, suggests mindfulness may help in reducing stress, enhancing relationships, and fostering the self-reflection required to provide patient-centered care. MBIs are well documented in the mental health, medical, and education literature. However, there is minimal research on the use of mindfulness with social workers. As demonstrated in other professional and helping fields, mindfulness may enhance clinical skills, reduce burnout, and increase job satisfaction among social workers. In conducting the review of MBIs with social workers two concerns arose 1) research with social workers was minimal, with no research with medical social workers and 2) mindfulness-based interventions were typically long, especially if based on the eight-week MBSR program. However, an intervention like MBSR showed promise for reengaging social workers with the use of self. Addressing both the concerns of health care specific evidence and the potential for an abbreviated mindfulness intervention led to my third review

The third manuscript entitled, "Abbreviated Mindfulness Interventions with Health Care Providers: A Systematic Literature Review" reviewed four eligible randomized controlled trials of abbreviated mindfulness interventions with practicing health care providers to determine the efficacy of these interventions with health care professionals and the extent to which abbreviated interventions demonstrate fidelity to Kabat-Zinn's mindfulness-based stress reduction program. Abbreviated MBIs with healthcare providers suggest provider stress, relationships, and self-reflection may all be targets for MBIs. However, less rigorous methodology and sample populations consisting of health care students or trainees rather than practicing providers limit

conclusions. MBIs for health care providers demonstrate little curricular or instructional consistency. Some consistency was found between targeted outcome and dosage, but incomplete information, sample sizes, and widely varying assessment tools among studies hampered evaluation of MBI efficacy across studies.

Upon completion of the final literature review, I made the decision to investigate, as my dissertation study, the effects of a compressed two-day mindfulness-based intervention with a pediatric medical social work population. Based on the findings of the third literature review, I collaborated with two other professionals in the creation of a standardized abbreviated curriculum based on the mindfulness-based stress reduction program. At the forefront, in the design of the intervention, was fidelity to both the content and spirit of the MBSR model. While the outcome measures from review three varied widely; two appeared with some consistency so investigators chose to use those in the dissertation study for comparison.

My dissertation study is divided into two manuscripts. "The Effectiveness of Compressed Mindfulness-Based Stress Reduction" will be submitted to *Health and Social Work*. The manuscript details the findings of a feasibility study investigating an abbreviated two-day mindfulness-based intervention with pediatric medical social workers. "Social Work Research in Practice: Lessons Learned" will be submitted to *Clinical Social Work Journal*. The manuscript chronicles the lessons learned by a first time social worker researching while practicing in an academic medical institution.

The findings from "The Effectiveness of Compressed Mindfulness-Based Stress Reduction" partially supported the hypotheses that a two-day intervention could create change lasting at least six-weeks. Secondary trauma indicators significantly decreased after the intervention ($p<.003$ while mindfulness was significantly increased in participants ($p<.002$).

Related to our specific goal of working with families with CMC, scores reflecting a social workers' confidence in his or her ability to care effectively for families also showed a significant increase (p=.04). Directions for future research include a wait-list controlled study of cMBSR.

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Families with Children with Medical Complexity and Self-Management of Care: A Systematic Review of the Literature

Kelly Trowbridge

Children's Mercy, Kansas City

Lisa Mische Lawson

University of Kansas Medical Center

Social Work in Health Care 2014; 53(7) 640-658.

Abstract

This review analyzes the quantitative literature on children with medical complexity (CMC). Using the Pediatric Self-Management Model, evidence is summarized into facilitators and barriers to self-management. Current quantitative research focuses on the caregiver burden in families with CMC. A model for social work with families with CMC was introduced in response to these findings. A re-envisioned model allows the child with medical complexity to be seen as whole rather than focusing on typically deficit-based areas of medical specialty or service provision.

Key words: social work, chronic illness, children with medical complexity, disability, self-management, technology dependent, medically fragile

Families with Children with Medical Complexity and Self-Management of Care: A Systematic Review of the Literature

A national survey done between 2005-2006 indicated 13.9% of children and youth had special health care needs (U.S. Department of Health and Human Services, 2008). Among the children and youth with special health care needs whose condition affects them "usually," "mostly" or "all the time," 63% required specialty medical care (U.S. Department of Health and Human Services, 2008). Some children and youth with special healthcare needs experience chronic, multiple medical problems or may be chronically, medically fragile (Kuo, Cohen, Agrawal, Berry, & Casey, 2011). Diagnoses such as neuromuscular, cardiac, and congenital diseases can also lead to the use of medical technology common in youth who have medical complexities (Berry et al., 2011; Kuo et al., 2011)

Children with Medical Complexity

Sieben-Hein and Steinmiller (2005) define a child with "complex care" as one who may benefit from "medical management, mental health support, and a family systems approach" (p.389). Other authors describe these children as technology dependent or assisted, medically fragile, complex, or ventilator dependent. Qualities such as technology use, diagnosis, and/or extent of involvement with the healthcare system typically identify children with medically complexity. However, the inclusiveness of each definition is often linked to specialized knowledge not congruent across medical, social science, and other fields. The lack of unifying terminology slows the interprofessional dissemination of knowledge about families with children with complex medical needs.

Cohen and Friedman (2012) and Cohen et al. (2011) propose and define the term

"children with medical complexity" (CMC) which will be used throughout this paper. The authors define CMC through identification in four domains: "family-identified service needs, characteristic chronic and severe conditions, functional limitations, and high health care use" (p. 95). CMC often include children with significant brain injuries or children with multi-systemic diagnoses and/or ongoing developmental health needs such as extreme prematurity, congenital heart disease, and genetic conditions. Unique from severe, acute episodes of illness often seen in childhood cancers or other diseases, the needs and healthcare use of CMC do not wane in complexity or duration over the lifetime.

Hospitalizations, frequent primary and subspecialty appointments (median 11-15 per year), and a multitude of therapies are routine for many families with CMC are (Kirk & Glendinning, 2004; Kuo et al., 2011). Continuing refinement of home medical technology transforms bedrooms and living rooms into critical care units. Equipment and supplies for home mechanical ventilation, tracheostomy, gastrostomy, and positioning (Kirk & Glendinning, 2004; Lindahl & Lindblad, 2011) adorn the home. Parents and children report exhaustive time spent scheduling, managing and training in home nurses. Home nursing hours vary widely ranging from as little as 11 hours or as much as 168 hours of assistance each week (Kirk & Glendinning, 2004; Lindahl & Lindblad, 2011).

The number of children with complex medical needs and the complexity of care they require continues to grow as do initiatives to establish medical homes to comprehensively address their needs (Cohen et al., 2011). However, because of CMC's exacting medical requirements and sheer number of providers, the specialty care medical system often remains at the center of medical provision models for CMC throughout the child's life (Cohen et al., 2011). A review of four children's hospitals done between 2006-2008 demonstrated CMC accounted for

1.7% of all patients hospitalized, 3.8% of the total hospitalizations, and 5.5% of the total hospital charges (Berry et al., 2011). Burns et al. (2010) found a significant increase (P.<001) between the years 1991-2005 in the hospitalization rate of children and youth ages birth to17 years with medically complex diagnoses compared to children and youth with one special health care need diagnosis. The American Academy of Pediatrics taskforce Vision of Pediatrics 2020 also identified the increasing number of children with long-term chronic illness as one of nineteen trends likely to shape the future of pediatrics (Starmer et al., 2010).

Theoretical Framework

Research investigating the lives of families with CMC is primarily informed by qualitative studies establishing a foundation of shared experiences of parents with children with CMC (Carnevale, Alexander, Davis, Rennick, & Troini, 2006; Kirk, 1998; Lindahl & Lindblad, 2011; Mah, Thannhauser, McNeil, & Dewey, 2008; Wang & Barnard, 2004). Caregiving burden and parent behavior is a common focus of both qualitative and emerging quantitative literature on families with CMC. Similarly, the healthcare system relies largely on specialized providers identifying child and/or family system disorders then designating treatments to fix the selected disorder. The current healthcare system ignores influences and effects of providers, intersecting systems, and societal beliefs on the child and family.

Social workers may work with families and children with CMC from infancy or early childhood through late adolescence and the transition to adult care. As providers in problem-focused system, opportunities to highlight or build caregivers' beliefs in existing abilities may go unrecognized or be lost. Too often, social workers find themselves discouraged and defeated when interventions reflect this deficit based, professional problem solving model.

New insights arise when viewing the literature on CMC and their families through a

social work framework that focuses on child and family experience, strength and activation in current circumstances (Saleebey, 1992). The Pediatric Self-Management Model (Modi et al., 2012) centers on encouraging providers to use child and family abilities to partner with families and engage them in care through increased understanding. To begin understanding the role of social work in self-management in families with CMC, this paper uses the lens of the Pediatric Self-Management Model to systematically review the facilitators and barriers to self-management presented in quantitative literature.

Self-Management in Pediatrics

Modi et al. (2012) define self-management as a "neutral" idea that defines "the interaction of health behaviors and related processes that patients and families engage in to care for a chronic condition" (p. e475). The Modi et al. Pediatric Self-Management Model addresses the converging influences of the caregiver, child, the community, and healthcare providers on the self-management process (see Figure 1). The Pediatric Self-Management Model recognizes existing child and family skills and acknowledges the circumstances of families with CMC.

Engaging families and children in self-management of chronic care conditions is essential in pediatrics (Chronic Care: Self-Management Guideline Team Cinicinnati Children's Hospital Medical Center, 2007; Modi et al., 2012; Sawyer & Aroni, 2005; Starmer et al., 2010). Family and child driven care is one of eight identified "megatrends" likely with "the most profound influence on the future of pediatrics."(Starmer et al. (2010), p.973) Additionally, the increasing focus on cost-effectiveness and efficient resource utilization requires pediatric providers to innovate and re-envision systems of complex care delivery that enhance the participation of families and children, such as self-management (Cohen et al., 2011; Modi et al., 2012).

Methods

Design

The Chronic Care Self-Management Guideline (2007) and the Pediatric Self-Management Model proposed by Modi et al. (2012) guided the review. The authors of the Pediatric Self-Management Model conceptualize self-management behaviors at the core of a circular model. Comprising the foundation of the circle are quadrants or *domains*. These domains represent four systems in which self-management behaviors, emotional, and cognitive *processes* tie modifiable and non-modifiable influences to self-management behaviors

As a bidirectional link between influences and self-management behaviors, processes like communication, perceptions, and community beliefs emanate out from the self-management behavior core and are also incorporated into the self-management behavior core. For example, a parent may be wary of discussing (process) a current feeding plan (self-management behavior - family) considered alternative by medical staff (modifiable influence – healthcare system). When the parent is asked to begin a new feeding plan with a child at home (*self-management behavior* - family) the lack of communication by both the parent and healthcare (processes) due to health and disease beliefs (modifiable influence - parent and healthcare system) may impact support and use of the new plan (self-management-behavior). Currently, in such a situation, the intervention is most often a prescriptive reiteration by healthcare staff (including social workers) of the rationale for self-management behavior compliance and the consequences of non-compliance. Using the Pediatric Self-Management Model potential intervention targets are the identified parent and healthcare system processes and the modifiable influences.

To assist social workers in the transfer of research knowledge to practice we present our findings in a discussion of the facilitators and barriers to self-management for families with CMC. Using a schema familiar to social workers (facilitators/strengths and barriers/needs)

hopefully facilitates integration of information into the practice setting. As we reviewed the literature, we integrated the experiences of families living with CMC into the Pediatric Self-Management Model (Modi et al., 2012). To classify facilitators and barriers, we created a list of potential facilitators and barriers reported in literature. We created a table based on Modi et al.'s model and added facilitators and barriers as articles were reviewed. We then classified facilitators and barriers into the components described in the Modi et al. model: individual, family, health care and/or community modifiable and non-modifiable influences and processes.

Search

We conducted a review of literature using electronic and non-electronic searching. Drawing from Cohen and Friedman (2012), the criteria for a medically complex child included: 1) at least a chronic and severe medical diagnosis, 2) functional limitations, and 3) use of daily medical technology (i.e. home ventilator or gastrostomy tube). We searched the following: PubMed 1966 to 2012 using enteral nutrition; respiration, artificial; ventilators, mechanical; caregivers/psychology; pediatrics; medically fragile; and medically complex; CINAHL and ERIC 1966 to 2012 using the following keywords as subject search terms: child, medically complex, technology dependent, enteral, ventilator patient, coping, and family functioning. We also searched ProQuest Nursing and Allied Health, Psych ARTICLES, PsychInfo, Social Service Abstracts 1966-2012 using the key words technology dependent child (any field), enteral feeds (any field), and, artificial respiration (subject). We also completed a hand search of selected bibliographies.

Inclusion and Exclusion

The search generated a total of 450 abstracts. 413 articles were excluded after reviewing titles and abstracts. Of the remaining 31 abstracts, 7 met selection criteria and were reviewed for

this paper. Studies were also excluded if the primary focus was CMC undergoing cancer treatment or dialysis, because care and treatment for these groups is distinct from the larger CMC population (Office of Technology Assessment, 1987) Papers investigating only adults with medical complexity or aspects of families with CMC unrelated to the specific experience of the family system (e.g school integration, use of home nursing), qualitative studies, literature reviews, and discussion papers were excluded. Studies were limited to English language articles.

Summary of Studies

Design

No systematic reviews of quantitative studies on CMC exist. The majority of studies we reviewed are observational with primarily cohort design and regression analysis. We used The Centre for Evidence Based Medicine, "Levels of Evidence 2" (OCEBM Levels of Evidence Working Group, 2011) as an appraisal tool for study quality. This guide fits the studies reviewed due to the limited number and scope of studies available. All studies in the review can be categorized as Step 3 or Level 3 studies. Level 3 studies include local, non-random samples in cohort studies or the control arm of a randomized trial. Readers should consider their population related to the studies available due to the limited evidence (Howick et al., 2011).

Studies using the same population and differing methodologies were analyzed separately (See Table 1). In two studies, authors describe the same population using cross-sectional (Toly, Musil, & Carl, 2012a) and longitudinal (Toly, Musil, & Carl, 2012b) designs. In two studies, investigators studied the same population analyzing differing variables in each study (Kuster & Badr, 2006; Kuster, Badr, Chang, Wuerker, & Benjamin, 2004). Both sets of authors used follow-up studies to clarify or expand original ideas around the functioning of families with

CMC. The use of longitudinal design by Toly et al. (2012b) provided new information on family functioning and the predictive impact of current functioning on future functioning.

Individual Domain

Beginning in the individual domain of the Pediatric Self-Management Model, studies reviewed noted non-modifiable influences such as degree of disability and socioeconomic status. Non-modifiable influences are unchangeable circumstantial elements of the domain. Overall the assessment of this domain, especially related to modifiable influences, was limited due to the reviewed articles focus on caregivers rather than the child/individual.

Most of the studies reviewed reported socioeconomic status. All of the studies, except the correlation study (P. B. Sullivan et al., 2005) included the degree of child medical complexity, or a combined measure determining child medical complexity, as a predictor of caregiver function. In our review, only one study found degree of medical complexity as a significant predictor. Degree of child medical complexity negatively predicted mother's involvement in maternal health promotion activities, such as exercise (Kuster et al., 2004). There is mixed evidence in the developmental disability literature on the impact of severity of need or disability on the family (Raina et al., 2005). A number of studies demonstrate degree of disability is not a predictor of family function (Farmer, Marien, Clark, Sherman, & Selva, 2004; Trute, 1990; Trute & Hiebert-Murphy, 2002).

Family Domain

The reviewed studies measured modifiable influences (changeable circumstantial elements) in the family domain to assess family functioning. Authors of the studies included in this review used a number of assessment tools to measure the influences of parental characteristics and family functioning. Due to the emerging nature of the CMC field, there is not

an accepted standardized measure to assess family functioning related to CMC. Therefore, a summary of the existing assessment measures used with CMC families is important and was included as part of this review. In the family domain, Blucker, Elliott, Warren, and Warren (2011), using the Social Problem-Solving Inventory, investigated the role of an individual's attitude toward problem solving *(modifiable influence).* Problem-solving orientation, the way parents approach problem situations whether positive or negative, accounted for more than 20% of the variance in parent mental health (Blucker et al., 2011).

Four of the studies included measures of coping (modifiable influence) such as the Coping Health Inventory for Parents (CHIP) and Family Crisis Oriented Personal Evaluation Scale (F-COPES) (Blucker et al., 2011; Kuster & Badr, 2006; Kuster et al., 2004; Montagnino & Mauricio, 2004). The CHIP sub-scale, Social support, Self-Esteem and Psychological Stability was significantly correlated with somatitization, depression, general health, and mental health (Blucker et al., 2011). Montagnino and Mauricio (2004) found significant correlations between the F-COPES subscale, Mobilizing Family to Acquire and Accept Help and several Impact on Family Scale subscales. Blucker et al. (2011); Kuster and Badr (2006); and P. B. Sullivan et al. (2005) used general health questionnaires for data. General health questionnaires showed some promise as a proxy of maternal functioning/wellness.

Modi et al. (2012) defines processes as the links between self-management behaviors and domain influences (modifiable or non-modifiable). Four of the six eligible studies included specific mental health characteristics *(modifiable influences),* specifically maternal depression, as a component of the outcome measure (Blucker et al., 2011; Kuster & Badr, 2006; Toly et al., 2012a, 2012b). Two studies demonstrated relationships between depression and the impact of the illness on the family (Blucker et al., 2011; Kuster & Badr, 2006). In Toly et al.'s

longitudinal study, depressive symptoms accounted for significant variance in family functioning and normalization at baseline. However, 12 months later the only significant relationship was between family functioning at baseline and family functioning 12 months later.

Community Domain

Measures of social relationships fall into the modifiable influences in the community domain of the Pediatric Self-Management Model. Blucker et al. (2011); Kuster and Badr (2006); and Kuster et al. (2004) measured social relationships specifically. Controlling for functional status and impact of illness on the family, social support accounted for 22% of the variance in caregiver depression (Kuster & Badr, 2006). However, in an earlier study of social support, Kuster et al. (2004) found no significant relationship between health promotion of mothers with children with CMC. Other assessment measures also include information on social relationships in the determination of the overall assessment score. For example, Montagnino and Mauricio (2004) found a large relationship between the F-COPES subscale, Mobilizing Family to Acquire and Accept Help and IOF subscales Disruption of Social Relations ($r=.613$, $p<.01$). There is mixed evidence, as in this review, of the role of social support in families with children with disabilities, although social support is generally thought to be important (Raina et al., 2005).

Barriers

Unsurprisingly to social workers working with families with CMC, much of the current research reflects deficit-focused models of coping in families with CMC. Focus on the association between the degree of medical complexity in the child and poor family functioning is common. The reviewed studies did not include the individual domain (child), other than degree of disability, level of support (such as hours of nursing care), and/or socioeconomic status as an area for assessment. The abilities and needs of CMC are widely variable, most obviously

ranging from children with significant intellectual and physical disabilities to children with primarily physical disabilities. Additionally, the abilities and needs of CMC may very significantly over time. Regardless of degree of disability, without investigating the child's role in the family system and in his/her care the understanding of families with CMC is incomplete.

Investigations of family behavior based on medical community assumptions and standards occur frequently in the literature. However, the healthcare and community systems domains, including related influences and processes, remains largely unexamined. For example, the role of medical staff and the healthcare system in the lives of CMC and their families is largely unknown, but is referenced in the qualitative literature (Cramm & Nieboer, 2011; Reeves, Timmons, & Dampier, 2006; K. J. Sullivan & Cen, 2011). The effectiveness of provider communication about diagnosis and treatment is an unknown factor in families with CMC. Community factors such as formal and informal support provision and quality, community acceptance, and accessibility are also largely unmeasured factors in families with CMC.

Facilitators

The Pediatric Self-Management Model (Modi et al., 2012) acknowledges and incorporates the interrelated relationships in chronic medical care. A number of studies in our review also pointed to the complexity of interaction amongst measured variables, demonstrating the role of multiple variables on outcome measures (Blucker et al., 2011; Kuster & Badr, 2006; Kuster et al., 2004; Toly et al., 2012a, 2012b). For example, Toly et al. (2012a) found caregiver depressive symptoms partially mediated child functional status and normalization. However, depressive symptoms did not mediate functional status and family functioning. This research indicates caregiver depressive symptoms partially explained the relationship between child functional status and normalization, but depressive symptoms did not explain the relationship

between child functional status and family functioning. (Albrecht & Devlieger, 1999).

Blucker et al. (2011) reported significant correlations in problem-solving orientation, finding social problem solving accounted for more than 20% of the variance in caregiver mental health ($p<.01$). For example, a parent who views a child's use of a new piece of medical equipment with curiosity as a puzzle to be understood and mastered manages the integration of the technology into the child's care (process) in a way that increases utilization of the device (self-management behavior) and maximizes child and parent functioning (modifiable influences). A parent who views the same equipment as a burden and risk to family stability (modifiable influence) manages the integration of the technology (process) in a way that may decrease child and family engagement (modifiable influence).

Limitations

This review has a number of limitations including the small number of studies reviewed and the small sample sizes of those studies. The ability to compare and contrast available evidence in this review with other reviews is limited due to the absence of quantitative research regarding CMC. Additionally, the use of the same population by two authors in two studies each is of concern. The level of evidence is low, but CMC is an emerging field with primarily qualitative evidence at its foundation so this is not unexpected.

A Social Work Model of Support

Using existing CMC research, interventions with families with CMC may unduly focus on child or family behavior, including assessment and treatment of mental health concerns. This focus ignores opportunities to build on current child and/or family motivations and abilities. This is perhaps the only review to examine the CMC literature through the Pediatric Self-Management Model in order to identify evidenced-based self-management factors in families

with CMC. Unfortunately, most current research on families with CMC does not investigate child and/or family activity in self-management. Toly et al. (2012b) found in their longitudinal study the best predictor of family functioning of caregivers with CMC to be the previous 12 months level of functioning. Based on this information, proactively supporting existing effective family skills and family functioning could have lasting effects.

Social workers, through their expertise in comprehensive, strengths based assessment, frequently set aside identifying and correcting problems within the family (Saleebey, 1996). All families exhibit self-management, so family or social work identification of a problem or deficit is not necessary for growth. Social workers' training encourages them to elicit family identified coping strategies, supports, and needs. Consistent with the Modi et al. (2012) Pediatric Self-Management Model, social work assessment and intervention seeks and incorporates information on the complex interactions between the child, family, and community systems.

Informed by the Pediatric Self-Management Model (Modi et al., 2012), we propose the adapted Capacity Model (Figure 1) for use by social workers working with CMC. The Modi et al. domains are reconfigured to represent the four components of the Cohen and Friedman (2012) definition of children with medical complexity (family identified needs, chronic severe condition, healthcare system and high healthcare use, and functional limitations). The four domains of our model are family, individual, healthcare system, and support. Unique to the Capacity Model, the jagged edges of the domain figures indicate the ebb and flow or predictable uncertainty of domain activities and self-management factors. In the Capacity Model, the individual is conceptualized and represented as preeminent and whole. The Capacity Model maintains the central position of self-management behaviors, depicted by Modi et al (2012), as behaviors influencing and being influenced by factors across all four domains. A distinguishing

feature of the Capacity Model, social work assessment and intervention contains or holds the interplay of self-management factors. Provision of a secure and open environment creates opportunities for the observation of self-management behaviors and related factors as they arise between social worker, child, and family in co-created discussions.

The Capacity Model accepts in *all* families the co-occurrence of joy, sorrow, routine, uncertainty, expectation, and disappointment, thus, resisting pathological, maternal, mental health labels, to explain family circumstances. The view of family through the Capacity Model is one of wholeness; requiring the social worker to resist labels and biases that lead to dichotomous depictions and expectations of families.

Current quantitative research with families with CMC tends to measure the role of CMC in family life through health related variables such as hours of caregiving required and severity of child need. Limited less by medical community assumptions, the social worker and child and/or family is free to find unique relationships. For example, the studies reviewed in this paper often assume technology use creates greater family burden. However, the addition of technology (a gastrostomy tube) led to medium effect sizes for families in relationship to social relationships (.44), general health (.33) and mental health (.51), and energy (.42) of caregivers (P. B. Sullivan et al., 2004). Home mechanical ventilation is a source of stress, but also moderates stress by ensuring safe and effective breathing for the child (K. J. Sullivan & Cen, 2011).

Albrecht and Devlieger (1999) point to the difference between the narrow focuses of health related quality of life and a holistic construction of quality of life. Current quantitative studies on CMC do not account for non-health related child contributions. Illustrating the gap in understanding, Mah et al. (2008) found parents described quality of life as the child's demonstration of happiness, child enjoyment and success in life, and child participation in age

appropriate activities. Many parents also reported that living with CMC led to a positive shift in perspective as they must live in the present and learn to manage uncertainty of daily life. Social workers training and perspective positions them to identify and incorporate child contributions elicited from family members. Child contributions can then be incorporated into an understanding of the whole child and system of self-management behaviors.

Many social work education curriculums fall short in addressing the experiences and needs in the lives of people with disabilities as well as the desired role, if any, of the social worker (Morgan, 2012). Given this, a critical first step in future research is defining with greater clarity the skills and traits utilized in the Capacity Model and investigating the prevalence of those skills and traits among social workers engaged with CMC and their families.

Conclusion

This paper reviewed the existing quantitative literature on families with CMC. The review showed limited and low level research. We reviewed significant results through the Modi et al. (2012) model of Pediatric Self-Management Model. Understanding current family functioning through the Pediatric Self-Management Model enhances both social work and family awareness of the complexity of comprising CMC family and child outcomes.

The Capacity Model for social work with CMC families integrates social work knowledge, skills, and values with the Pediatric Self-Management Model (Modi et al., 2012) and a current definition of children with medical complexity (Cohen & Friedman, 2012). The Capacity Model presents the social work role and/or perspective as necessary in eliciting and addressing the wide scope of information available on self-management behaviors.

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Table 1

Children with Medical Complexity

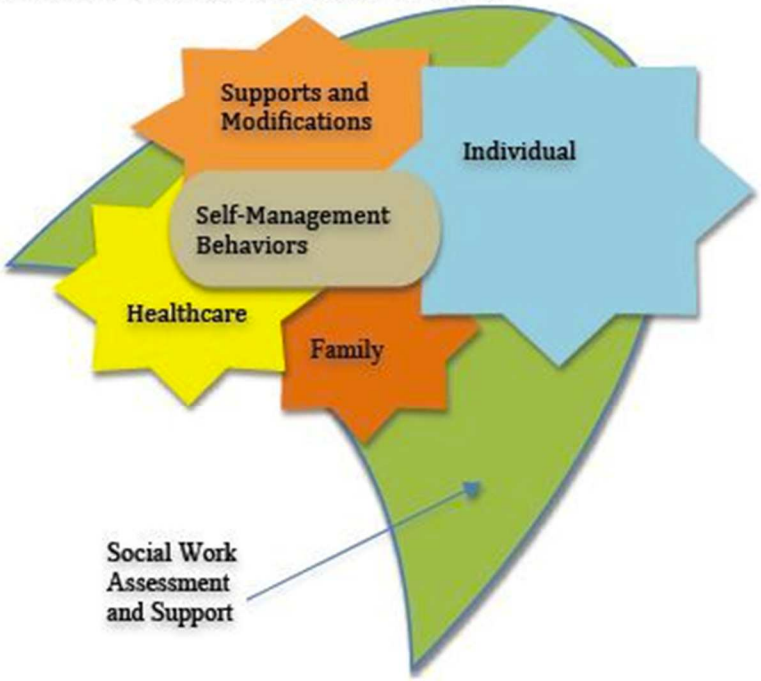
Article	Study Purpose	N	Child Age	Measures for Data Collection	Design	Findings
(Blucker et al., 2011)	Determine whether coping and social-problem solving predict adjustment of caregivers.	62	4 to 30 M=13.34 SD=6.10	Coping Health Inventory for Parents (CHIP) Family Crisis Oriented Evaluation Scale (F-COPES) Patient Health Questionnaire (PHQ) Respiratory Management Score Short Form-12 Version 2 Health Survey Social Problem Solving Inventory-Revised Short Form	Correlation Regression Analysis health outcome variables: caregiver depression, anxiety, somatization, caregiver physical and mental health regressed on years care giving and respiratory management score, then coping and problem solving variables.	Only CHIP subscale Social Support, Self-esteem and Psychological Stability (CHIPSES) was significantly correlated with 4 of 5 outcome variables. For depression, CHIPSES scores and then problem orientation scores were positively associated. For anxiety, problem solving was positively associated with problem orientation. For Somatization, CHIPSES and problem orientation were positively associated. For physical and mental health, CHIP was positively associated.
(Kuster &	Investigate	38	18 months	Centers for	Correlation	Depression positively

Badr, 2006)	relationships between child functional status, impact of home ventilator use and social support, coping, and depression in mothers.		to 18 years M=8 SD=5.08	Epidemiological Studies -Depression Scale (CES-D) Functional Status II-R (FS II R) CHIP Impact on Family Scale (IOFS) Social Support Index (SSI)	Regression Analysis	Correlated with impact of illness and hospitalizations, Depression negatively correlated with social support.
(Kuster et al., 2004)	Relationship between health promotion and functional impact of CMC on family, coping social support caring for children on home ventilators.	38	M=8 SD=5.08	CHIP FS-IIR IOFS Personal Lifestyle Questionnaire (PLQ) SSI	Correlation Regression Analysis	Functional status and coping correlated with health promotion. Impact on family negatively correlated with health promotion.
(Montagnino & Mauricio, 2004)	Describe stressors and coping mechanisms of a child with a tracheostomy and gastrostomy tube.	18	Surgical procedures between January 2000-December 2001. Age at time of placement – two	Demographic survey child and caregiver F-COPES IOFS	Pilot study Retrospective Correlation Qualitative Interviews	F-COPES subscale, Mobilizing Family to Acquire and Accept Help and IOF subscales: positively associated with financial support, general impact, and disruption of social relations

			weeks to 14 years old.			
(P. B. Sullivan et al., 2004)	Examine the relationship between g-tube feedings and the quality of life of care givers and children with severe cerebral palsy.	57	5 months to 17.3 years. Median: 4 years and 4 months.	Demographics Short-Form 36 Version II (SF-36 II) Specific questions on feeding.	Prospective cohort Paired t test on the change between visits and 95% CI for the mean change. Effect sizes at baseline and 12 months.	Medium effect sizes between baseline and twelve months for social function, energy, pain, general health and mental health. Small effect for physical functioning, physical and emotional role limitations.
(Toly et al., 2012b)	Examine the relationship between parent and child characteristics and family function, normalization, and mother's depressive symptoms Follow-up to	Time 1 103 Time 2 – 82	Of those who participated in both times. Time 1 M=6.41 Time 2 M=7.48 Half of the	Actual Effect of Chronic Physical Disorder on the Family subscale of the Normalization Scale Caregiving Questions CES-D Feethan Family Function Scale FS-II(R)	RM-ANOVA Cross-sectional Correlational Longitudinal Two interviews twelve months apart.	No significant difference for depressive symptoms groups for time. Significant interactions between technology groups and time. When mothers were excluded whose children no longer used technology there were no significant within group differences or significant interactions

	Toly et al 2010 to examine relationship stability and and test explanatory model using a sub sample of the original population.		children were age 5 or younger at both times.	Demographics OTA Level of Tech Dependence		between technology groups and time. **A**djusting for covariates, family functioning accounted for significant variability. When Time 1 family functioning was added to the model, variability accounted for increased significantly.
(Toly et al., 2012a)	Examine the relationship between parent and child characteristics and family function, normalization, and mother's depressive symptoms	103	7 months to 16.6 years M=(6.58) 47.6% under age 5 years	Actual Effect of Chronic Physical Disorder on the Famly (subscale of the Normalization Scale) Caregiving Questions CES-D Feethan Family Function Scale FS-II(R) Demographics OTA Level of Tech Dependence	Correlational, Cross-sectional Regression analysis	Depressive symptoms only significant predictor in model. Depressive symptoms, functional status, home health nursing, child's age, and race significantly explained the variance in the adjusted model.

FIGURE 1
Through assessment and support social workers create opportunities for the examination of self-management behaviors and contributing influences. The larger size of the individual denotes it as whole rather than simply a component influence.



Mindfulness Based Interventions with Social Workers and the Potential for Enhanced Patient-Centered Care: A Systematic Review of the Literature

Kelly Trowbridge

Children's Mercy, Kansas City

Lisa Mische Lawson

University of Kansas Medical Center

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Abstract

The use of mindfulness-based interventions (MBIs) is well documented in the mental health, medical, and education literature. There is minimal research on the use of mindfulness with social workers. As demonstrated in other professional and helping fields, mindfulness may enhance clinical skills, reduce burnout, and increase job satisfaction among social workers. In the health care field mindfulness appears integral to patient and family relationships and personal resilience. The evolving and expanding role of hospital social workers may lead to increased work stress and greater demands from both the medical system and patients and families. Research with medical providers, such as physicians and nurses, suggests mindfulness may help in reducing stress, enhancing relationships, and fostering the self-reflection required to provide patient-centered care. We systematically reviewed the existing literature to begin understanding both mindfulness qualities and practices and the effectiveness of MBIs among social workers as well as the relationship of mindfulness to patient-centered care.

Key words: health care social work, mindfulness, patient-centered care, self-reflection, mindfulness-based interventions

Mindfulness Based Interventions with Social Workers and the Potential for Enhanced Patient-Centered Care: A Systematic Review of the Literature

Social workers in healthcare comprise over 20% of all social workers (Bureau of Labor Statistics, 2010, 2012). Through crisis intervention, case management, and/or discharge planning, health care social workers respond to patients, families, coworkers, and community members. Health care social work roles include providing and clarifying information, responding to ethical dilemmas, assessing needs, and counseling patients and/or families experiencing trauma, grief, and/or significant change (Judd & Sheffield, 2010). The advent of patient-and family-centered care brings new opportunities for health care social workers to demonstrate increased value to patients, families, and health care organizations through use of psychosocially-based assessments and responses (Collins, 2013; Peterson, 2012; Reisch).

With passage of the Affordable Care Act (ACA), Reisch (2012) anticipates fewer resources for an increasing number of patients and families served by health care social workers. He argues specific social worker qualities require enhancement to secure social work relevancy in health care (2012). ACA focus areas such as prevention, effectiveness, and community-based services present both challenges and opportunities to the health care social worker skill set (Miller, 2012; 2012). In order to succeed in a changing health care landscape that increasingly views social work as an ancillary service, Reisch cites the need for improvement in social worker skills such as: communication, self-awareness, self-esteem, self-monitoring, understanding of diversity, and acceptance of uncertainty and change.

As institutional demands on health care social workers grow, so does the focus on patient and family-centered care as a means to increasing intervention effectiveness. Reisch (2012) highlights the ACA's call for patient and family-centeredness as an opportunity for health care

workers. Establishing a trusting, collaborative, and open environment between the social worker and patient or family has long been a core component of health care social work practice (National Association of Social Workers, 1996, 2005). However, incorporating the recognition and encouragement of patient and family self-management skills may be relatively new to social workers in a health care setting (Miller, 2012). Offering mindfulness education to social workers may support social workers encountering professional uncertainties and stresses while also encouraging a return to foundational social work skills, such as patient and family strengths recognition and active listening.

In this paper, we briefly define mindfulness as a practice with the potential to enhance health care social workers' coping skills as well as improve engagement with patients and families. We provide a review of the literature on mindfulness and the use of mindfulness among social work students and practitioners. Lastly, we discuss the significance of incorporating mindful practices into routine patient-and-family-centered care conducted by health care social workers.

Background

Mindfulness

The investigation of "mindfulness" as a variable in research studies has grown exponentially over the last three decades. (see Figure 1) (Black, 2013; Chiesa, 2013; Garland, 2013). Germer, Siegel, and Fulton (2013) in *Mindfulness and Psychotherapy* offer a narrative explanation of mindfulness:

> …to wake up, to recognize what is happening in the present moment with a friendly attitude….our attention is not entangled in the past or future, and we are not rejecting or clinging to what is occurring at the moment. We are present in an openhearted way. (p. 4)

Due to the rapid growth of mindfulness and its use and study across disciplines, the scope and content of mindfulness is changing with practice. As a concept, it is becoming increasingly difficult to define (Chiesa). Not surprisingly Chiesa and Malinowski (2011), in their review of mindfulness based interventions (MBIs), found conflict as to what type of practice constitutes a "mindfulness" intervention or approach. For example, meditation is typically considered a mindful practice at the foundation of the development of mindfulness (Chiesa, 2013). However, Chiesa and Malinowski found little agreement as to the beneficial amount, type, and goal of meditation. In their discussion of reviewed studies, they cite one study that even suggests a mindfulness intervention with no meditation practice. They also found MBIs included interventions ranging from Vipassana meditation (often referred to as Insight meditation) to dialectical behavior therapy (DBT), acceptance and commitment therapy (ACT), mindfulness based stress reduction (MBSR), and mindfulness based cognitive therapy (MBCT) (2013).

Piloted by Jon Kabat-Zinn in 1979 to assist individuals with chronic and previously irresolvable pain, mindfulness-based stress reduction (MBSR) is a standardized psycho-educational program with roots in Buddhism (Kabat-Zinn, 1990). MBSR is the most widely and rigorously studied mindfulness intervention (Carmody & Baer, 2009) among those that do not explicitly incorporate established therapies (such as MCBT) or use mindfulness as one component in a specific type of therapy (such as DBT). Interventions based on MBSR, but altered in some way, typically go by names such as MBIs, abbreviated MBSR, and/or adapted MBSR. As the cornerstone of many MBIs, an overview of MBSR is presented below.

MBSR instruction occurs over eight weeks in two-and-a-half hour sessions per week and also includes an additional all day session after week six. Instruction is experiential rather than didactic and utilizes the insight and interaction of the group as an essential teaching and learning

tool. Introduction and practice of four types of formal meditation (body scan, sitting, walking, and choiceless awareness) constitute a significant part of class time. Mindfulness as a means of understanding self and interpersonal interactions is also investigated. MBSR participants commit to homework six of seven days per week for 45 minutes each day. Homework is primarily composed of formal meditation practice (Kabat-Zinn).

MBSR improves mental health among self-selected individuals both with and without psychiatric labels and meets the American Psychological Association criteria of a "well-established" therapy (Fjorback, Arendt, Ørnbøl, Fink, & Walach, 2011). Chiesa and Serretti (2009) found MBSR as effective as standard relaxation instruction in adults without an identified medical diagnosis or psychiatric label and significantly more effective in reducing rumination (excessive and repetitive thinking associated with anxiety and depression) among these adults. In adults with a medical diagnosis or psychiatric label, a moderate level of evidence exists for improvement in anxiety, depression, and pain using mindfulness meditation (Goyal, Singh, Sibinga, & et al., 2014). Neither intervention type (MBSR, abbreviated types of MBSR, and other MBIs) nor participant type (healthcare professionals, teachers, office employees) effected the demonstrated reduction in psychological distress among working adults (Carmody & Baer, 2009; Virgili, 2013).

Mindfulness in Health Care

There is mounting evidence for mindfulness as an effective tool for stress management in health care providers and health care students (Escuriex & Labbé, 2011). Martín-Asuero and García-Banda (2010) found a significant decrease in psychological distress after health care providers participated in the 8-week Mindfulness Based Stress Reduction (MBSR) course. Mindfulness based interventions (MBIs) with health care providers also show decreased patient

and/or family depersonalization (Goodman & Schorling, 2012) and increased empathy among providers (Krasner et al., 2009; McCracken & Yang, 2008; Shapiro, Schwartz, & Bonner, 1998). Studies also found a reduction in burnout and an increase in job satisfaction among health care providers (Goodman & Schorling, 2012; McCracken & Yang, 2008; Shapiro, Astin, Bishop, & Cordova, 2005).

Beddoe and Murphy (2004) reported that undergraduate nursing students enrolled in an 8-week MBSR course had a reduction in anxiety ($p<.05$). Recognizing the risk for work-related psychological distress (similarly found in social work), Shapiro, Brown, and Biegel (2007) investigated health psychology master's degree students in an 8-week MBSR program embedded in a 10-week Stress and Stress Management course. Students who enrolled in either Psychological Theory or Research Methods courses comprised the control group. All three courses were offered the same academic semester and were required as part of the health psychology degree program. Students in the Stress and Stress Management course demonstrated significant decreases in perceived stress, negative affect, anxiety, rumination, and increases in positive affect and self-compassion. Burgess (2010), in her review of the contribution of health care environment to bias in medical decision making, encourages investigating individual awareness through mindful practices such as meditation, non-judging, and curiosity. She suggests that mindful practices may be one way of attempting to decrease the likelihood that medical decisions made under high levels of cognitive load result in poor care and contribute to personal bias in-patient care interactions.

Theoretical Framework

Building on communication, cross-cultural, and advocacy skills, health care social workers demonstrate a unique and recognized role in placing patients and families at the center

of care (Peterson, 2012). Some social workers may skillfully gain insight into how the life of the patient and family outside of the medical situation influences the outcome of the medical situation. Introduced in 2001 in *Crossing the Quality Chasm,* the term "patient-centered care" (Institute of Medicine, 2001) is often linked to the collaborative work health care social workers do with patients and families (Miller, 2012). Further defined, health care relationships built on provider-elicited patient or family preferences, current circumstances, and cultural considerations are termed patient-centered or family-centered care (Institute for Family Centered Care, nd; Institute of Medicine, 2011; Smith, Fortin, Dwamena, & Frankel, 2013); and include the following constituent components: empathy (Smith et al.), information clarity (Institute for Family Centered Care, nd; Institute of Medicine; Smith et al.), respect (Institute of Medicine), synthesis of patient perspective (Institute for Family Centered Care, nd; Institute of Medicine).

Mindful practices may influence the relationship between the components of patient-centered care and the provider qualities that contribute to the interpersonal connection between the health care social worker and patient and/or family. Trowbridge and Mische-Lawson (2014) introduced the Capacity Model to support patient- and family-centered care that builds self-efficacy. Pausing to identify limiting, dichotomizing, and *self-authored* stories created about the patient and family, social workers can chose to respond with greater empathy, encouraging the emergence of patient-and family-led problem solving. Transmitting a personal state of equanimity, the social worker also can choose to create a secure emotional environment or space for the *totality* of the patient's and family's experiences and emotions to arise without judgment from the social worker and without the pursuit or thwarting of any specific experience. Embodying equanimity, the social worker neither moves toward a place of professional or personal comfort nor away from a place of personal or professional discomfort. Adopting this

posture transmits deep respect to the patient and family, potentially ushering in powerful patient- and family-centered narratives to inform care.

Purpose of Study

Reviews of MBIs with health care providers often include social workers in their sample population. However, regardless of setting, few studies exclusively sample social workers. Research on MBIs with an exclusively social work sample typically draw from social work students. A synthesis of mindfulness-based practices, qualities, and/or interventions (MBIs) with social workers may lead to both understanding if MBIs with health care social workers hold potential in promoting and encouraging patient-centered care (Garland, 2013) while also potentially bolstering knowledge of social workers' unique contribution to the health care system.

The aim of this paper is to 1) report on the outcomes, quantitative and qualitative, found in studies of both practicing social workers and social work students reporting mindful qualities or participating in mindfulness-based interventions and 2) to highlight those outcomes that enhance and sustain patient-centered care and 3) to synthesize the qualitative and quantitative outcomes of mindfulness-based interventions with social workers, including an evaluation of the quality of reviewed evidence using The Centre for Evidence Based Medicine, "Levels of Evidence 2" (OCEBM Levels of Evidence Working Group, 2011) and Popay, J., Rogers, A., & Williams, G. (1998) paper "Rationale And Standards for the Systematic Review Of Qualitative Literature In Health Services Research."

Methods

Search

We conducted a review of literature using electronic and non-electronic searching. We

searched the following: PubMed 1976 to 2013; CINAHL 1976 to 2013; ProQuest Nursing and Allied Health; PsychInfo, Social Service Abstracts; and Social Work Abstracts1976-2013. We used the following keywords as subject search terms: mindfulness; mindfulness-based stress reduction, MBSR, meditation, social work, social work students, social work training, and social work clinical training. We also completed a hand search of selected bibliographies.

Inclusion and Exclusion

Only studies written in English were included. Quantitative and qualitative studies were included that examined mindfulness or mindfulness-based interventions with social work practitioners or social work students. Quantitative studies included surveys and pre/post quasi experimental designs. Studies that included or focused on non-social work health care providers, including psychologists or psychology students, or other non-social work professionals were excluded. Given the small sample of articles focusing exclusively on social workers, and furthermore social work practitioners rather than students, an exception was made for the McGarrigle and Walsh (2011) study. Conducted in a human services agency, the sample included a youth counselor and two child and family support workers. Editorials, commentaries, case studies, and review articles were excluded. Dissertations, theses, and duplicate articles were also excluded.

Design

This is a systematic review of published literature. We selected studies that evaluated the use of MBIs by social workers. Harden and Thomas (2005) present a framework for crossing the "paradigm divide" (p.260) between qualitative and quantitative reviews. They propose when multiple questions exist within one review, the use of a mixed methods review may be helpful. We used a review process similar to Harden and Thomas to structure our review (see Figure 2).

Quality Appraisal

This review evaluates evidence using clinical questions as the starting point. Investigating intervention benefits of MBIs with social workers, we evaluated evidence based on the questions, "What are the outcomes among social workers reporting mindful qualities or participating in mindfulness-based interventions?" Therefore, The Centre for Evidence Based Medicine, "Levels of Evidence 2" (OCEBM Levels of Evidence Working Group, 2011) is an appropriate appraisal tool for the quantitative studies' quality. OCEBM 2011 is also a useful tool due to the limited number and scope of studies and the need for clinical judgment in evaluating these studies (Howick et al., 2011b). Lastly, OCEBM 2011 spans all types of clinical questions (Howick et al., 2011a) which proved helpful given this review contains two types of quantitative studies.

Qualitative articles were used to answer the question, "Do mindfulness-based interventions with social workers enhance empathy, information clarity, respect, and synthesis of patient perspective?" Designed for use in health care, we used Popay, Rogers, and Williams (1998) as an appraisal tool for the qualitative articles. Especially useful in a multi-disciplinary health care setting, creation of this tool includes an intended intent of sharing the application of investigated studies with an interdisciplinary health care audience (Eriksson & Lindstrom, 2007). Additionally, the tool assesses appropriateness (meets perceived need), and evidence of decision-making components. The areas considered for each study are: subjective meaning, theoretical or purposive sampling, adequate description, data quality, theoretical and conceptual adequacy, and typicality (Popay et al.).

Results

The search generated a total of 8740 abstracts. After excluding articles that did not apply

to both social work and mindfulness, 417 articles remained for review. After reviewing titles and/or abstracts 303 articles were excluded because articles were editorials, commentaries, duplicates, or did not apply to both social work and mindfulness. Of the remaining 114 abstracts, 51 met selection criteria after abstract review. Reviews, case studies, theses, and dissertations were excluded, resulting in a total of 10 papers meeting criteria for review in this paper. Both qualitative and quantitative studies were included for review. Jointly reviewing quantitative and qualitative studies contributes to both an empirical understanding of the data and an understanding of the participants' personal experience of the data (see Figure Two).

Four quantitative studies (two cross-sectional survey design and two pre-test/post-test quasi experimental design), one mixed methods study (see Table One), and five qualitative studies (see Table Two) met this article review inclusion criteria. Due to the limited availability and limited quality of studies, transparency regarding study quality is paramount. Both the quantitative studies evaluating the prevalence of mindfulness and associated relationships (Thomas, 2012; Thomas & Otis, 2010; Y.-W. Ying, 2008) and the benefits of a MBI (Bonifas & Napoli, 2013; McGarrigle & Walsh, 2011) were considered high, based on studies reviewed, if an OCEMB level/step 3 or greater score existed. A scoring system of one point for each criteria met guided our determination of high and low qualitative studies (Popay et al., 1998). A high quality qualitative study was any study with a score of 4 or higher. There were two OCEBM level/step 3 quantitative studies, two OCEBM level 4/step 4 quantitative study. Two of the six qualitative studies scored over four points with the remaining studies scoring 2 or 3 points.

Two quantitative studies utilized the same population (Thomas, 2012; Thomas & Otis, 2010). These articles were analyzed separately. One study utilized mixed methods with both quantitative and qualitative components (McGarrigle & Walsh, 2011). The qualitative and

quantitative components were evaluated separately. Two quantitative (Bonifas & Napoli, 2013; Y. W. Ying, 2008) and four qualitative studies (Birnbaum, 2005, 2008; Gockel, Cain, Malove, & James, 2013; Wong, 2013) drew from both graduate and undergraduate student populations. Three quantitative (McGarrigle & Walsh, 2011; Thomas, 2012; Thomas & Otis, 2010) and two qualitative studies (McGarrigle & Walsh; Shier & Graham, 2011) drew from practicing social workers. Four of the six studies with students utilized a formal course in mindfulness for data collection while only one of the professional studies utilized a formal course format.

Studies

All the quantitative papers reviewed, including the mixed methods paper, use analytic observational methodology. One prospective cohort study (Bonifas & Napoli, 2013) and the Thomas (2012) and Thomas and Otis (2010) cross sectional surveys are Level 3/Step 3 level of evidence (OCEBM Levels of Evidence Working Group, 2011). Ying (2009) was downgraded from a Level 3 to a Level 4 due to difficult to understand explanations of the mediation relationship and the far-reaching conclusions from the limited data presented. McGarrigle and Walsh (2011) was also downgraded from a Level 3 to a Level 4 study due to small sample size (n=12). We reviewed these studies to determine the potential function of mindfulness and the effectiveness of MBIs with social workers.

Mindfulness Function Described in Cross-Sectional Studies.

Thomas (2012); Thomas and Otis (2010), and Ying (2009) utilized cross-sectional surveys to examine existing characteristics in professional social work populations (Thomas and Thomas &Otis) and student social work populations (Ying). Examination of these cross sectional studies reveals the distribution of mindfulness among social workers and social work students at a defined point in time. Identifying the relationship between mindfulness and other

qualities (OCEBM, 2013), these three studies contribute to the understanding of the qualities of provider mindfulness and patient-centered care.

Each author's choice of mindfulness measure highlights the differing conceptualizations of mindfulness. The choice of measures may also help illuminate the authors' underlying and differing beliefs about the role of mindfulness among social workers. Thomas (2010) used the FFMQ to investigate the relationship between mindfulness and work-quality of life among practicing social workers. The FFMQ was constructed on the belief that mindfulness is a multi-faceted activity that requires social workers to non-judgmentally observe, describe, and pay attention to both the inner self and outer environment. This observing without reactivity increases present moment awareness, subsequently enhancing well-being (Baer et al., 2008). Ying investigated the relationship between mindfulness and mental health in students using the MAAS. The MAAS conceptualizes mindfulness as a single dimension activity, using present moment focused attention to enhance both social worker well-being and self-awareness (Brown & Ryan, 2003).

Ying (2008) found first year Master's in Social Work (MSW) students (n=37) more mindful than second year MSW students (n=28). Ying reports mindfulness was significantly associated with a higher sense of coherence (ability to positively cope with difficulty) and self-esteem and lower anxiety and depression scores of first year students. Second-year Master's in Social Work (MSW) students reported lower personal competence (self-esteem and sense of coherence) and higher mental health concerns (depression and anxiety) than incoming first year students.

Thomas (2012) and Thomas and Otis (2010) used the same data set to examine and reexamine the understanding of the relationship between mindfulness and compassion fatigue,

burnout, and compassion satisfaction in practicing social workers (n=171). The simple relationships between mindfulness and the three factors of burnout were significant ($p<.001$). Complex models of compassion fatigue, burn-out and compassion satisfaction found mindfulness played a significant role in decreasing compassion fatigue and burn-out ($p<.01$ level). Mindfulness was not significant when looking a more complex model of compassion fatigue.

By adding personal distress (self-focused avoidant response to suffering) as a possible mediator, Thomas (2012) further examined the relationship between mindfulness and work related quality of life that encompasses compassion fatigue, burnout, and compassion satisfaction factors. Personal distress decreased ($p<.05$) when mindfulness was included in the model. These results suggest the effect of mindfulness on work related quality of life can be explained in part by the effect of mindfulness on personal distress. Additionally, in the complex models of compassion fatigue, burnout, compassion satisfaction that included personal distress, the inclusion of mindfulness significantly ($p<.001$) added to the overall understanding of the constructs of compassion fatigue (decreased), burnout (decreased), compassion satisfaction (increased).

Taken together, understanding of the evolution of mindfulness from student to professional begins. A possible tentative hypothesis from these very limited results is: MSW students enter graduate school and begin to experience decreases in mental health and work/practicum satisfaction. Without intervention, this decrease continues or maintains into professional life. Supporting this idea are Ying's higher reports of depression and anxiety among second year students and ProQOL measures in practicing social workers of compassion fatigue and burn-out (constructs include behaviors of depression and anxiety) (Hudnall Stamm,

2009). The decline in sense of coherence among second year students is similar to the decline in ProQol compassion satisfaction scores (provider's satisfaction, positive emotions, and accomplishment in the midst of difficult work) (Hudnall Stamm). While there is no definitive research on health care social work, decreases in mental health and job satisfaction and increases in compassion fatigue and burn-out have been shown to be related to declines in patient-centered care by physicians (Dobie, 2007; Shanafelt, 2009).

MAAS scores reported by McGarigle and Walsh (2011) for practicing clinicians and Ying (2008) for students, also reflect the decline in use of mindfulness as individuals move from social work student to social work professional. The MAAS mean with standard deviation in parentheses for first year MSW students was 4.0 (.57) with a decline among second year students mean to 3.59 (.67). The pre MBI MAAS of practicing social workers reported by McGarigle and Walsh was very close to the second year students declining score with a 3.6 (.6) mean, suggesting mindfulness does not increase upon entry into the profession.

However, a post MBI mean among practicing social workers of 4.2 (.5) suggests it may be possible through a MBI to raise mindfulness scores to levels equal or beyond that of incoming social work students. Given the positive associations found by Thomas (2010, 2012) between mindfulness and professional quality of life, consideration of the protective function of mindfulness related to burnout and compassion fatigue may be worthwhile. However, due to the conflicting assessment tools used by the authors it is difficult to do anything more than speculate on possibilities. More research is needed to establish any relationship.

MBI Effectiveness Described in Pre/Post Designs. Bonifas and Napoli (2013) and McGarrigle and Walsh (2011) both used pre-test/post-test quasi experimental study designs to measure the outcomes of a mindfulness-based intervention. Investigators in both studies found

the use of mindfulness improved participant coping in measurably stressful situations. Twelve child and family workers (9 social workers) demonstrated a significant decrease in PSS scores ($p<.01$) and a significant increase in mindfulness ($p<.05$) after taking an 8 week, 2 hours/ week mindfulness class (McGarrigle & Walsh, 2011). Practicing social workers then found both a relief from stress and an improvement in coping after an MBI.

Bonifas and Napoli examined seven classes (1 per year) of graduate students completing a 16-week, 3 hour/week mindfulness course. Students demonstrated no change in stress as measured by the Perceived Stress Scale (PSS), but did demonstrate a significant gain in overall quality of life scores in three of four Ferrans and Powers Quality of Life Index (QLI) subtest areas. In explanation of the unchanged PSS scores, the authors present the student scores as consistent with the transactional model of stress that theorizes a decline in stress may not occur although improved coping does occur (as indicated by the QLI). The authors may also be highlighting this finding to demonstrate its consistency with the MBSR teaching that stress always exist, but how an individual responds or copes with it, through mindfulness, is variable (Kabat-Zinn, 1990).

Both studies examined the difference in PSS scores after exposure to a similar MBI. Pre MBI PSS mean for students (limited/no exposure to mindfulness) was 25.5 (1.9) and post MBI 26.3 (1.7) and pre MBI PSS for students (a lot of exposure to mindfulness) was 26.4 (1.8) and 26.5 (1.6). Social workers in practice reported a PSS pre MBI mean of 16.8 (6.1) and post MBI mean of 12.1 (4.7). Unfortunately, due to the confounding factors of dissimilar sample situations and sizes and lack of MBI standardization, comparison through PSS scores is premature.

Mindfulness and Social Work Skill Enhancement

Following the model set forth by Harden and Thomas (2005) we reviewed non-

intervention qualitative studies to examine whether MBIs with social workers enhance the patient-centered care provider qualities of empathy, information clarity, respect, and synthesis of patient perspective. As described in Table 3, we examined five qualitative studies and one mixed method study. Of the six studies reviewed 4 reported on students and 2 reported on practicing social workers.

We utilized the Popay et al. (1998) criteria for reviewing qualitative studies in health care. Popay et al. argue that quantitative information on effectiveness is not alone sufficient for decision-making in health care. They contend it is also necessary that a standard for reviewing qualitative evidence exist in order to evaluate appropriateness of care (the care meets the self-perceived needs of the user) and factors contributing to policy decision-making which they describes as "why people, both lay and professional, behave as they do when they do." (p.342) Quality scores range from 7/7 to 2/7 (Popay et al., 1998). All studies reviewed demonstrated subjectivity and sampling sufficiency. Only Gockel et al. (2013) demonstrated adequate theoretical framework.

Qualities of patient and family centered care guided the categorization of study participants' views. The qualities of empathy and respect arose consistently in student and practitioner narratives. None of the studies specifically addressed the two family/patient-centered care areas of information clarity and synthesis of patient perspective. However, it seems clear without provider respect and/or empathy neither the incorporation of patient experience nor tailoring of information can occur.

Empathy. Grant (2013) urges social workers to consider understanding empathy as inaccurate or accurate, putting forth the idea that not only is empathy the ability to take on another individual's perspective, but *accurate* empathy also includes the ability of the social

worker to self-reflect. Shier and Graham (2011), specifically address self-reflection in social work students describing students' discovery of equanimity (the ability to calmly assess and respond to both the pleasant and unpleasant aspects of a situation) and wisdom. A student-practitioner, explicitly described her increasing empathy saying she began understanding the families she worked with in a "meaningful way" not simply as a problem to be "fixed" (Wong, 2013, p.275).

Among student mindfulness workshop participants Birnbaum (2005) similarly identified sub-categories of student insights related to self-reflection including the recognition of authentic emotions, intuition, self-guidance, and emotional flooding. Gockel et al. (2013) also described students who were more aware and willing to explore and reflect on emotions and physical sensations as a source of information in the clinical process. Student response to learning and challenge in a safely held setting appears to deepen understanding of self and patient/family situation. Concepts such as power and privilege, when investigated through significant self-reflection, are meaningfully explored and experienced rather than just intellectually understood. McGarigle and Walsh (2011) found practitioners participating in a work-based facilitated meditative group more understanding of the day-to-day coping and stress of those they worked with after reflecting on their own day-to-day stressors and coping.

Respect. Simply defined, respect is paying a particular attention to someone or something due to its importance or seriousness (Merriam-Webster, nd). Gockel et al. (2013) found students taking part in mindfulness training identified an enhanced ability to stay attentive and emotionally connected with patients. One practitioner described "being more mindful of where my mind is" (p.221) when working with families (McGarrigle & Walsh, 2011). In her analysis of the experience of two students in her class, Spirituality and Social Work, Wong

(2013) describes the women's discovery that each exchange, regardless of time or subject, was significant.

Making sense of personal ambivalence, often referred to in mindfulness as the practice of equanimity, was highlighted among studies in this review as a use of self-reflection. Mann, Gordon, and MacLeod (2009) reviewed reflective practices in health care education. They found that self-reflection occurs across disciplines and is a component of both preparing for complex situations as well as grappling with these multifaceted experiences over time. Lloyd, King, and Chenoweth (2002) point out the ambivalence social workers can experience when faced with the often-competing demands of expected health care outcomes, patient and family autonomy and societal norms. Similarly, Birnbaum (2008) found Bachelor's level Social Work (BSW) students appreciative of a place for self-reflection. Through self-reflection Birnbaum found students demonstrated a willingness to explore the clinical issues of emotion regulation and ambivalence. As Shier and Grahm (2011) explored the lives of the happiest social workers they also discovered the practice self-reflection. Among the happiest social workers, self-reflection fostered awareness of the internal self, such as awareness of ambivalence, and awareness of the outer self, such as emotional regulation.

Limitations

Discussion

The scope and quality of the investigations highlighted in this review are typical of the testing of an emerging idea in a field. Taken in isolation, they each offer a unique, but meager glimpse into mindfulness and social work. The limited amount of existing evidence could slow further study. Our examination of use of mindfulness in conjunction with exploring practitioner described experiences begins the integration of information on the state of mindfulness within

social work practice (Garland, 2013). This dual focus facilitates the understanding of MBIs as both a potential means for social worker growth and a vehicle for expanding the current characterization of patient and-family-centered care.

Using complementary information to begin the discussion of MBIs usefulness in the implementation and sustainment of patient-centered and family-centered care, we explored the function and effectiveness of MBIs with healthcare social workers. Results with social work students point to mindfulness as a potential protective factor as they enter the workforce. Work with students also suggests mindfulness may help establish the skills and qualities necessary to the provision of patient and family centered care.

Krasner et al. (2009) raise the possibility then that mindfulness may contribute to more patient-centered and family-centered care through increases in qualities such as empathy and respect (specific attention). Confirming Krasner's hypothesis, in a multicenter study Beach et al. (2013) found among 45 clinicians (34 physicians, 8 nurse practitioners, and 3 physicians assistants), mindfulness is associated with more patient-centered care as measured by more patient-centered communication and more patient satisfaction. Donald Berwick, former director of the Centers for Medicaid and Medicare, also came to the conclusion that training students and residents in mindfulness is a key component of patient-centered care (Berwick, 2009).

Ackerman and Hilsenroth (2003) found provider qualities such as honesty, openness, warmth, interest, trust and respect contributed positively to the bond between mental health therapists and patients. While there is no consensus in the literature as to a primary definition of therapeutic alliance or bond, (Horvath, Del Re, Fluckiger, & Symonds, 2011), the bond between provider and/or patient and family is a robust predictor of outcomes in helping relationships (Del Re, Flückiger, Horvath, Symonds, & Wampold, 2012; Flückiger, Del Re, Wampold, Symonds,

& Horvath, 2012; Horvath et al., 2011). Mindfulness education provided to health care workers, including social workers, shows provider change in areas associated with the relationship bond and the creation of holding space for patients and families (Goodman & Schorling, 2012; Krasner et al., 2009; McCracken & Yang, 2008). Within this secure space, a patient and/or family is comfortable sharing, requesting, and receiving a wide variety of communication (Trowbridge & Mische-Lawson, 2014).

There is scarce evidence on the use of MBIs with social workers. While the papers covered in this review utilized the available work to begin the discussion of effectiveness and application to health care social work, available evidence is statistically limited and low-level. Little room for comparison existed among the studies due to small and varying sample sizes and inconsistent measurement tools. Such limitations are not uncommon to pilot interventions investigating emerging ideas in a field.

Employing systematic methodologies in the design and implementation of social work driven studies investigating MBIs offers the possibility of social workers making a unique contribution to the mindfulness literature. A systematic comparison of the effects of MBIs on patient and family care and self-care among health care social work and related fields, such as nursing, (Cohen-Katz et al., 2005; Cohen-Katz, Wiley, Capuano, Baker, & Shapiro, 2004; White, 2013; Zeller & Levin, 2013) could lead to a greater understanding of the unique outcomes of MBIs with health care social workers. Additional research exploring health care social workers participation in MBIs and the direct effect of mindful practices on patients and families is needed to understand if mindful practices among health care social workers influence areas such as patient satisfaction, adherence to medical plans, or communication. Additionally, examination of systems, such as hospitals, hospices, or primary care clinics, implementing MBIs with social

workers may highlight settings where mindful practices flourish or languish. Lastly, social workers can contribute to the science of both social work and mindfulness by initiating and supporting research investigating the mechanisms of mindfulness.

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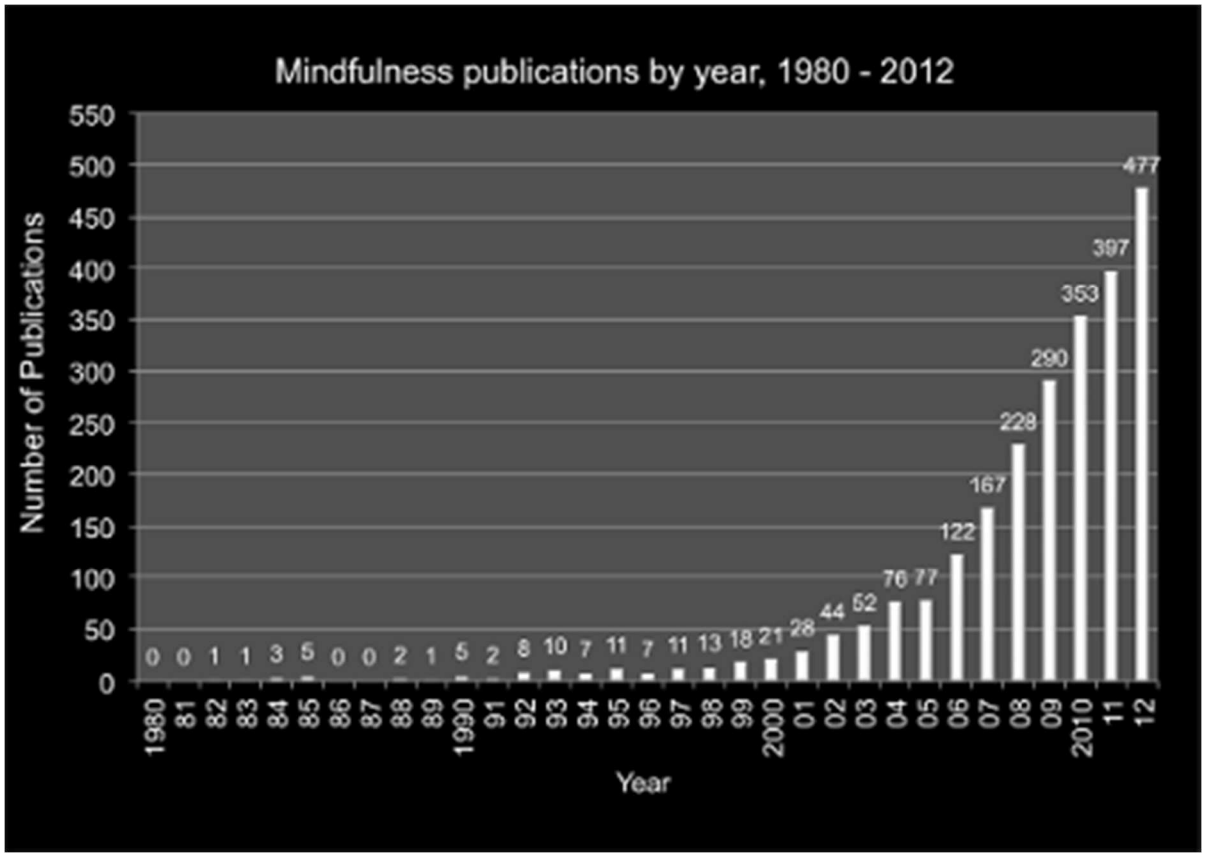
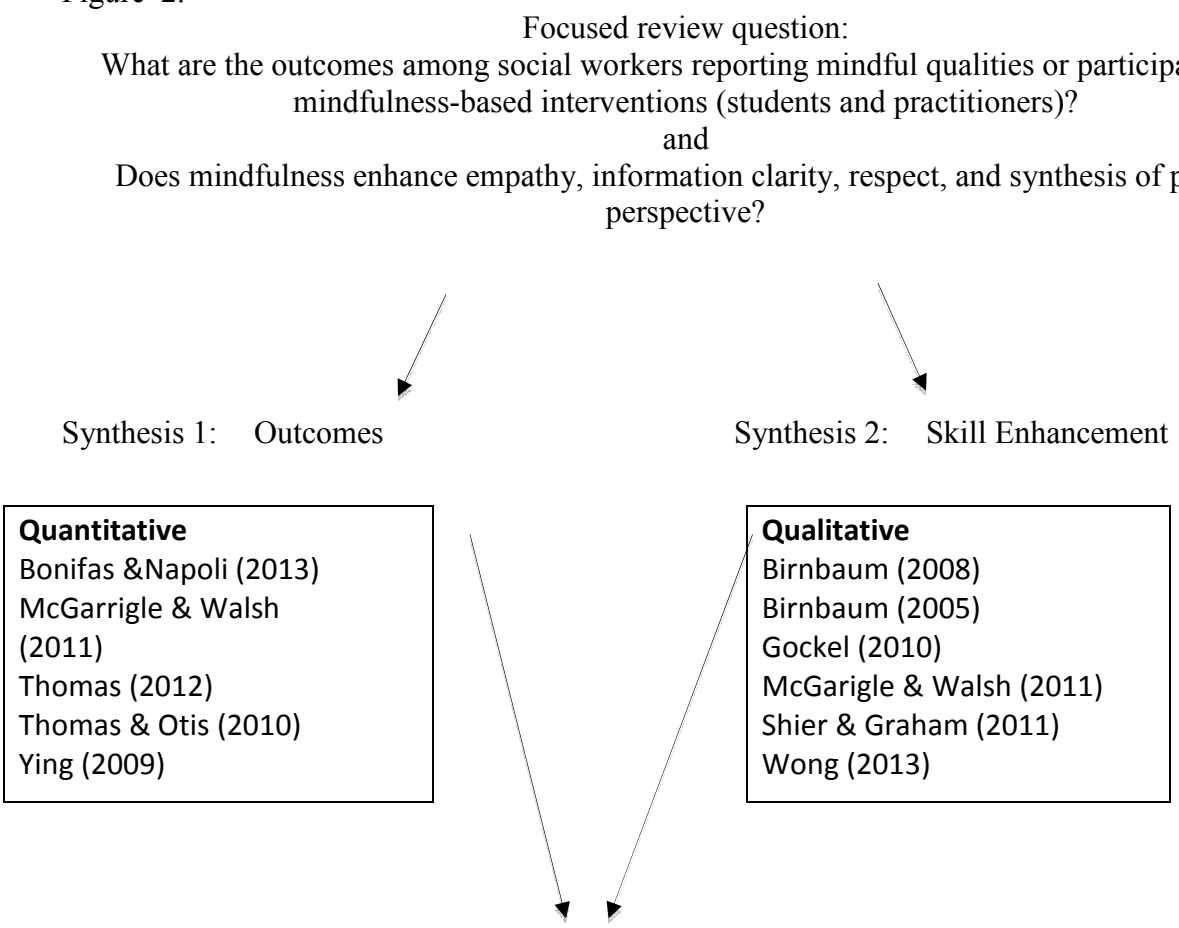
Figure 1.



Source: Black (2013). Reprinted with permission.

Figure 2.



Synthesis 3: Outcomes Among Social Workers Reporting Mindful Qualities or Participating in Mindfulness-Based Interventions and the Skills of Social Work Students and Practitioners Quantitative and Qualitative Synthesis

Adapted from Shepherd et al. (2006)

Table 1.

Mindfulness-Based Interventions with Social Workers Quantitative Studies

	Bonifas and Napoli (2013)	**McGarrigle and Walsh (2011)**	**Thomas, J (2012)**	**Thomas and Otis (2010)**	**Ying, Y.W. (2009)**
Evidence					
Level[a]	3	4	3	3	4
Study Type	Prospective cohort. Pre/post	Mixed Methods Pre/post	Survey	Survey	Survey
Study Design			Prevalence Correlation	Prevalence Correlation	Prevalence Correlation
Sample	77 students MSW students	9 social workers and 3 child and family workers	171 social workers	171 social workers	37 first year MSW 28 second year MSW
Aims	Impact of mindfulness curriculum on stress and quality of life. Affect of prior mindfulness on quality of life and stress.	Influence of mindfulness practices on self-care and wellness.	Relationship between personal distress, mindfulness, and work-related quality of life.	Relationship of mindfulness with compassion fatigue and compassion satisfaction.	Role of mindfulness in competence and mental health of social work students.
Intervention			None	None	None
Length	16 wk, 3 hr/week	8 week, 2hrs/wk			
Format	Readings, reflective writing, mindful experiences, and discussion.	Mindful experiences, reflection, discussion			
Measures					
Quality of Life	Generic III Version Ferrans and Powers		Professional Quality of Life Scale (PRoQL)	PRoQL	
Stress	Perceived Stress Scale (PSS)	PSS			

Mindfulness **Mental Health**		Mindfulness Attention and Awareness Scale (MAAS)	Five-Facet Mindfulness Questionnaire (FFMQ) Interpersonal Reactivity Index (IRI)	FFMQ IRI Maintenance of Emotional Separation Scale	MAAS California Psychological Inventory–Depression Scale Rosenberg Self-Esteem Scale Sense of Coherence Questionnaire Spielberger Trait Anxiety Inventory
Mindfulness Findings	-QoL gain*** Subscales • Health/Fx gain** • Social and Economic gain*** • Psychological and spiritual gain** • Family - none	Increase mindfulness* Decrease Perceived stress (.01)	Bivariate correlations: Compassion fatigue*** Burnout*** Compassion satisfaction*** Personal Distress*** Empathy - none Negative effect of personal distress on compassion fatigue, burnout, and compassion satisfaction decreased with mindfulness.	Bivariate correlations: Emotional Compassion fatigue*** Burnout*** Compassion satisfaction*** Personal Distress*** Emotional separation*** Multivariate analysis of compassion fatigue: Mindfulness not significant. Emotional separation only variable	In 2nd year MSW: mindfulness positively predicted coherence***, self esteem*** and negatively predicted anxiety** and depression***

			Mediation model proposed.	significant*** Multivariate analysis of burnout found mindfulness negatively associated with burnout** Multivariate analysis of compassion satisfaction found mindfulness positively associated with compassion satisfaction**	

[a]OCEBM Levels of Evidence Working Group, 2011
*p <.05; **p <.01; ***p<.001

Table 2

Mindfulness-Based Interventions with Social Workers Qualitative Studies

	Birnbaum (2008)	**Birnbaum (2005)**	**Gockel (2013)**	**McGarigle & Walsh (2011)**	**Shier & Grahm (2011)**	**Wong (2013)**
Aims	Describe how the need for an "accompanying place" was met by eight week mindfulness meditation group.	Impact of mindfulness meditation on the transformation of professional self-concept.	Potential utility of mindfulness training as part of clinical MSW practice instruction.	Understand the influence of mindfulness practices on self-care and wellness.	Subjective well being (social scientific concept of happiness) analyzed in relation to mindfulness. Implications of using mindfulness in work related practices.	Illustrate how contemplative silence helps deepen awareness and bring forth the wholeness in them and their clients and its effect on their clinical SW practice.
Method	Phenomenologic	Grounded theory	Grounded theory	Grounded Theory	Ethnographic	Open Coding
Sample	12 3rd year BSW Students	BSWs years 1-3	20 post-practicum MSW students	9 SWs, child/youth care counselor, and 2 Child and Family Support workers	13 happiest people on a survey of 650 SWs.	21 total students 2 highlighted
Subjective	1	1	1	1	1	1
Flexibility	0	0	1	0	0	0
Sampling	1	1	1	1	1	1
Description	0	0	1	0	1	0
Data	0	1	1	0	1	1
Theory Adequate	0	0	1	0	0	0
Typicality	0	0	1	1	1	1
Quality Total[a]	**2**	**3**	**7**	**2**	**5**	**3**

Findings:	Desire to learn about mindfulness Desire for a neutral place to work through experiences Exploring and observing self occurred. Containing and regulating emotions: Fears Exploring relationships with significant others. Exploring Ambivalence Synchronicity within group.	Positive messages about self Self guidance Professional self concept explored Difficulties of the self explored	17 of 20 identified mindfulness as helpful and all included mindfulness when asked specifically. Mindfulness enhances attention and openness as a learner and clinician. <u>Mid level theory</u> presented: Mindfulness contributes to development of a broad range of therapist characteristics and skills of self that are also applied to others. Cognition and affect.	Accountability to clients (improved listening and less judgmental) Mindfulness as a skill and as a tool for self-care. Workplace-Individual Balance (time, permission, place for mindfulness)	Subjective Well Being: • Reflecting on and developing self • Reflection on dynamics of control and openness • Awareness of self internally and externally • Reflection on pivotal moments • Work-professional balance explored Question for future research: How do reflective areas contribute to effective social work practice. Dynamics of nation and proactive changing which leads to SW dissatisfaction. Two Contexts for mindfulness: Moment to moment mindfulness and mindfulness of reflective areas.	Mindfulness allows for • Silence • Awareness • Self-Care • Wholeness

[a]Popay, Rogers, and Williams (1998)

Mindfulness-Based Interventions for Health Care Providers: A Systematic Review of Randomized Controlled Trials

Kelly Trowbridge

Children's Mercy, Kansas City

Lisa Mische Lawson

University of Kansas Medical Center

Abstract

This systematic review of randomized controlled trials was conducted to determine the efficacy of abbreviated mindfulness-based interventions with health care professionals and the extent to which abbreviated interventions demonstrate fidelity to Kabat-Zinn's mindfulness-based stress reduction program (MBSR). Abbreviated MBIs with healthcare providers suggest provider stress, relationships, and self-reflection may all be targets for MBIs. However, less rigorous methodology and sample populations consisting of health care students or trainees rather than practicing providers limit conclusions. MBIs for health care providers demonstrate little curricular or instructional consistency. Randomized controlled trials of MBIs for health care professionals based on standard MBSR were reviewed. Non-randomized controlled trials, studies with students, standard MBSR studies, and studies of MBIs not solely based on MBSR were excluded. Four articles were eligible for inclusion. Consistency among studies exists in reporting MBSR target areas. Beyond those key areas, some consistency was found among targeted outcome and dosage, but incomplete information, small sample sizes, and widely varying assessment tools among studies hampered evaluation of MBI effectiveness across studies.

Key words: health care, mindfulness, mindfulness-based interventions, abbreviated MBSR, systematic review, mindfulness-based stress reduction

Mindfulness-Based Interventions for Health Care Providers: A Systematic Review of Randomized Controlled Trials

Introduction

Burnout among U.S. health care providers has been reported as "endemic"(Irving, Dobkin, & Park, 2009), "alarming" (Shanafelt et al., 2012), and "rampant" (Zeller & Levin, 2013). The most common construct of burnout includes three components: emotional exhaustion, depersonalization (emotional distance), and lack of personal accomplishment (Maslach, Schaufeli, & Leiter, 2001). A 2012 survey found that compared to non-physicians in the workforce, physicians are at a significantly higher risk for emotional exhaustion, depersonalization, and overall burnout (Shanafelt et al., 2012). A survey of American Association of Critical Care Nurses done by Mealer et al. (2012) found nurses experience emotional exhaustion (61%), depersonalization (44%), and lack of personal accomplishment (50%). Among U.S. anesthesiology trainees 41% were at high risk of burnout and 17% were at high risk for burnout and depression (de Oliveira et al., 2013). Cieslak et al. (2014) conducted a meta-analysis which found that secondary traumatic stress and job burnout coexist and are highly associated, especially among populations exposed to indirect trauma such as mental health workers, social workers, and therapists, emergency workers, child care workers and child health care providers, and nurses.

Burnout is a contributor to the overall rate of hospital errors (S. J. Singer & Vogus, 2013). High nurse burnout and near-miss (preventative) error reporting were negatively associated in a survey of Veteran's Administration hospital nurses (Halbesleben, Wakefield, Wakefield, & Cooper, 2008). The exposure of near-miss error situations is important because such information guides the development of corrective measures and contributes to the decrease

in error rates. Burnout is also associated with higher instances of suboptimal patient care among medical trainees (de Oliveira et al., 2013; Shanafelt, Bradley, Wipf, & Back, 2002) and nurses (Zeller & Levin, 2013). Among nurses, emotional exhaustion and personal accomplishment significantly impacted patient satisfaction, even when controlling for demographic and illness factors (Vahey, Aiken, Sloane, Clarke, & Vargas, 2004).

Mindfulness practices, including mindfulness meditation, show promise for decreasing burnout among health care providers (Irving et al., 2009; Spickard, Gabbe, & Christensen, 2002; Thieleman & Cacciatore, 2014; Zeller & Levin, 2013). The standard eight week mindfulness-based stress reduction (MBSR) curriculum demonstrates effective stress reduction results among health care providers (Fortney, Luchterhand, Zakletskaia, Zgierska, & Rakel, 2013; Krasner et al., 2009; Praissman, 2008; Shapiro, Astin, Bishop, & Cordova, 2005). Kabat-Zinn (1990) described the standard course of MBSR as eight weekly sessions of two-and-a-half hours each with an additional all day class. Irving et al. reviewed the literature on the use of standard MBSR with health care professionals and students. Small samples sizes, broad and remedial outcomes of focus, a lack of investigation into HCP behavioral variables, and the virtual nonexistence of investigation into the effects of mindful providers on patient satisfaction were among the authors' criticisms. Despite these limitations, Irving et al. concluded by summarizing the reviewed evidence as encouraging.

Abbreviated adaptations of MBSR exist in an attempt to accommodate the demanding schedules common to health care providers while still providing the stress reduction benefits of MBSR. Abbreviated MBSR interventions are most often referred to as mindfulness-based interventions (MBIs). Interest in MBIs has grown dramatically over the years (Cullen, 2011; Black, 2012). Commitments to family, work, care giving, education etc., as well as limitations

such as distance, may prevent health care providers from participating in a standard MBSR course. Shapiro et al. (2005) noted a 44% dropout rate in the randomized controlled trial of MBSR conducted with health care providers, more than double the dropout rate reported in community samples of MBSR. Departing participants reported limited time and many responsibilities as the reason for leaving the course. Shapiro et al. concluded lengthy home practice requirements, in addition to a two-hour class, may be impractical for health care providers.

A number of reviews address the effectiveness of MBIs with a variety of sample populations. Carmody and Baer (2009) reviewed 30 MBIs with varying populations and found no significant relationship between the average number of class hours and effect size. In fact, they found less class hours associated with greater effect sizes. Virgili (2013) conducted a meta-analysis on the effects of MBIs with working adults in organizational settings, including health care providers. Similar to Carmody and Baer, he found no variable with a significant relationship to the variation in effect size among studies. Variables tested included: intervention type (standard MBSR, brief MBSR, other MBI), participant type (health care providers delineated as subgroup), intervention duration in weeks and in-class hours, and study quality. Dobkin, Hickman, and Monshat (2013) discussed the importance of fidelity when adapting MBSR and offer the following practice standards for modifying MBSR:

- Fidelity to the spirit and intentions of MBSR.
- Instructors with extensive personal practice and professional training in mindfulness.
- Expectations of home practice "just beyond the limits" (p.7) of participants.

- Subtle but important uses of language that convey concepts such as deidentification and present moment orientation.
- Understand modified MBSR group needs by joining with the group prior to class creation.
- Pilot new curriculums with iteration in mind.
- Consult with MBSR instructors and attend related conferences.

Cullen (2011) suggested a key feature of effective MBIs must be the use the methodical and routine use awareness across environments, perhaps beginning with one aspect of experience such as breath, but expanding to other elements.

Exploring the mechanisms of mindfulness is a recent focus for investigators (Kok, Waugh, & Fredrickson, 2013; Larson, Steffen, & Primosch, 2013). Larson and colleagues., found even a 15-minute MBI significantly decreased participants' systolic blood pressure before and during a stressful event relative to the control group. MBI participants also demonstrated significantly less engagement (mental focus) with errors when errors occurred during the stressful event. This suggests an MBI may be helpful in alleviating the ruminative preoccupation or distracting thoughts past errors create. Acknowledging a recent or historical error facilitates corrective measures, decreases a preoccupied mental state, and thus allows full attention to the present situation to return. For example, mentally revisiting a previous medication error during a current administration of medication may be a precursor to a new error due to the distracting effect of mental replaying. Kok et al. (2013) found gray matter in the hippocampus, as well as in other areas of the brain, increased in healthy MBSR participants, suggesting conditions associated with decreased hippocampal volume (depression, post-traumatic stress disorder, and

stress related mental illness) may be regenerative or reversible through meditation, a finding congruent with previous studies (Holzel et al., 2011).

Mindfulness-based interventions remained undefined and conceptualizations vary widely (Chiesa & Malinowski, 2011; Cullen, 2011; Dobkin et al., 2013). Among others (Scott R. Bishop, 2002; Carmody & Baer, 2009; Chiesa, 2013), Kabat-Zinn has long advocated and supported more rigorous research on MBSR and the resulting MBIs (Gazella & Kabat-Zinn, 2005; Kabat-Zinn, 2011; Kabat-Zinn, 2003; Williams & Kabat-Zinn, 2011). Existing MBI research lacks RCTs, control group comparisons, adequate sample sizes, and control of confounding variables (Carmody & Baer; Chiesa & Malinowski; Irving et al., 2009; Shonin, van Gordon, & Griffiths, 2013). Highlighting MBI research of greater rigor, this paper is a systematic review of randomized controlled trials of abbreviated mindfulness-based interventions (MBIs) with practicing health care providers. The goals of this systematic review were to evaluate MBI effectiveness as well as elucidate programmatic commonalities and associated outcomes.

Method

Eligibility Criteria

Pubmed, Psych Info, Cohrane Library, Campbell Library and a manual search of article reference lists were searched with the electronic search terms: "health care personnel" in conjunction with "mindfulness intervention", "mindfulness program", "mindfulness-based stress reduction" or "MBSR" with years limited 1979 to present. The search began with 1979 as this was the first year of the University of Massachusetts MBSR program (Kabat-Zinn, 2005). Only studies in English were considered for this review. No authors or field experts were contacted.

All randomized controlled trials that assessed an abbreviated MBI with health care providers were included. To be accepted as MBI for this review, interventions must have been described in the manuscript as based on, similar to, or an adaptation of mindfulness- based stress reduction (MBSR), or a structured meditation program with a focus on mindfulness. Additionally, studies must have been an abbreviated length of the standard MBSR course (26-28 hours). The sample population included health care providers; defined using the Health and Human Services definition and includes physicians, nurses, physical therapists, occupational therapists, social workers, mental health professionals, and any other provider of medical or health services (Office of the Assistance Secretary for Planning and Evaluation, 2001). Mindfulness-based interventions may be an adaptation of MBSR, Vipassana or insight meditation, or mindfulness meditation.

Studies were excluded if the MBI occurred without an instructor present on-sight (e.g. remote, video, audio, or computerized teaching modules were excluded). Studies were also excluded if student or trainee health care providers were included in the sample. Standard MBSR programs were excluded. Also excluded were therapies with specific guidelines that include but are not limited to mindfulness such as: Mindfulness-Based Cognitive Therapy (MBCT), Dialectical Behavior Therapy (DBT), Acceptance and Commitment Therapy (ACT), and psychotherapy. Conversely, therapies comprised of a single component ONLY of mindfulness such as relaxation therapy or breathing exercise/practice were excluded. Forms of meditation with a different process and/or focus than mindfulness such as transcendental meditation (TM), Zen meditation, prayer, yoga, tai chi, qi gong and other movement based interventions, chanting or mantra based programs were also excluded.

Data was extracted by one author and reviewed by another author. Analysis was conducted using Review Manager (RevMan) 5.3 for Mac (Cochrane Collaboration, 2014). Risk of bias was assessed in individual studies and across studies using the Cochrane Risk of Bias tool embedded in RevMan 5 (Cochrane Collaboration, 2014). Primary outcome measures for data collection were self-reported negative and positive affect, quality of life, and work-related behaviors. Physiological or physical health outcomes were included initially as an outcome, but discarded due to limited-to-no reporting of these outcomes. Secondary outcome measures were teacher practice and training; instructional time, arrangement and curriculum; homework time; and mindfulness definition. Small sample sizes, heterogeneous outcomes and measures, and incomplete statistical analysis among the studies prohibited the planned meta-analysis. Therefore, the author's conducted systematic review of available data.

Results

The study searches generated a total of 782 references (see Figure 1). Of those, 158 were identified as duplicates. After screening of titles and abstracts of the remaining 624 records, 26 full text articles were assessed for eligibility. During the screening process, an additional record was identified and added for assessment eligibility. Four studies remained for review after reading for eligibility. Excluded studies utilized pre-post methodology, tested an intervention that did not qualify as an MBI, included students or trainees, or were duplicate records.

Description of Included Studies

Study characteristics are outlined in Table 1. The four studies remaining for analysis were published in the last ten years with two published in 2013. Two studies focused on nurses as the study population while two focused on a mixed group of health care providers. Sample selection was also varied with one study including all levels of nurses at an institution, one study

including only nurse leadership, one study including only health care providers with at least on year of experience in pediatric oncology, and one study open to any health care provider at the institution. Two studies included samples of health care providers practicing in countries other than the United States. Three studies each had samples of about 30 people, while one reported 83 as the sample size. Three studies compared the intervention to a waitlist or no intervention control group. Pipe et al. (2009) compared the MBI to a leadership course.

In regards to outcome measurement, little consistency existed among the four studies reviewed. Both Mackenzie, Poulin, and Seidman-Carlson (2006) and Moody et al. (2013) utilized the Maslach Burnout Inventory (Maslach et al., 2001). Two investigators (Manotas, Segura, Eraso, Oggins, & Mcgovern, 2014; Moody et al.) used the Perceived Stress Scale (S. Cohen & Williamson, 1988). Unfortunately, a comparison was not possible between studies on either of these measures due to inadequate outcome statistics. All the authors measured psychological outcomes, but there was no consistent measure across studies. Only one study measured the construct of mindfulness (Manotas et al.) and only Pipe et al. (2009) measured outcomes external to the individual (Caring Efficacy Scale).

MBI course components, including the definition of mindfulness, shared more similarities than outcome measures, yet great variability existed (see Table 2). Most course instructors had a personal mindfulness practice, but only one appeared to have formal mindfulness based stress reduction training. Three classes met one day per week for four weeks with total instructional time ranging from two to eight hours. Minutes of homework expected ranged in days from five to seven and in minutes per week from 50 to 175 minutes. Of the three studies reporting curriculum, courses included the body scan, mindful movement, and mindful sitting as part of the curriculum while none included mindful walking in the curriculum.

Assessment of Reporting Bias

Overall, reporting of data was inadequate for assessing risk of bias. Two studies gave information on randomization (Moody et al., 2013; Pipe et al., 2009). None of the studies gave a description of allocation concealment and blinding of participants and personnel. One study provided information on blinding of outcome assessment (Manotas et al., 2014). Incomplete outcome data was an unclear risk in one study (Mackenzie et al., 2006) and a high risk in one study (Manotas et al.). Selective reporting was the greatest concern amongst the studies with two studies demonstrating high risk in this area (Mackenzie et al., 2006; Moody et al.). The investigation done by Pipe and colleagues was at high risk for bias due to the altered study protocol. Investigators eliminated the plan for follow-up at one year with both the intervention and control groups. The altered protocol called for the control group to receive the intervention after the intervention group outcome measurements were completed.

Burnout

Both Mackenzie et al. (2006) and Moody et al. (2013) used the Maslach Burnout Inventory (MBI) to measure the three components of burnout.

Exhaustion. Exhaustion is central to the conceptualization of burnout and may be mistaken for the multifactorial burnout construct (Maslach et al., 2001). Exhaustion, an indicator of stress, does not take into account a health care provider's waning capacity that ultimately leads to the transformation of relationships (Maslach, 2001). Among the studies investigating burnout, Mackenzie et al. (2006) used the group x time repeated measures analysis of variance (ANOVA) and found a significant intergroup effect for the MBI group, $F=4.96$, $p<.05$, $\eta^2_\rho = .16$. The η^2 value is the amount of variation accounted for by the group x time (between groups) interaction. The η^2_p value is the amount of variation accounted for by the group x time (between

groups) interaction plus its error variance (variance within groups). Values for η^2 range from 0-1 with 0.1 indicating a small effect, 0.4 indicating a medium effect, and 0.8 indicating a large effect. Moody et al. (2013) found no significance when comparing intervention and control group means using an independent two samples t-test. Moody et al. provided only raw MBI scores that were not adequate for additional analysis.

Depersonalization. Depersonalization is the HCP's active response to diminishing capacity. The HCP's relationship with the client/patient/family develops distance and uniformity in an attempt by the HCP to make the work manageable. Again, Mackenzie et al. (2006) found a significant intergroup effect $F=4.88$, $p<.05$, $\eta^2_\rho = .16$ for the MBI group while Moody et al. (2013) found no effect using an independent two samples t-test.

Inefficacy/Reduced personal accomplishment. Inefficacy is the label Maslach et al. (2001) use to describe the deteriorating sense of accomplishment HCP's experience when patient/family and system requests and requirements grow unmanageable. Neither Mackenzie et al. (2006) nor Moody et al. (2013) found the MBI to have a significant effect in this area. Additionally the Job Satisfaction Scale used by Mackenzie et al., potentially a similar construct due to the use of Intrinsic Job Satisfaction Subscale, also demonstrated no effect from the MBI.

Physiological and Psychological Consequences

Stress. Manotas et al. (2014) and Moody et al. (2013) utilized The Perceived Stress Scale as a measure of HCP's perception of demands and the ability to cope with those demands. Mackenzie et al. (2006) utilized the Orientation to Life Questionnaire which similarly measures how an individual views life as well as how he/she views the resources available to manage life (Feldt & Rasku, 1998). Manotas et al. (2014) utilized a repeated measures ANOVA and found a significant intergroup effect for the MBI group, $F=24.91$, $p<.001$, $\eta^2 = .26$, and Cohen's $d = 1.13$.

When repeated measures ANOVAs showed significant within subject changes pretest to posttest Cohen's *d* was calculated by finding the difference between two means to determine the effect size (J. Cohen, 1992). A small Cohen's *d* effect size is 0.2, a medium effect size is 0.5, and a large effect size is 0.8. Moody et al. (2013) found no effect using an independent two samples t-test. Mackenzie et al. also found no significant effect from the MBI using the Orientation to Life Questionnaire.

Anxiety and Depression. Three of the four authors measured anxiety and depression using three different instruments. Manotas et al. (2014) report results from the Brief Symptom Inventory-18 depression and anxiety subscales. Investigators found a significant intergroup effect for the MBI group for anxiety, $F=24.91$, $p<.01$, $\eta^2 =.10$ and Cohen's $d= 1.12$ and depression $F=24.91$, $p<.05$, $\eta^2 =.08$, and Cohen's $d= .90$. Moody et al. (2013), using the Beck Depression Inventory, found no significant effects for depression. This lack of effect is not surprising given the authors note the absence of depression in nearly all participants at baseline. Conversely, Pipe et al. (2009) found depression scores so high, as measured by the Symptom Checklist 90-R anxiety subscale and depression subscale, that the study was redesigned to provide immediate intervention to the control group. Pipe et al. also found Symptom Checklist 90-R anxiety scores extremely elevated among both the control and intervention group. Norms for the Symptom Checklist subscales are not provided nor is presented data adequate to compute an effect size.

Fidelity to MBSR

Guidelines for adapting and abbreviating MBSR (Dobkin et al., 2013) were narrowed and then used to benchmark included studies (see Table 2). Three of the four studies employed Kabat-Zinn's (2003) definition of mindfulness, but two of the three added definitional

components from other authors. Pipe et al. (2009) characterized mindfulness drawing from Watson's Theory of Caring (Watson & Smith, 2002), situated in the nursing literature. The greatest consistency among studies occurred among curriculum benchmarks with all reporting interventions demonstrating faithfulness to the core components of MBSR with the exception of mindful walking. Departure from standard MBSR curriculum came through supplementary exercises, such as the inclusion by Mackenzie et al. (2006) of the 3 Minute Breathing practice originally found in Mindfulness Based Cognitive Therapy for Depression (Segal, Williams, & Teasdale, 2013). Consistency also emerged in the number of sessions participants attended per week (one session) and in the total weeks of intervention (two concluded after four weeks and two after eight weeks). Figure 2 demonstrates widely varying instructional adaptations, homework assignments, and class structure among the four abbreviated interventions with standard MBSR included as a reference point.

Other Measures of Interest

The measurement of mindfulness continues as a subject of controversy, including debate over any measurements' current usefulness (Chiesa, 2013; Davidson, 2010; Park, Reilly-Spong, & Gross, 2013). Manotas and colleagues (2013) were the only researchers to measure participant mindfulness. Using the Five Facet Mindfulness Questionnaire significant intergroup effects were found for observing $F=11.76$, $p<.001$, $\eta^2 =.13$, nonjudging $F=3.88$, $p<.05$, $\eta^2 =.05$, and total mindfulness $F=6.05$, $p<.05$, $\eta^2 =.07$. No effect was shown for the mindfulness variables non-reacting, describing, and awareness. The use of the Caring Efficacy scale by Pipe et al. (2009) was the only attempt to measure the effect of an MBI on specific qualities and behaviors of the relationship between the HCP and individual/family. The authors found the MBI to have no effect on these qualities and behaviors.

Bias

Publication bias is difficult to assess given the small number of studies and the incomplete information found in reviewed studies. Using the Cochrane Handbook for Systematic Reviews of Interventions (Higgins & Green, 2011) as a guide, we assessed six areas of potential bias attributing low, high, or unclear risk of bias in each category. Of greatest concern across all studies was an overall lack of information provided by authors in reviewed studies. In nearly three of six categories, authors did not include the information needed to assess for bias. Similarly, the potential for reporting and attrition bias is of concern, again due to missing statistical and participant outcome data.

Discussion

With its focus on RCTs and health care providers, our review is unique among other reviews of mindfulness interventions. Previous reviews have examined the role of mindfulness in stress reduction (Chiesa & Serretti, 2009; Goyal, Singh, Sibinga, & et al., 2014) and physical and mental health (Grossman, Niemann, Schmidt, & Walach, 2004; Virgili, 2013), but did not focus on health care providers. An investigation of mindfulness and health care providers (Escuriex & Labbé, 2011) included the subgroup *health care providers of medical services*. Of the five subgroup studies reviewed, two were RCTs and three were quasi-experimental design.

We identified four RCTs investigating abbreviated mindfulness-based interventions with health care providers based on standard MBSR. We reviewed the outcome data of each study to determine intervention efficacy. We also elucidated programmatic intervention components, outcomes of interest, and outcome measures. We found intervention strategies, incomplete data reporting, and varying outcome measurement tools prohibited comparison across studies guiding us to complete a systematic review rather than the planned meta-analysis.

The four RCTs included in this review showed mixed results on measured outcomes. The two studies that measured burnout both used the Maslach Burnout Inventory while only one of these two interventions demonstrated significant improvements among intervention participants. Similarly, two studies measured stress using the Perceived Stress Scale while again only one intervention demonstrated significant improvements among intervention participants. Outcome measures assessing anxiety and depression varied among studies, as did the varying interventions' effectiveness. Lastly, significant effects for the intervention group for the mindfulness qualities of observing, non-judging, and overall mindfulness were demonstrated in one study, while no effect emerged for nonreacting, describing and awareness.

Programmatically, the curriculums of the reviewed interventions included three of the four core MBSR practice components (body scan, sitting meditation, mindful movement). All of the studies omitted the core component of mindful walking. Three of the four studies incorporated mindful practices from other sources. The length of the intervention showed some uniformity with two classes spanning four weeks and two classes spanning eight weeks. However, the delivery of instruction within these weeks varied widely with intervention sessions individually ranging from 30 minutes to 360 minutes and totally instruction time ranging from two to eight hours. Homework was typically assigned for 7 days per week with total daily homework minutes ranging from 10 to 30 minutes. Total hours of homework assigned over the duration of the intervention ranged from 3 hours twenty minutes to over 18 hours. Fidelity to the MBSR standards for teacher training and personal practice were difficult to assess due to lack of reported information.

Limitations

A number of study level factors limited this review of MBIs among health care providers. With the exception of Manotas et al. (2014) the authors describe all the studies as pilot studies. Sample sizes in the included studies are small with most between 20 and 30 participants. The reporting of effect sizes is the statistical focus of pilot studies. Power calculations are not typically made due to small sample sizes and numerous outcome measurements. The likelihood of Type I error in pilot study findings is high. Consequently any interpretations from the pilot studies in this review should be made conservatively and with the purpose of informing future powered studies. Also, while randomized, sample populations retain a degree of self-selection bias due to the voluntary nature of the studies. The use of self-report scales to measure outcomes is a growing concern in mindfulness research (Chiesa & Serretti, 2009; T. Singer, 2014). The reliance of the reviewed studies on self-reported outcomes should be taken into consideration when evaluating outcomes. Additionally, with the exception of mindfulness, outcome measures focus solely on the relief negative symptoms rather than the enhancement of existing positive traits within individuals.

A number of review level limitations also exist. The strict exclusion criteria limited the number of studies selected for review. Because of the small number of included studies and the small sample sizes, results from this review cannot be generalized to other situations. Lastly, comparisons to other interventions cannot be made from this review due to the waitlist control design of three of the studies and the altered comparison group design of Pipe et al. (2009).

Conclusions

Implications for Research and Practice

The systematic adaption of MBSR begins with a commonly held definition of mindfulness. Chiesa (2013) examined the varying mindfulness definitions and concluded that

while a standard definition of mindfulness may prove elusive, greater consistency among definitions is necessary for the advancement of the field. We suggest this is also true, specifically in the subfield of research on practice. Defining mindfulness is also a first step for teachers wrestling with the troubling question of adapting MBSR while remaining faithful to its foundational tenets. Articulating a mindfulness definition guides instructors in any subsequent rationale for alterations to the MBSR curriculum.

The association between the introduction and teaching of specific mindfulness practices, placement of practices in a course, and outcome achievement is an emerging area of interest in the study of mindfulness mechanisms, practice effectiveness, and intervention design (Klimecki, Leiberg, Ricard, & Singer, 2013). While time and resource consuming, systematic adaptation benefits both the understanding of the mechanisms of mindfulness and the investigation of instruction based on emerging mechanisms of mindfulness. Given the limited time providers perceive as available for intervention, it is critical that a clear rationale for the removal or retention of MBSR components in adapted courses exists.

A consistent class cohort and adequate group discussion is a fidelity benchmark (Dobkin et al., 2013). Offering varying class times for one cohort and/or limiting or omitting group discussion may appear to instructors as a participant accommodation without impact on curricular content. However, Krasner et al. (2009) found an unintended positive consequence of an adaption of MBSR for primary care providers was group interaction. Seventy-five percent of providers found time as a group helpful. Beckman et al. (2012) described group discussion in the Krasner et al. course as "one of the most meaningful outcomes of the program." (p.816)

As rigorous research on practice expands, specifically including in protocols steps for individuals meeting clinical standards of risk, such as that for suicidality, acknowledges the

needs of individuals while accepting the day-to-day suffering of those falling outside those standards. Social science, where much of MBSR research is situated, appears to favor non-equivalent group design (Trochim, 2006). Perhaps reflecting this desire to provide the intervention to all participants, two of the four RCTs reviewed modified the control group. Pipe et al. (2009) eliminated the control group after four weeks, altering the original 12-month data collection plan for both control and intervention group. Moody et al. (2013) provided all participants with baseline burnout scores so participants could seek out mental health services. In the service of alleviating suffering such as stress, distress, and/or discomfort providers and/or researchers may view any offering of change as preferable to the provider/participant current state. Change, regardless of evidence-base or proof of benefit or no harm, may also help to alleviate the suffering of researchers facing complex problems and inadequate or constrained solutions. It is also possible that a relationship exists between research protocols developed for the workplace and organizational tolerance for detected employee suffering.

Further research is required to advance the understanding of how health care providers experience and generalize mindfulness practices. With the exception of Moody et al. (2009), reviewed studies found significant effects for global measures of mindfulness, stress, mental health symptoms, and life satisfaction. While this review of studies allows for only conservative conclusions, it appears the consistent finding may be that participants demonstrated an overall improvement in their experience of day-to-day events. Any potential effects of these pilot studies require future powered confirmatory studies to confirm pilot results did not result from chance. A future avenue for research might be the relationship of this improved experience to areas such as provider-provider and patient-provider relationships and error prevention.

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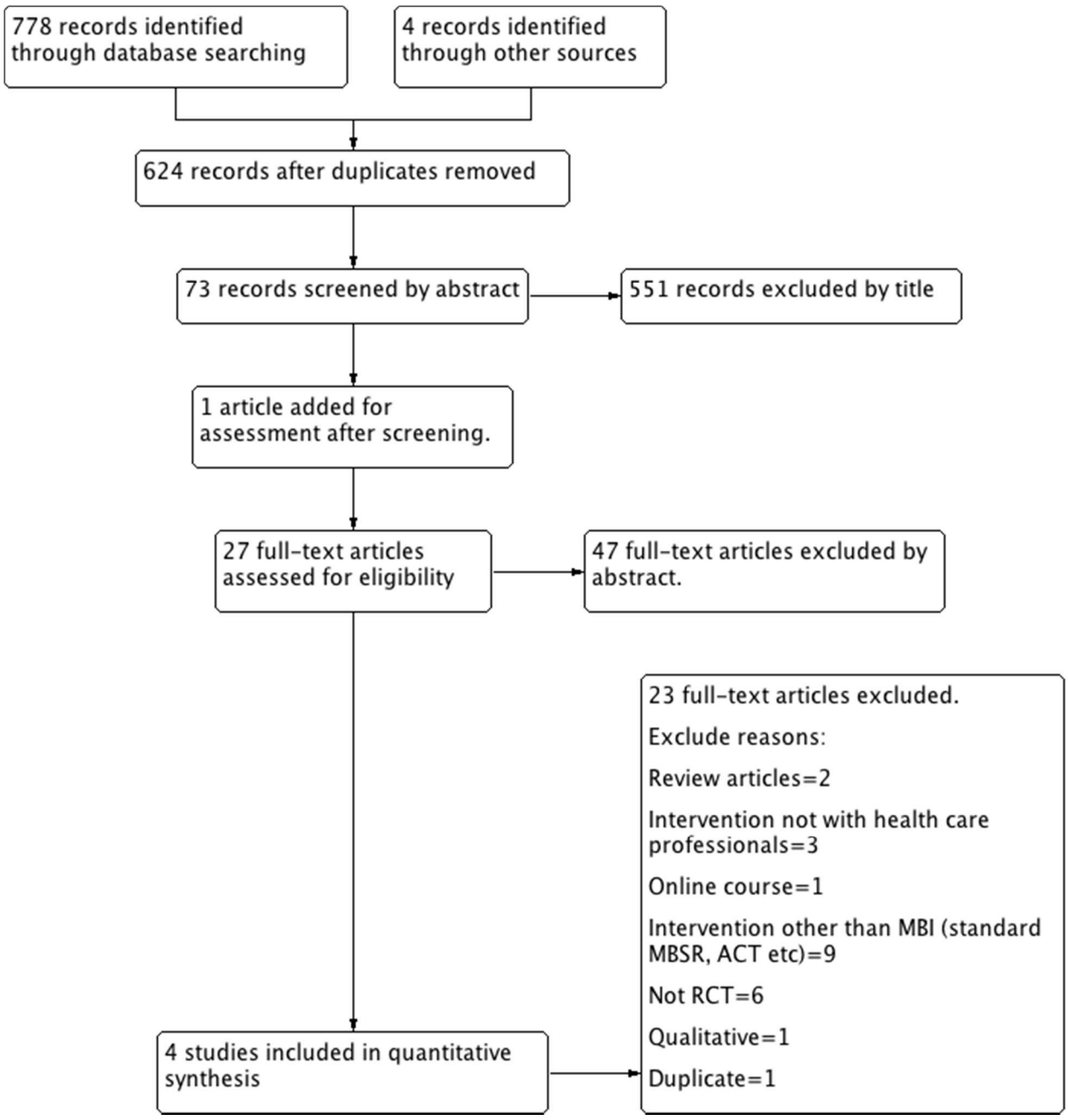

Figure 1. Study flow diagram for selection of RCTs.

Total Instruction and Assigned Homework Hours

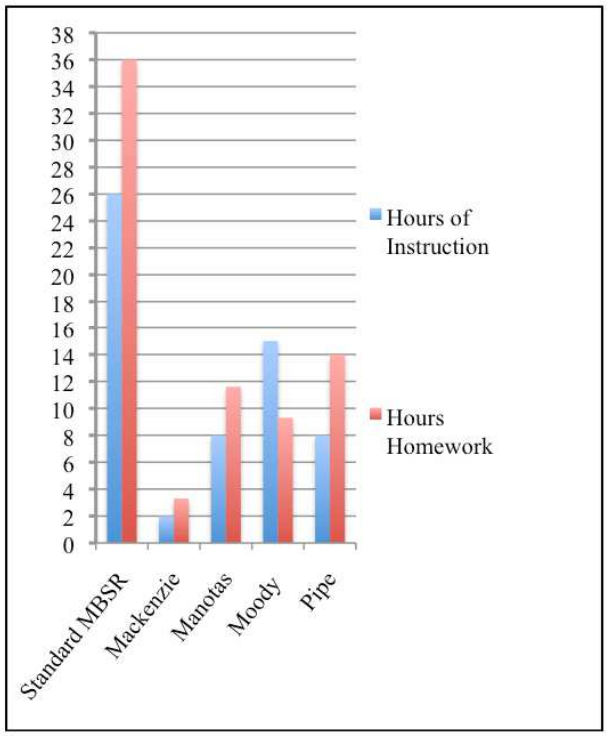

Figure 2. Total instruction and assigned homework hours for reviewed MBIs. Standard MBSR instruction and assigned homework hours are provided for comparison.

Table 1

Summary of Studies

Citation Country	Sample Description	Intervention	Comparison Group	Outcomes and Measures	Results	Study Limitations
Mackenzie (2006) United States	N=30 Female = 29 Male = 1 Mean Age = 47 Nurse, Practical Nurse, and Nurse Aide in long-term and complex continuing care units in a large urban geriatric teaching hospital	N=14 MBI adaptation of MBSR Four weeks of sessions at 30 min per session More emotionally exhausted than control preintervention ($p<.01$).	N=16 Wait-list Control	Burnout symptoms measured by Maslach Burnout Inventory Feelings of relaxation measured by Smith Relaxation Dispositions Inventory Job satisfaction measured by Intrinsic Job satisfaction subscale from Job Satisfaction Scale Life satisfaction measured by Satisfaction with Life Scale Sense of coherence (life as meaningful,	2 groups x 2 times repeated measures ANOVA significant intergroup effect ($p<.05$) for exhaustion ($\eta^2_\rho = .16$); significant intergroup effect ($p<.05$) for depersonalization ($\eta^2_\rho = .16$); significant intergroup effect ($p<.01$)for life satisfaction ($\eta^2_\rho = .21$); significant intergroup effect ($p<.05$) for relaxation ($\eta^2_\rho = .15$)*	Small sample size No report of recruited versus how many completed course. Composition of intervention group varied weekly due to one of six options per week to participate.

Citation Country	Sample Description	Intervention	Comparison Group	Outcomes and Measures	Results	Study Limitations
				comprehensible, manageable) measured by Orientation to Life Questionnaire		
Manotas (2013) Columbia	N= 83 Male = 8 Female = 75 Mean age: 39.5 Physicians, nurses, nursing assistants, lab and research staff, pharmacist, physical therapists, mental health professionals, other Academic 205 bed hospital	N=38 MBI adaptation of MBSR 4 weeks of sessions at two hours per session. No follow-up.	N=43 No intervention	Mindfulness measured by Five Facet Mindfulness Questionnaire Psychological distress measured by Brief Symptom Inventory-18 evaluates psychological distress and psychiatric disorders. Sub scales: depression, anxiety, and somatization Stress measured by Perceived Stress Scale	Groups x Times repeated measures ANOVA **FFMQ** Group x Time significant intergroup effect ($p<.001$) for intervention group for observing ($\eta^2=.13$), significant intergroup effect ($p<.05$) for intervention group for non judging ($\eta^2=.05$), significant intergroup effect ($p<.05$) for total mindfulness ($\eta^2=.07$). significant intergroup effect ($p<.001$) for global symptoms ($\eta^2=.21$)** No significant effects	No power calculation completed 23 failed to complete intervention (22 no shows due to busyness and 1 left during study due to work demands) 43 completed intervention (3 no post assessments so not included). No information on how control went from 65 to 43 Findings are at high risk of Type I error due to multiplicity. Had to complete 3

Citation Country	Sample Description	Intervention	Comparison Group	Outcomes and Measures	Results	Study Limitations
					for nonreacting, describing, and awareness.	of 4 classes to be included in study analysis.
					BSI-18 Group x Time: significant intergroup effect (p<.001) for intervention group for perceived stress (η^2=.21), Cohen's d=1.13 significant intergroup effect (p<.05) for intervention group for BSI-18 somatization (η^2=.05), Cohen's d=.98 significant intergroup effect (p<.05) for intervention group for depression (η^2=.08), Cohen's d=.9 significant intergroup effect (p<.01) for intervention group for anxiety (η^2=.10), Cohen's d=1.12 significant intergroup effect (p<.01) for global symptoms (η^2=.09),	No intention-to-treat analysis

Citation Country	Sample Description	Intervention	Comparison Group	Outcomes and Measures	Results	Study Limitations
					Cohen's d=1.18	
Moody (2013) USA Israel	N= 47 Female=38 Male=9 Age= not reported Nurses, social workers, physicians, child life specialists, nurse practitioners, psychologists Pediatric hospital oncology staff with at least one year experience	N= 23 MBI Adaptation of MBSR. Initial six hour session then six weekly one hour sessions then three hour final session More self-reported religious people at preassessment	N=24 No intervention	Burnout measured by Maslach Burnout Inventory Stress measured by Perceived Stress Scale Depression measured by Beck Depression Inventory Demographic data survey	No significant results in any measure of outcome. Compared using t test or Wilcoxon rank sum test of change scores. No standard deviations were reported for calculation of effect size.	Participants provided their own burnout scores at baseline so "high scorers could seek treatment" Nearly 100% of participants met criteria for high levels of burnout in personal accomplishment and depersonalization. For emotional exhaustion, 95% of participants met the criteria for moderate or high levels of burnout. Depression nearly absent all participants. Qualitative results included.
Pipe	N=32	N=15	N=17	Symptom Checklist	Two sample *t*-test	Did not meet power

Citation Country	Sample Description	Intervention	Comparison Group	Outcomes and Measures	Results	Study Limitations
(2009) USA	Female=31 Male= 1 Mean age= 49.2 years Nurse leaders in a healthcare system in the southwest.	MBI adaptation of MBSR. Five two-hour sessions. First session included information on the research, consent, and completion of study questionnaires, 4 session of MBI.	Leadership course.	90-Revised measured 9 primary symptoms (somatization, obsessive-compulsive, interpersonal sensitivity, depression, anxiety, hostility, phobic anxiety, paranoid ideation, and psychoticism) and generates 3 global distress scores (global severity index, positive symptom distress index, and positive symptom total). Caring Efficacy Scale	Significant negative relationships ($p < .05$) between MBI and Symptom Checklist 90-Revised subscales: obsessive-compulsive (thoughts, impulses, and actions experiences as irresistible but unwanted), anxiety, phobic anxiety (persistent fear response that is irrational or disproportionate to the person), psychoticism (mild alienation to psychosis), global severity index, positive symptom distress index. No significant difference in Caring Efficacy Scale scores.	analysis goal of 20 participants per group. No explanation of change in number of intervention group participants from 16 to 15. Originally designed as 12-month RCT with measures at baseline, 4 weeks, and 1 year. Stress, anxiety, and depression score severity led investigators to stop the study after 4 weeks and offer MBI to control group.

*η^2 value is the amount of variation accounted for by the group x time (between groups) interaction. **η^2_p value is the amount of variation accounted for by the group x time (between groups) interaction plus its error variance (variance within groups).
Values for η^2 range from 0-1 with 0.1 indicating a small effect, 0.4 indicating a medium effect, and 0.8 indicating a large effect.

Table 2

Fidelity to MBSR: Aspects of Intervention

Study Year	Teacher		Instruction				Homework			Multiple Classes
	Practice*	Training*	Days/ Week	Weeks	Minutes/Session	Total Hours	Minutes/ Day*	Days/ Week*	Hours Total*	
Mackenzie 2006	Y	N	1	4	30	2	10	5	3 .3	Y

Manotas 2013	Y	Y	1	4	120	8	25	7	11.6	Y
Moody 2013	Not provided	Y	1	8	Session 1= 360 Sessions 2-7 = 60 min/session Session 8=180	15	10-20	7	9.3-18.6	N
Pipe 2009	Not provided	Unclear	1	4	120	8	30	7	14	N

* Indicates Dobkin et al. (2013) benchmark

(see below)

Fidelity to MBSR: Curriculum Benchmarks

Study	Mindfulness Definition	Eating	Body Scan	Movement	Sitting	Discussion	Other
Mackenzie 2006	Kabat-Zinn (2003) Bishop et al. (2006)	Y	Y	Y	Y	Not provided	3 minute breathing; auto pilot; barriers; attachment and aversion
Manotas 2013	Kabat-Zinn (2003) Baer, Smith, Hopkins, Kriestemeyer, and Toney (2006)	Y	Y	Y	Y	Y	None
Moody 2013	Kabat-Zinn (2003)	N	Y	Y	Y	Y	STOP; lovingkindness, pleasant/unpleasant, bias, reactivity, communication, and self-care. Homework self-report
Pipe 2009	Authors defined (p.131)	Unclear	Unclear	Unclear	Unclear	Y	Theory of Human Caring Nursing relevant examples.

A Preliminary Investigation of Compressed Mindfulness-Based Stress Reduction (cMBSR) with Pediatric Medical Social Workers

Kelly Trowbridge

Children's Mercy, Kansas City

Lisa Mische Lawson

University of Kansas Medical Center

Stephanie Andrews

Jodi Pecora

Sabra Boyd

Children's Mercy, Kansas City

Author Note

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Abstract

Mindfulness practices, including mindfulness meditation, show promise for decreasing stress among health care providers. The standard course of Jon Kabat-Zinn's Mindfulness-Based Stress Reduction (MBSR) requires a participant commitment to eight weeks of instruction comprised of one two-and-a-half hour per week class, a single day retreat, and 45 minutes of practice for six of seven days each week. Studies of abbreviated MBSR typically investigate the "dosing" of instruction and practice required to demonstrate stress reduction effects. This exploratory study investigates the effectiveness of a two-day compressed MBSR course (cMBSR) on pediatric health care social workers. Researchers measured the effect of cMBSR on a) positive and negative experiences in pediatric social work, b) perceived stress, c) mindfulness, and d) caring self-efficacy (as a component of patient- and family-centered care). Results included significant differences between the pre and post intervention outcome variables on the ProQOL Secondary Traumatic Stress subscale, the Mindful Attention and Awareness Scale, and the Caring Effectiveness Scale. Findings partially supported the effect of the cMBSR intervention and found adequate evidence for the feasibility of a more rigorous study of cMBSR.

Key words: Mindfulness, health care social work, mindfulness-based stress reduction

Effectiveness of Compressed Mindfulness-Based Stress Reduction

Establishing a trusting, collaborative, and open environment between the social worker and the patient and family has long been a core component of health care social work practice (National Association of Social Workers, 1996, 2005). The Affordable Care Act brought new opportunities for healthcare social workers to demonstrate increased value to patients, families, and health care organizations through patient-and family-centered assessment and planning focused on prevention, effectiveness, and community-based services in health care, a paradigm shift for social workers serving in prescriptive, reactive, expert model medical settings (Collins, 2013; Peterson, 2012; Reisch, 2012).

However, *collaboratively* incorporating and cultivating the unique motivations and existing abilities of patients and families in the creation of proactive, tailored interventions may be relatively new to health care social workers (Trowbridge & Mische Lawson, 2014). Unfortunately, the volume of work, patient and family familiarity, problem-focused systems, and/or the near constant pressure for system efficiency, may lead healthcare social workers away from patient- and family-centered care, overlooking opportunities to recognize and nurture patient and family capabilities. Social workers often experience feelings of demoralization and defeat when interventions based on the deficit-based, professional problem-solving model fail to change patient and family outcomes (Trowbridge & Mische Lawson).

Capacity Model

Trowbridge & Mische Lawson introduced the Capacity Model to support patient- and family-centered care that builds self-efficacy. For social workers, the tendency of the human mind to categorically hold people (Macrae & Bodenhausen, 2000) often, and sometimes unbeknownst to the individual social worker, leaves patients and families framed as either

"heroes" or "heels". Whether "hero" or heel," either conceptualization depersonalizes the family, distancing the social worker from an accurate understanding of present family functioning and hampering relationship building (Maslach, Schaufeli, & Leiter, 2001). Social workers can move away from pathological patient and family labels by intentionally directing their attention to experiencing and observing their own thoughts, feelings, and emotions as they occur in the moment. Pausing to identify limiting, dichotomizing, and self-authored family stories, social workers can chose to respond with greater empathy, encouraging the emergence of patient- and family-led problem solving.

Based on the assumption of *impermanence*, the paradox that the only stability is the certainty of change, the Capacity Model predicts only uncertainty and continual change across people and settings. Accepting and anticipating change and uncertainty, the social worker is free to experience the patient and family as whole today. Often health care social workers may seek to restore past functioning as wholeness or may strive for future fixing and treatment as wholeness. Experiencing and observing the mindfulness concept of *impermanence,* the social worker resists the temptation to rely on one-dimensional constructs anchored in the past or future. Understanding impermanence orients the social worker toward the experience of the present moment.

The Capacity Model also accepts in all families the co-occurrence of seemingly contradictory experiences such as joy and sorrow. The acceptance of such varied experiences requires the social worker embody *equanimity*. Desbordes et al. (2014) define equanimity as a purposely cultivated even-mindedness that leads to impartiality for a state of being or for the experience of particular quality. Equanimity develops as a social worker begins to recognize the patterns of seeking and sustaining pleasant experiences or avoiding and resisting unpleasant

experiences. For example, a parent might joyfully share the experience of assisting a teen to swim while concurrently sharing the distress over recognition of the young woman's declining abilities. Embodying equanimity the social worker neither moves toward "fixing" the child (potentially a comfortable professional place for the social worker) nor away from the family's joy (potentially a place of discomfort due to personal thoughts of "I can't imagine"). Transmitting a personal state of equanimity, the social worker creates a secure emotional environment or space for the totality of the parent's experiences and emotions to arise without judgment from the social worker and without the pursuit or thwarting of any specific experience.

Mindfulness- Based Stress Reduction

Mindfulness is one way of increasing orientation toward patient-centered care while decreasing the stress of healthcare social work. Jon Kabat-Zinn introduced mindfulness-based stress reduction (MBSR) at the University of Massachusetts Stress Reduction Clinic in 1979 (Kabat-Zinn, 2011). Kabat-Zinn, once a Zen Buddhist instructor, grounded MBSR in Buddhist tenets and practices. Cognizant of the public's potential misconceptions and biases toward Buddhism, he translated the Buddhist teachings and concepts into secular terms. Kabat-Zinn created MBSR out of a desire to provide individuals with intractable chronic pain an opportunity to investigate and experiment with their inner resources. MBSR participation led to an awareness of the relationship between the body, emotions, and the thinking mind. Increasing awareness led participants to experience a reduction in *dukkha*, a Buddhist concept often translated as human suffering or discomfort. Drawing from the Theravada Buddhist tradition, Kabat-Zinn positioned mindfulness and mindfulness meditation at the core of MBSR, describing mindfulness as "...the view, the path, and the fruit all in one." (Kabat-Zinn, 2011, p. 291) Kabat-Zinn defines mindfulness as:

> …moment-to-moment awareness…cultivated by purposefully paying attention to things we ordinarily never give a moment's thought to…a systematic approach to developing new kinds of control and wisdom, based on our inner capacities for relaxation, paying attention, awareness, and insight." (Jon Kabat-Zinn, 1990, p. 2)

Jon Kabat-Zinn (1990) describes the standard course of MBSR as requiring a participant commitment to eight weeks of instruction comprised of one two-and-a-half hour per week class, a single day retreat, and 45 minutes of practice for six of seven days each week. The curriculum is primarily experiential, incorporating group dialogue, and some teacher led instruction. Formal meditation practice is taught through practice of the body scan, sitting meditation, mindful movement (basic yoga), and walking meditation. Instruction on informal meditation occurs as participants learn to increase present moment awareness through observation of body sensations, thoughts, and emotions in daily situations. Responding with intention rather than reacting reflexively to body sensations, thoughts, and emotions often results from increased present moment awareness.

Literature Review

Mindfulness practices, including mindfulness meditation, show promise for decreasing stress among health care providers (Irving, Dobkin, & Park, 2009; Spickard, Gabbe, & Christensen, 2002; Thieleman & Cacciatore, 2014; Zeller & Levin, 2013). The standard eight week MBSR curriculum demonstrates effective stress reduction results among health care providers (Fortney, Luchterhand, Zakletskaia, Zgierska, & Rakel, 2013; Krasner et al., 2009; Praissman, 2008; Shapiro, Astin, Bishop, & Cordova, 2005). Irving et al. reviewed the literature on the use of standard MBSR with health care professionals and students. Small samples sizes, broad and remedial outcomes of focus, a lack of investigation into health care provider

behavioral variables, and the virtual nonexistence of investigation into the effects of mindful providers on patient satisfaction were among the authors' criticisms. However, despite these limitations, Irving et al. deemed the reviewed evidence encouraging, supporting MBSR as a wellness promoting intervention for healthcare providers.

Mindfulness-based interventions with health care providers also show decreased patient and/or family depersonalization (Goodman & Schorling, 2012) and increased empathy among providers (Krasner et al., 2009; McCracken & Yang, 2008; Shapiro, Schwartz, & Bonner, 1998). Krasner et al. raise the possibility that mindfulness contributes to more patient- and family-centered care through increases in provider qualities such as empathy and respect. Confirming Krasner's hypothesis, in a multicenter study Beach et al. (2013) found among 45 clinicians, mindfulness was associated with more patient-centered care as measured by more patient-centered communication and more patient satisfaction. Donald Berwick, director of the Centers for Medicaid and Medicare from 2010-2011, President and CEO of the Institute for Healthcare improvement for 20 years, and champion of the 100,000 live campaign to prevent avoidable health care related deaths (Institute for Healthcare Improvement, 2015), also came to the conclusion that training students and residents in mindfulness is a key component of patient-centered care (Berwick, 2009).

Although twenty percent of all social workers work within health care settings (Bureau of Labor Statistics, 2010, 2012), research on mindfulness-based interventions with social workers is meager and low quality. However, available research with social workers mirrors the positive stress reduction findings found among other health care providers (Trowbridge & Mische-Lawson, in press). Folding mindfulness into the practice of health care social work potentially enhances social workers' engagement with patients and families, a necessary step in increasing

the effectiveness of health promoting interventions. Mindfulness education provided to health care workers, including social workers, shows change associated with the provider-family relationship bond and the creation of holding space for patients and families (Goodman & Schorling, 2012; Krasner et al., 2009; McCracken & Yang, 2008).

Qualitative research also suggests increased mindfulness builds the foundational skills required for patient-centered care, such as openness, attentiveness, and acceptance (Gockel, Cain, Malove, & James, 2013; McGarrigle & Walsh, 2011). Shier and Graham (2011) describe social work students' discovery of equanimity. A student-practitioner explicitly described her increasing empathy saying she began understanding the families she worked with in a "meaningful way" not simply as a problem to be "fixed" (Wong, 2013, p.275). Gockel et al. (2013) describe an increase in awareness and use of emotions and physical sensations as a source of information in the clinical experiences of social work students. Students also reported an enhanced ability to stay attentive and emotionally connected with patients. McGarrigle and Walsh (2011), in their study of child and family social workers receiving mindfulness training, report a social worker as "being more mindful of where my mind is" (p.221) when working with families (McGarrigle & Walsh, 2011).

Commitments to family, work, care giving, education etc., as well as limitations such as distance, may prevent health care providers from participating in a standard MBSR course (Carmody & Baer, 2009). Shapiro et al. (2005) documented a health care provider MBSR dropout rate of 44%, more than double the rate of University of Massachusetts Stress Clinic MBSR programs. Departing participants reported limited time and numerous responsibilities as the reason for leaving the course. Shapiro et al. concluded that lengthy classes, in addition to lengthy home practice expectations, might be impractical for health care providers.

As common types of mindfulness-based interventions (MBIs), abbreviated versions of MBSR appear among varied populations. The term "mindfulness-based intervention" denotes interventions typically based on MBSR with a curricular and/or instructional delivery adaptation. Adaptations are most often an abbreviated course timeline and/or condensed curriculum (Dobkin, Hickman, & Monshat, 2013). A number of reviews address the effectiveness of MBIs. Carmody and Baer (2009) reviewed thirty MBIs with varying populations and found no significant relationship between mean class hours and effect size. They found less class hours associated with greater effect sizes. Virgili (2013) conducted a meta-analysis on the effects of MBIs (including standard MBSR) with working adults in organizational settings, including health care providers. The meta-analysis demonstrated no significant relationship between the variation in MBI effect size and intervention type, weeks of class, or in-class hours.

Abbreviated MBSR studies investigate the "dosing" of instruction and practice required to demonstrate stress reduction effects (Bergen-Cico, Posematto, & Cheon, 2013, p. 350). Reduction in both instructional and home practice time is a hallmark of abbreviated MBSR courses. Trowbridge & Mische Lawson (2015) reviewed the four available randomized controlled trial MBIs for health care providers. As expected, investigators utilized instructional and home practice time reductions in response to health care providers demanding schedules. The studies often provided incomplete information, utilized small sample sizes, and employed widely varying assessment tools and outcomes, hampering their use as evidence (Bergen-Cico et al.; Trowbridge & Mische-Lawson). For example, there were no common factors across the four studies to allow for statistical comparison. Despite these limitations, three of the four reviewed abbreviated mindfulness randomized controlled trials with health care providers demonstrated some significant effects.

Dobkin et al. (2013) discuss the importance of fidelity when adapting Kabat-Zinn's MBSR program. The authors offer practice standards for modifying MBSR which include: a) fidelity to the spirit and intentions of MBSR, b) instructor personal practice and professional training, and c) expectations of home practice "just beyond the limits" (p.7) of participants. Adaptations include a wide variety of instructional adaptations, homework/practice assignment downsizing, and modified class structures found among the four abbreviated interventions. The reviewed studies demonstrate little curricular or instructional consistency and vary in fidelity to the MBSR model (Trowbridge & Mische Lawson, 2015).

Problem Statement

Purpose

Among others (Bishop, 2002; Carmody & Baer, 2009; Chiesa, 2013), Kabat-Zinn has long advocated and supported more rigorous research on MBSR and the resulting MBIs (Gazella & Kabat-Zinn, 2005; Kabat-Zinn, 2011; Kabat-Zinn, 2003; Williams & Kabat-Zinn, 2011). Mindfulness-based interventions remained undefined and conceptualizations vary widely (Chiesa & Malinowski, 2011; Cullen, 2011; Dobkin et al., 2013). Existing MBI research lacks RCTs, control group comparisons, adequate sample sizes, and control of confounding variables (Carmody & Baer; Chiesa & Malinowski; Irving et al., 2009; Shonin, van Gordon, & Griffiths, 2013). Contributing to this lack of knowledge, research investigating the mechanisms of mindfulness is also in its infancy (Bergomi, Tschacher, & Kupper; Chiesa, 2013). Of the eight validated self-report mindfulness assessments, none has yet to adequately measure mindfulness (Bergomi et al., 2013).

The primary aim of this pre-post study was to investigate the effectiveness of an abbreviated MBSR program with pediatric health care social workers. This study adds to the

existing body of knowledge on abbreviated MBSR for health care providers by exploring a specific type of abbreviation that compresses MBSR into a two-day psychoeducational program more feasible for health care providers. The study also adds to the scant literature (K. Trowbridge & Mische-Lawson) on the use of any type of mindfulness-based intervention with social workers. We hypothesized that a) participation in cMBSR would increase positive consequences of pediatric health care social work and decrease negative consequences of pediatric health care social work; b) participation in cMBSR would decrease perceived stress of social workers working in a pediatric hospital system, c) participation in cMBSR would increase mindfulness of social workers working in a pediatric hospital system, and d) participation in cMBSR would increase caring efficacy working in a pediatric hospital system.

Methods

Participants

Participants were master's and bachelor's degree level social workers employed by the social work department of a regional children's health care system in the Midwest. Study recruitment information was provided at several open meetings at two hospital locations and two satellite clinic locations. Of approximately 100 eligible social workers, 43 enrolled over a two-week period. Participant exclusion criteria were 1) social workers with any departmental supervisory responsibilities or 2) any individual currently receiving intensive mental health treatment. Hospital and university Internal Review Boards approved the study, and written informed consent was obtained from all participants. All consented participants completed baseline measures prior to intervention. Of those enrolled, twenty-six completed the mindfulness intervention (n=26) and twenty-one completed outcome measures. Forty-three social workers consented to participate in the study. Prior to completion of baseline measures, ten of those

participants withdrew due to: work commitment (1), workload too great (4), personal reasons (4), resignation (1). Thirty-three participants completed baseline measures; seven of those participants withdrew prior to the intervention due to: covering other staff participating in the intervention (5), workload too great (1), personal reasons (1). Table 1 is a summary of those participants who enrolled and completed the measures.

Intervention

The curriculum for the training was derived from the mindfulness-based stress reduction program founded at the University of Massachusetts (Santorelli & Kabat-Zinn, 2013). The intervention design, instruction, and curriculum modification centered on fidelity to standard MBSR (Dobkin et al., 2013). The instruction included didactic periods, time for individual sharing, and meditation practice time. At the end of the two-day session participants received instruction to practice for twenty-minutes each day (body scan, sitting or walking meditation, mindful movement) over the course of the 6-week intervention period. The instructor provided no other instruction over the course of the six weeks. A University of Massachusetts trained instructor with a personal meditation practice of more than twenty years taught the curriculum.

Measures

Demographic Page. Participants completed brief demographic questions with the following information: age, gender, educational degree, previous formal mindfulness experience, number of years of practice in pediatric healthcare, and area of healthcare organization (critical care, outpatient, inpatient, or inpatient and outpatient).

Professional Quality of Life (ProQOL). The ProQOL is comprised of 30 questions to measure compassion fatigue and compassion satisfaction. Participants provided a self-reported answer on a 5-item Likert scale ranging from “never - 1” to “very often - 5”. ProQOL questions

are divided into the subscales of 1) compassion satisfaction, 2) burnout, and 3) secondary traumatic stress. Each subscale generates a score. There is no comprehensive ProQOL score. The ProQOL is stable across time, reflecting changes in the person not the measure (Stamm, 2010).

Perceived Stress Scale-10 (PSS10). The Perceived Stress Scale – 10 Item (Cohen & Williamson, 1988) was used to measure the degree to which an individual evaluates events as threatening, demanding, or beyond his/her coping resources. Designed for community samples, items explore the degree to which individuals find their lives unpredictable, uncontrollable, and overloaded. The PSS10 is normed from national samples surveyed in 1983 (n=926), 2006 (n=966), and 2009 (n=968). The PSS10 is comprised of ten questions answered by self-report on a 5-item Likert rating scale ranging from "never - 0" to "very often - 4". Items are summed to provide a single score.

Mindful Attention and Awareness Scale (MAAS). The MAAS (Brown & Ryan, 2003) was used as an indicator of trait/dispositional and state mindfulness. Trait/dispositional mindfulness describes inherent individual capabilities or inclinations to awareness and attention of present events and experiences. State mindfulness is the active cultivation of present awareness and attention. The MAAS is comprised of 15 self-report items. Using a 6-point Likert scale, "almost always -1" to "almost never - 6" participants rate how frequently they have the described experience. The MAAS is one of the most widely used scales and demonstrates theoretical relationships between brain activity research, MBI outcomes, and mediation of MBI effects (Van Dam, Earleywine, & Borders, 2010).

Caring Efficacy Scale (CES). The Caring Efficacy Scale authored by Coates (Watson, 2009) was used to assess participating social workers' belief in their ability to demonstrate caring

and to establish caring relationships with patients and families. The scale is derived from social psychology and nurse caring theory. The CES is comprised of 30 self-report items. Using a 6-point scale, items are reported from "strongly disagree (-) 3" to "agree (+) 3."

Data Analysis

Investigators managed and deidentified data using REDCap (Research Electronic Data Capture). REDCap is a secure web-based data collection and survey and database management tool (Harris et al., 2009). Data was exported from REDCap into SPSS for analysis. In the process of exporting data from REDCap to SPSS data identifiers were permanently removed. The data analysis plan included paired t-tests to investigate differences on all measures from pre to post intervention. Because of the unplanned, permanent removal of identifiers, paired t-tests were not possible. The research team determined independent two-sample t-tests were the best alternative. Using independent two sample t-tests violated the assumption of independent data, severely limiting interpretation of inferential analysis. The seven individuals who took baseline measures, but did not attend the intervention could not be removed from the preintervention sample. The influence of these seven individuals on each outcome measure is unknown and should be considered on a continuum from least to most effectual.

Researchers conducted Kolmogorov-Smirnov tests to check normality assumptions. All data met normality assumptions, so researchers used independent two sample t-tests to compare the pre and post groups. The data met two of three assumptions for use of independent two sample t-tests: 1) the samples were drawn from normal populations and 2) the samples had equal variances. The data violated the assumption of independent groups due to the unplanned use of independent two sample tests with the planned dependent two samples group design. In addition to the likelihood of change occurring by chance (p value), determining the size of change

resulting from an intervention is important when justifying the feasibility of further study. Cohen proposed conventional values that are operationalized to the research situation, ranging from small to medium to large effect sizes (Portney & Watkins, 2009). Investigators calculated Cohen's *d* using the means and standard deviations of pre and post groups for outcome variables to measure the size of change attributable to the intervention. Based on calculated values, researchers assigned an effect size label. The influence on the effect size of the seven individuals who took baseline measures but did not attend the intervention is unknown.

Results

Scores on the ProQOL Compassion Satisfaction subtest showed virtually no change from pre-intervention to post-intervention, indicating social worker satisfaction with the work done within the hospital system. There were no significant differences between pre and post-test scores for ProQOL subtests burnout (p=.08) and PSS (p=.052). Participants demonstrated a significant decrease (p=.003) on the ProQOL Secondary Traumatic Stress scale, a measurement of stress indicators related to working with individuals experiencing traumatic stress. As a measure of participant mindfulness, MAAS scores showed significant increase from pre-intervention to post-intervention (p=.002) as did CES scores (p=.048) (see Table 2). Because dropouts are included in analysis, Figure 1 shows a box plot of the pre and post intervention scores on the ProQOL subtests. While there was change in secondary traumatic stress pre to post, most post-test scores are not better than the best of the pre-test scores so positive assumptions about the effect of the intervention cannot be made from these plots. In addition to the effects of the violation of independent groups assumption, the effects on the data of the seven individuals who took pre-intervention measures, but did not attend the intervention is unknown. Due to these issues, the effects attributable to the intervention are unknown. For example, if the

seven individuals who took the preintervention measures but did not complete the intervention were the seven most mindful in the preintervention group then the significance of the MAAS may be misleading. Conversely, if the seven scored the lowest on compassion satisfaction then those scores that present as unchanged across the study might also be misleading.

Discussion

These findings warrant further investigation of our hypothesis that participation in a two-day cMBSR intervention increases the positive consequences of pediatric health care social work and decreases the negative consequences of pediatric health care social work. Our current findings differ distinctly from a well-recognized study by Moody et al. (2013) who investigated the effects of an abbreviated MBI on 48 pediatric clinical oncology staff randomized to either the mindfulness intervention or a control group. In Moody et al.'s study, participants scored one standard deviation higher (on average) than the United States national average on the PSS. Additionally, almost all participants met criteria for the highest level of burnout on the Maslach Burnout Inventory categories of personal accomplishment (similar to ProQOL Compassion Satisfaction) and depersonalization. Our study sample also differed greatly from Moody et al., as we included only social workers while Moody et al. recruited a diverse sample of healthcare workers (the Moody et al. sample included approximately >50% nurses, 20% physicians, 15% child life, and 15% social workers and psychologists). In considering a new investigation of cMBSR, measures or a mixed methods study probing social workers experience of stress and burnout and how the two outcomes do or do not differ from other healthcare workers might be of interest. New investigations might also consider the continued use of standard assessment tools with social workers. Assessment tools frequently cited in research on health care providers and mindfulness such as the Maslach Burnout Inventory or PSS (Trowbridge & Mische Lawson,

2015) may not best conceptualize and assess social worker stress. For example, as stated previously, the PSS demonstrated no significant differences among social workers in this study but did in the Moody et al. study. While there are numerous similarities among the environments and tasks of healthcare providers, it is possible that the specific responsibilities and/or worldviews of a profession influence the conceptualization of stress.

The MAAS queries automaticity or the degree to which an individual might do a task or think a thought without paying full attention. In a mindfulness-based intervention, participants learn to bring awareness to thoughts, emotions, sensory experience, and actions as an alternative to automaticity. Results of this study showed an increase in mindfulness from pre to post intervention that may have been due to cMBSR. It may also be attributed to the differences between dropouts and participants, particularly if dropouts were less likely to be mindful at pretest. Several dropouts were unable to find coverage to participate in the intervention suggesting they may work in high patient volume or high acuity areas. While no definitive conclusions can be drawn from these findings, it is possible that the observation of thoughts, feelings and emotions through present moment awareness may increase among social workers participating in cMBSR. If so, differentiation may occur as the social worker recognizes the patient and family is distinct and separate from his/her own life and that a boundary exists between social worker and patient and family. Bringing a greater awareness to (possibly ruminative) thoughts about patients and families and observing interactions more closely, social workers may recalibrate the degree of shared experience, further clarifying the social worker's boundary.

While this data is limited and exploratory in nature, similar patterns in other studies with social workers demonstrate the value of mindfulness-based interventions and the need for more

rigorous studies. Wagaman, Geiger, Shockley, and Segal (2015) found relationships indicating one protective component of empathy is boundary setting. Further, they found social workers require self-awareness and, if necessary, can be taught the self-awareness to set boundaries. They found that once set, these boundaries may protect against secondary traumatic stress. Grant and Kinman (2014) and Grant (2013) share similar findings in their work on accurate empathy in the social work profession. Both groups of researchers support mindfulness-based interventions as a way of teaching empathy to social work students and/or helping practicing professionals maintain or rebalance empathy once in practice.

Previous research with social workers found the symptoms of personal distress (anxiety, helplessness, lack of control) that often arise from experiencing another person's situation correlate with the three ProQOL subscales (Compassion Satisfaction, Burnout, and Secondary Traumatic Stress) (Thomas, 2012). Thomas suggests empathetic personal distress as a mediator of the relationship between mindfulness and each of the ProQOL constructs. Returning to the Capacity Model, a social worker with increased present moment attention may decrease secondary traumatic stress by remaining focused on current interaction and task work with the family with a child with complex medical condition rather than focusing on thoughts about the child's injury. However, if the social worker believes she is not strong enough to work with the family, the effect of the present moment awareness on secondary trauma may be lessened. Given this relationship, it is important that future mindfulness-based interventions measure effectiveness in both the areas of attention and awareness and indicators of personal discomfort or suffering.

Limitations

As an exploratory study, there are a number of expected limitations when considering these findings. The testing of multiple hypotheses with a small sample leads to inflated Type I error. The use of independent sample t-tests with a related sample and the inability to match pre-post responses also creates bias. The self-selected sample leaves many questions as to the representiveness of the group on baseline outcome measure scores.

As a two-day intervention, cMBSR shows promise for alleviating the intervention attrition experienced in other studies (Manotas, Segura, Eraso, Oggins, & Mcgovern, 2014; Shapiro et al., 2005). All participants attended both days of the two-day intervention. However, the attrition occurring between recruitment and intervention still raises the issue of staff release time. A number of consented participants in this study did not participate in the intervention due to working for another staff person attending the intervention. Others did not complete the study due to workload demands. While social work staff and administration rarely question the need for staff professional development, time away from patients and families is often an issue. Without continual reflection and review, the helping intention may create and sustain a culture that is the antithesis to the goals of healthy patient and family relationships.

Future Research

The findings of this exploratory study of an abbreviated two-day mindfulness-based intervention showed promise and warrant further study. Findings presented here suggest there may be value in a future well-powered, wait-list controlled study of cMBSR utilizing paired t-tests. Future research may also benefit from the use of scales more commonly used to assess social workers and from scales tied specifically to the construct of mindfulness with social workers. For example, scales measuring the degree of empathy or symptoms of personal distress may more accurately measure the need or role of mindfulness among social workers when used

with a scale assessing secondary traumatic stress. Additionally, given the potentially homogeneous stress-level among the self-selected group in this study, future studies should purposively sample to include varying levels of stress within the intervention and control groups. The stress of medical social work can vary widely by pediatric hospital site so future studies should sample social workers from a wide variety of pediatric hospital sites.

The impact of the violation of the independent groups assumption and the data of the seven individuals who took preintervention measures, but did not attend the intervention is unknown. While investigators found significant differences between the pre and post-intervention outcome variables on the ProQOL Secondary Traumatic Stress subscale, the Mindful Attention and Awareness Scale, and the Caring Effectiveness Scale with changes appearing to last for at least a period of six weeks with no intermediate support, definitive conclusions cannot be made due to data limitations. Since the demonstrated effects may not be attributed to the intervention, repeat investigation of cMBSR is reasonable. Future studies might also explore if cMBSR influences how social workers experience burnout, compassion fatigue, and boundary setting.

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Table 1. *Baseline Enrollment and Sample Characteristics*

	Enrolled at time of Baseline Measures^	**Enrolled at Baseline measures and completed cMBSR**
N	33	26
Age category (% of N)		
24-34	33.3	38.5
35-44	45.5	42.3
45-54	12.1	15.4
55-64	9.1	4.0
Health System Work Area* (% of N)		
Critical Care	24.2	26.9
Specialty Care	12.1	15.4
Inpatient Care	6.1	7.7
Ambulatory Care	48.5	38.5
Community – All	3.0	3.9
Other	6.1	7.7
Years in Pediatric Health Care Social Work (% of N)		
1-6 years	48.5	57.7
7-15 years	39.4	34.6
16+ years	12.1	7.7
Previous Mindfulness Training > 8 hours (% of N)	3.0	7.7

Note: ^=preintervention includes seven not attending the intervention;*SWP= social work practice; Critical Care=emergency department, intensive care nursery; or pediatric intensive care unit; Specialty Care =inpatient and outpatient care in same specialty i.e. organ transplant;

Inpatient Care=inpatient hospital; Ambulatory Care=outpatient clinics; Community= any community-based service Other=any undefined.

Table 2.

Pretest-Posttest Differences All Measures

	Preintervention^ (n=33)		**Postintervention (n=21)**		
	M	SD	M	SD	*P*
ProQOL, Professional Quality of Life Scale[+]					
Compassion Satisfaction	49.89	10.63	50.18	9.17	.916
Burnout	51.89.	10.61	47.04	8.35	.082
Secondary Traumatic Stress	53.15	10.00	45.06	8.00	.003**
PSS, Perceived Stress Scale***	14.85	5.42	12.15	3.70	.052
MAAS, Mindful Attention and Activity Scale^	3.48	.688	4.07	.533	.002**
CES, Caring Efficacy Scale^	4.51	.38	4.73	.34	.048*

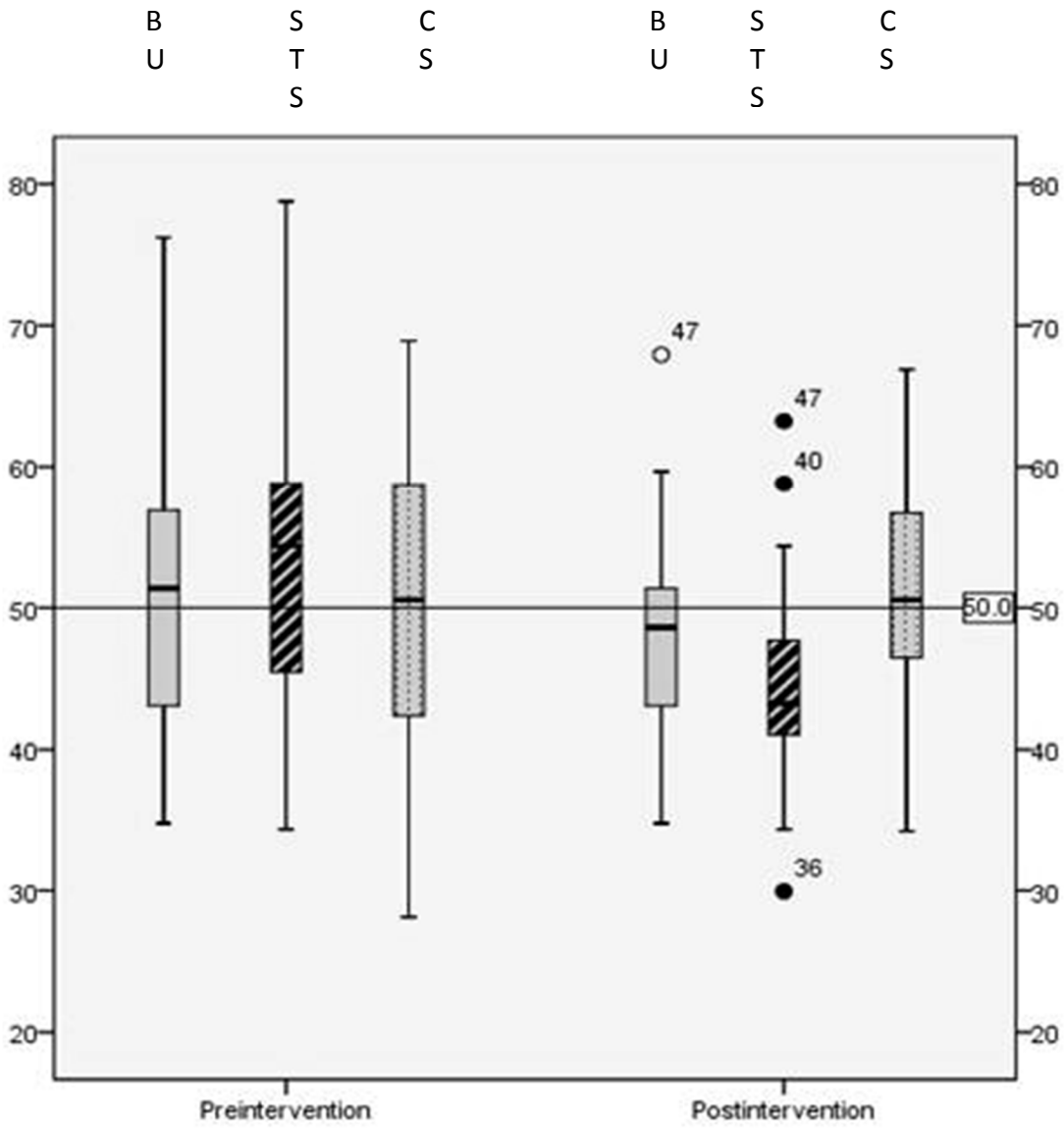
^=preintervention includes seven individuals not attending the intervention ;*p<.05; **p<.01; [+]ProQOL raw scores converted to t-scores; ^1-6 scale;***Score range 0-40/lower better; Two-sample t-test for variables normally distributed as determined by Kolmogorov-Smirnov test.

Table 3

Effect Size for Significant Outcomes

	p	Mean	SD	Cohen's *d*
ProQOL				
Compassion Satisfaction	.916	Pre 38.67 Post 38.81	Pre 5.21 Post 4.50	.02 none
Burnout	.082	Pre 24.18 Post 22.43	Pre 3.84 Post 3.03	-.50 medium
Secondary Traumatic Stress	.003	Pre 21.46 Post 17.81	Pre 4.50 Post 3.59	-.89 large
PSS	.052	Pre 14.85 Post 12.15	Pre 5.42 Post 3.80	-.57 medium
MAAS	.002	Pre 52.21 Post 61.00	Pre 10.32 Post 8.00	.95 large
CES	.048	Pre 4.51 Post 4.73	Pre .39 Post .34	.60 medium

^=preintervention includes seven individuals not attending the intervention



BU=Burnout

STS=Secondary Traumatic Stress

CS=Compassion Satisfaction

preintervention includes seven individuals not attending the intervention

Social Work Research in Practice: Lessons Learned

Kelly Trowbridge

Children's Mercy, Kansas City

Lisa Mische Lawson

University of Kansas Medical Center

Abstract

Using data and research to drive and evaluate clinical decision-making continues to slowly gain prominence across social work settings. This paper shares insights and recommendations from a novice social work investigator to encourage other social workers to consider the value of researching while in practice. Practitioners new to research need encouragement and support. This paper provides ideas for easing the first steps towards research to avoid potentially discouraging pitfalls.

Key words: evidence-based practice, research, social work, implementation research

Enthusiasm for Research

The creation of evidence in practice is part of adopting a model of evidence-based practice (Schaaf, 2015). Using data and research to drive and evaluate clinical decision-making continues to slowly gain prominence across social work settings (Gray & Schubert, 2012; Thyer & Myers, 2011). In the academic children's hospital where I am employed as a clinical social worker, research is a common pursuit across the medical disciplines, but far less so amongst the health disciplines. In fact, I was one of the first social workers to pursue a doctoral degree. My motivation for remaining in clinical practice while returning to academics was the melding of research and practice. I questioned if foundational social work skills, such as assessment, were performed based on evidence or simply conducted out of convention. Additionally, in my practice, I observed recurring, distressing circumstances with families (and staff) that were unaddressed in the literature. I knew I needed additional skills to ask answerable questions and formulate methodical and executable plans for offering change. For these reasons, I entered doctoral program and focused on learning how to create, evaluate, and modify a process within a practice setting. A focus on practice settings increases the likelihood of the adoption of an intervention because it is systematically evaluated and modified in context where real world curveballs prevail (Neta et al., 2015). By sharing what I learned as a novice social work investigator, my intent is to encourage practicing social workers to reflect on the value of research in practice and to suggest ideas for easing any exploration of research in practice.

Lessons

Focus and Distraction

As principal investigator on my first study, I also served as a collaborator on the intervention design. I labored to get the intervention just right. With education as my first

career, the transition to social work offered rich and divergent teaching opportunities, now in social work I called these opportunities "interventions." As my teaching and social work educations and experiences fused, interventions emerged as my strength, so my focus on the instructional design and implementation of the study intervention came naturally. Unfortunately, my diligence to the intervention was a distraction from research substance (study design, methods, and analysis). While I had a strong team (i.e. dissertation committee) to guide me, study development, study implementation and analysis responsibilities fell solely on me. Emphasis on the intervention left me unprepared for some of the dilemmas I faced later as an investigator. As a beginning researcher, my attention and primary focus should have rested on the research design and methods rather than on the intervention content. However, to avoid and alleviate the anxiety I felt, I turned away from the personal discomfort and uncertainty of the research substance and instead turned towards the safety and comfort of the intervention and my "expert" knowledge.

Though it was new to me, as research suggests, my experience was predictable for a novice;I focused on surface concerns rather than on integral problems (Garfield, Le, Zieffler, & Ben-Zvi, 2014). For example, I was particularly concerned with protection of identifying information. The sensitivity of information I collected led me to spend a significant amount of time considering relationship (comfortable social work thinking) and far less considering data (uncomfortable research thinking). Both relationship and data were important considerations; it was the balance of focus that was skewed. Because I worked closely with many of the potential participants of my study, I felt the need to safeguard their personal information beyond what is ethically expected when conducting research. In an effort to protect my co-workers, I set up data collection to remove all sources of identification and kept no matching list of participants. In

doing so, I created a significant statistical limitation by limiting analysis to unpaired, dependent sample t-tests. My desire to protect my participants to the nth degree (heavily influenced by social work thinking) lowered the value of the study to negligible (inadequate research thinking). The combination of shallow statistical experiences and discomfort led me to focus on a superficial problem, intervention, where I had a depth of knowledge and a sense of competence.

Confidentiality is mentioned throughout the National Association of Social Workers Code of Ethics (National Association of Social Workers, 1996). The upholding of privacy is crucial to a trusting relationship between the social worker and client/family for many reasons, a primary one being the vulnerability of the client/family in the relationship. What I failed to recognize was that I was acting as a researcher not a social worker. Participants were informed, consented and enrolled voluntarily in a supplementary activity, not as a necessary consequence of life circumstances. Protecting individuals and confidentiality is, of course, a value of both research and social work. In retrospect, I recognize disproportionate attention to the participants' level of risk and vulnerability.

Technology and Separation

For the novice investigator, technology separates the investigator, to varying degrees, from the data, data collection, and data analysis. For experienced investigators, such a separation may have little impact on reasoning, decision-making, and problem solving. For novices, less adept at recognizing and applying statistical principles (Garfield et al., 2014), separation from data may create a deficit in outcome accuracy, as well as, foster the gap in thinking that leads to inaccuracies. In my research study, I utilized REDCap as the technology for measure dissemination and collection via secure computerized database (Harris et al., 2009) and SPSS for statistical analysis (SPSS Inc., 2009). At my academic institution, technology and expert

users are readily available to assist staff with research applications. SPSS and REDCap were two technologies that distanced me from data collection and data entry.

Technology, of course, makes research infinitely easier to implement. REDCap was generally unfamiliar to me, but through an Internal Review Board (IRB) recommendation, I was connected with an expert user. Prior to this meeting, I planned to distribute, collect, and enter the data for four measures at three different time points. In retrospect, an unachievable task on what turned out to be a very short timeline. After meeting with me about data and analysis needs, the expert user worked incredibly quickly to assist in setting-up my measures in REDCap. We planned for the export of the raw data from REDCap into SPSS at the end of each collection period. My choice to send the measures via REDCap and receive the data already inputted and directly importable into SPSS felt like freedom, however, as a novice I did not recognize the challenges it can create.

I utilized REDCap *knowing* my lack of understanding kept me from understanding, diagramming, and questioning how REDCap handles the data. I ignored cognitive reasoning and an intuitive sense to ask more questions or make a different or modified decision. I was highly motivated to finish my doctoral education, thus I *wanted* this solution to work *now*. With my decision to move ahead, I gave technology a hold over the data. What I failed to ask, know, or understand was that in the export of the data from REDCap to SPSS, deidentification is permanent; there was no way to restore the data identifiers. I asked technology to protect the participants from me, the investigator, through anonymity and it did so unequivocally. My instinct nudged me to slow down (probably because of the extremeness of the choice), but I ignored the nudge. My decision had practical implications in research for which I was ill prepared. For example, six people completed measures but did not participate. I could not

remove their data because it was unmatched; it was simply all in SPSS with no identifiers so I could not identify "drop outs." In addition to being unable to examine differences between dropouts and those completing the intervention, I was also unable to conduct paired t-test or determine change scores for participants. My need as a clinical social worker to protect my participants created significant research limitations.

Infrastructure and Social Capital

Without the benefit of experienced social work researchers or doctoral level social workers within the hospital, I relied heavily on outside academic resources that came from a neighboring university hospital system. My lack of a network informal ties and relationships with hospital staff engaged in research limited my access to "novel (or, non-redundant)" research knowledge. The absent network of ties and relationships, often referred to as social capital, impeded my access to implicit or inferential information about the system of research within the hospital (Levin, Walter, Appleyard, & Cross, 2015, p. 2). Several strong research programs existed within my hospital. They were strong because they supplemented academic training with mentoring to support transfer of informal knowledge and experience. While the social work department was large (100 social workers) and well-established, departmental leadership had minimal relationships, resources, and knowledge within the hospital research community. Not surprisingly, this lack of personal and departmental social capital (Carpenter, Li, & Jiang, 2012) led to a number of predictable errors throughout the progression of the study. As I conducted my research, I met many situations that were not referenced in textbooks, policies, or classrooms. The errors I encountered included those specific to my beginner status, the hospital, and IRB: recruitment misjudgments (which I was warned about), various timeline misjudgments, overly narrow and omitted wording in the protocol and consent, and other choices that resulted in

administrative and other delays.

Trying to gather what I could in terms of both concrete technical assistance and informal networking resources, I sought assistance from disciplines proximal to social work, including a permanent move to a research rich department. However, I often left meetings with colleagues in the new department, feeling confused, uneducated, and rejected. Working for many years in the tension between the objective, positivist medical model and my constructivist viewpoint, I was accustom to negotiating between the medical focus on a single correct outcome and the psychosocial focus on an experiential process with many correct outcomes. In retrospect, while I recognized the intersection of linear-based medical thinking and systems-based social work thinking as a practitioner, I did not recognize it as an information seeker and researcher.

Often, social workers, even when asking (or answering) a linear question, want to know about process. For example, social workers new to the hospital setting spend time crafting a balance between the narrative answer and the succinct answer. Another common pattern among social workers is offering an example in response to an answer. This is done for both clarification and reassurance of understanding. My colleagues from other professions, while kind and willing to help, would offer an outcome-based answer with little or no explanation of how the answer was achieved or understood in context. It was simply the answer. They did not understand my implied request, in the form of an example using the answer, for additional information or affirmation that I understood the principle not simply the answer. A bit confused, they often just repeated the answer to the original question. I felt misunderstood and often was unwilling to return. In retrospect, pausing to simply reframe or transform my question into a direct request could have ensured I understood what mentors from other disciplines were attempting to share.

Discussion

Underpinning these lessons is a personal pattern: deference to expertise. In preparation for the study, I resisted the work of research methods because of my discomfort with deferring to or trusting myself in the "expert" role, so not surprisingly that led to situations where I felt inept as the "expert" throughout the study. Making decisions about technology, I ignored my "expert" inklings, reasoning that a REDCap expert stood to make better decisions. The pattern of deferring to expertise led many times to slinking away from an upper level colleague without sharing my enthusiasm, questions, concerns, or ideas. No doubt, I walked away from what I perceived as embarrassing novice missteps. However, I know the pattern I label "deference to expertise" placed me at the periphery of opportunities to build relationships and engage in new learning.

My doctoral education influenced my sense of self, or self-perception, as an individual and as a social worker. As a novice researcher, the lessons I learned conducting my first study range from pragmatic to personally enlightening. From my experiences, I suggest these recommendations for practitioners new to research:

- Focus on your non-expert field. For novice researchers, research design and analysis is likely where the most focused time should be spent.
- Ask for help explicitly, especially outside your disciple; in a medical model "knowing" means understanding scientifically not pragmatically and/or philosophically.
- Figure out how experts think and experiment with looking at your research like an expert. I needed to learn how to think like an expert researcher rather than an expert social worker.
- Know your patterns and go deeper. The most difficult and significant part of how I

experienced this learning wasn't related to methods or analysis, but to subtle patterns of behavior. Yes, I deferred to expertise. Looking deeper, that pattern allows me to avoid risk. I have been a social worker for nearly fifteen years in a pediatric, high reliability (safety promotion s through standardization), bureaucratic health organization. Risk-taking, independent decision-making, and mistake making aren't desired traits for social work practice, but *are* desired traits in developing, leading, and disseminating research. Get comfortable with these traits through repeated practice at and outside work

- Practice mindfulness. New and stressful situations require more pausing and observing, especially as a way of bringing attention to automatic reactions. I avoided pursuing assistance many times because of 1) the strong automatic thought, "I should know this" and 2) the feelings of insecurity generated by comparison to those I was approaching. Pausing to recognize how a thought and/or feeling influenced my behavior allowed a more objective assessment, and typically a broader array of choices. However, even with an established mindfulness practice, I ended up turning away from anxiety on many occasions when I needed to meet it to better solve a situation.
- Listen to your intuition. Intuition is often experienced as a feeling within the body. The body often recognizes signs of trouble before the mind. Again, be willing to recognize and respond rather than ignore what this bodily feeling may be communicating.
- Build, share, and grow social capital. Even though I was the sole researcher in my discipline, I made invaluable contacts and connections. The social work researcher who follows me will benefit from my network, add to it, and the social capital will grow.

Conclusion

No longer the purview of academics alone, clinical social workers have a valuable role to

play in the creation and dissemination of systematically evaluated and modified practice knowledge. This potential for improved outcomes also advances the field, growing the practice of evidence-based social work. (Neta et al., 2015; Schaaf, 2015). Existing researchers in practice need support to lead and encourage colleagues. These practitioner researchers, such as myself, may serve as desirable research educators helping novices to avoid the early and discouraging pitfalls they faced as research pioneers.

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Appendix A: Measures for Section 5

Participant Information Page

1. Age:
    a. 24-34
    b. 35-44
    c. 45-54
    d. 55-64
    e. 65+

2. Formal Mindfulness Training:
    a. Yes
    b. No

3. Number of Years Worked in Pediatric Health Care Social Work:
    a. 1 – 6
    b. 7 – 15
    c. 16 +

4. Children's Mercy Work Setting:
    a. Critical Care (ED, PICU, ICN)
    b. Specialty Care following both inpatient and outpatient (Hem/Onc, Renal, Liver Transplant, Cardiac)
    c. Inpatient Care only
    d. Ambulatory Care only
    e. NONE of the above describes the area I work in

Professional Quality of Life Scale (ProQOL)

Compassion Satisfaction and Compassion Fatigue
(ProQOL) Version 5 (2009)

When you *[help]* people you have direct contact with their lives. As you may have found, your compassion for those you *[help]* can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a *[helper]*. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the *last 30 days*.

1=Never	2=Rarely	3=Sometimes	4=Often	5=Very Often

_____ 1. I am happy.
_____ 2. I am preoccupied with more than one person I *[help]*.
_____ 3. I get satisfaction from being able to *[help]* people.
_____ 4. I feel connected to others.
_____ 5. I jump or am startled by unexpected sounds.
_____ 6. I feel invigorated after working with those I *[help]*.
_____ 7. I find it difficult to separate my personal life from my life as a *[helper]*.
_____ 8. I am not as productive at work because I am losing sleep over traumatic experiences of a person I *[help]*.
_____ 9. I think that I might have been affected by the traumatic stress of those I *[help]*.
_____ 10. I feel trapped by my job as a *[helper]*.
_____ 11. Because of my *[helping]*, I have felt "on edge" about various things.
_____ 12. I like my work as a *[helper]*.
_____ 13. I feel depressed because of the traumatic experiences of the people I *[help]*.
_____ 14. I feel as though I am experiencing the trauma of someone I have *[helped]*.
_____ 15. I have beliefs that sustain me.
_____ 16. I am pleased with how I am able to keep up with *[helping]* techniques and protocols.
_____ 17. I am the person I always wanted to be.
_____ 18. My work makes me feel satisfied.
_____ 19. I feel worn out because of my work as a *[helper]*.
_____ 20. I have happy thoughts and feelings about those I *[help]* and how I could help them.
_____ 21. I feel overwhelmed because my case [work] load seems endless.
_____ 22. I believe I can make a difference through my work.
_____ 23. I avoid certain activities or situations because they remind me of frightening experiences of the people I *[help]*.
_____ 24. I am proud of what I can do to *[help]*.
_____ 25. As a result of my *[helping]*, I have intrusive, frightening thoughts.
_____ 26. I feel "bogged down" by the system.
_____ 27. I have thoughts that I am a "success" as a *[helper]*.
_____ 28. I can't recall important parts of my work with trauma victims.
_____ 29. I am a very caring person.
_____ 30. I am happy that I chose to do this work.

PSS

INSTRUCTIONS:

The questions in this scale ask you about your feelings and thoughts during THE LAST MONTH. In each case, please indicate your response by placing an "X" over the circle representing HOW OFTEN you felt or thought a certain way.

Never	Almost Never	Sometimes	Fairly Often	Very Often
0	1	2	3	4
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○
○	○	○	○	○

1. **In the last month, how often have you been upset because of something that happened unexpectedly?**

2. **In the last month, how often have you felt that you were unable to control the important things in your life?**

3. **In the last month, how often have you felt nervous and "stressed"?**

4. **In the last month, how often have you felt confident about your ability to handle your personal problems?**

5. **In the last month, how often have you felt that things were going your way?**

6. **In the last month, how often have you found that you could not cope with all the things that you had to do?**

7. **In the last month, how often have you been able to control irritations in your life?**

8. **In the last month, how often have you felt that you were on top of things?**

9. **In the last month, how often have you been angered because of things that were outside your control?**

10. **In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?**

Mindful Attention Awareness Scale (MAAS)
Rate your level of mindfulness

This is a psychological test that was developed by Ruth Baer (University of Kentucky) and is in the public domain. It has been used in many recent mindfulness research studies. Take the test to see how mindful you are.
Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what *really reflects* your experience rather than what you think your experience should be. Please treat each item separately from every other item.

1 = almost always; **2** = very frequently; **3** = somewhat frequently;
4 = somewhat infrequently; **5** = very infrequently; **6** = almost never.

1. I could be experiencing some emotion and not be conscious of it until some time later.
2. I break or spill things because of carelessness, not paying attention, or thinking of something else.
3. I find it difficult to stay focused on what's happening in the present.
4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.
5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.
6. I forget a person's name almost as soon as I've been told it for the first time.
7. It seems I am "running on automatic" without much awareness of what I'm doing.
8. I rush through activities without being really attentive to them.
9. I get so focused on the goal I want to achieve that I lose touch with what I am doing right now to get there.
10. I do jobs or tasks automatically, without being aware of what I'm doing.

11. I find myself listening to someone with one ear, doing something else at the same time.
12. I drive places on "automatic pilot" and then wonder why I went there.
13. I find myself preoccupied with the future or the past.
14. I find myself doing things without paying attention.
15. I snack without being aware that I'm eating.

CARING EFFICACY SCALE
Coates (Copyright)
Version B
30 items

Instructions: When completing these items, think of your work in clinical settings and/or similar experiences. Complete the following scale based on your work with clients or patients. Please indicate your degree of agreement with each item. (Circle the number which best expresses your opinion.)

Rating Scale:

-3 strongly disagree
-2 moderately disagree
-1 slightly disagree
+1 slightly agree
+2 moderately agree
+3 strongly agree

	strongly agree					strongly disagree
1.I do not feel confident in my ability to express a sense of caring to my clients/patients.	-3	-2	-1	+1	+2	+3
2.If I am not relating well to a client/patient, I try to analyze what I can do to reach him/her.	-3	-2	-1	+1	+2	+3
3. I feel comfortable in touching my clients/patients in the course of care giving.	-3	-2	-1	+1	+2	+3
4. I convey a sense of personal strength to my clients/patients.	-3	-2	-1	+1	+2	+3
5. Clients/patients can tell me most anything and I won't be shocked.	-3	-2	-1	+1	+2	+3
6. I have an ability to introduce a sense of normalcy in stressful conditions.	-3	-2	-1	+1	+2	+3
7. It is easy for me to consider the multi-facets of a client's/ patient's care, at the same time as I am listening to them.	-3	-2	-1	+1	+2	+3
8. I have difficulty in suspending my personal beliefs and biasesin order to hear and accept a client/patient as a person.	-3	-2	-1	+1	+2	+3
9. I can walk into a room with a presence of serenity and energy that makes clients/patients feel better.	-3	-2	-1	+1	+2	+3
10. I am able to tune into a particular client/patient and forget my personal concerns.	-3	-2	-1	+1	+2	+3
11. I can usually create some way to relate to most any client/patient.	-3	-2	-1	+1	+2	+3

Rating Scale:

-3 strongly disagree	+1 slightly agree
-2 moderately disagree	+2 moderately agree
-1 slightly disagree	+3 strongly agree

	strongly agree					strongly disagree
12. I lack confidence in my ability to talk to clients/patients from backgrounds different from my own.	-3	-2	-1	+1	+2	+3
13. I feel if I talk to clients/patients on an individual, personal basis, things might get out of control.	-3	-2	-1	+1	+2	+3
14. I use what I learn in conversations with clients/patients to provide more individualized care.	-3	-2	-1	+1	+2	+3
15. I don't feel strong enough to listen to the fears and concerns of my clients/patients.	-3	-2	-1	+1	+2	+3
16. Even when I'm feeling self-confident about most things, I still seem to be unable to relate to clients/patients.	-3	-2	-1	+1	+2	+3
17. I seem to have trouble relating to clients/patients.	-3	-2	-1	+1	+2	+3
18. I can usually establish a close relationship with my clients/patients.	-3	-2	-1	+1	+2	+3
19. I can usually get patients/clients to like me.	-3	-2	-1	+1	+2	+3
20. I often find it hard to get my point of view across to patients/ clients when I need to.	-3	-2	-1	+1	+2	+3
21. When trying to resolve a conflict with a client/patient, I usually make it worse.	-3	-2	-1	+1	+2	+3
22. If I think a client/patient is uneasy or may need some help, I approach that person.	-3	-2	-1	+1	+2	+3
23. If I find it hard to relate to a client/patient, I'll stop trying to work with that person.	-3	-2	-1	+1	+2	+3
24. I often find it hard to relate to clients/patients from a different culture than mine.	-3	-2	-1	+1	+2	+3
25. I have helped many clients/patients through my ability to develop close, meaningful relationships.	-3	-2	-1	+1	+2	+3
26. I often find it difficult to express empathy with clients/patients.	-3	-2	-1	+1	+2	+3
27. I often become overwhelmed by the nature of the problems						

clients/patients are experiencing.	-3	-2	-1	+1	+2	+3
28. When a client/patient is having difficulty communicating with me, I am able to adjust to his/her level.	-3	-2	-1	+1	+2	+3
29. Even when I really try, I can't get through to difficult clients/patients.	-3	-2	-1	+1	+2	+3
30. I don't use creative or unusual ways to express caring to my clients/patients.	-3	-2	-1	+1	+2	+3

Word file: CARINGB.SLF

Please contact Dr. Carolie Coates, 1441 Snowmass Court, Boulder, Colorado 80305 USA for permission and scoring information. Email: coatescj@comcast.net tel. and fax: 303-499-5756
http://www.caringefficacyscale.com

Appendix B: Additional Analyses for Section 5

Nonparametric Tests

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Secondary_Traumatic_Stress is normal with mean 21.45 and standard deviation 4.501.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.
2	The distribution of MAAS_Score_MD is normal with mean 52.21 and standard deviation 10.318.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.
3	The distribution of PSS_MD is normal with mean 14.85 and standard deviation 5.421.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Reject the null hypothesis.
4	The distribution of CES_MD is normal with mean 4.51 and standard deviation 0.384.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.
5	The distribution of com_md is normal with mean 38.67 and standard deviation 5.212.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.
6	The distribution of burnout_md is normal with mean 24.19 and standard deviation 3.844.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

[1]Lilliefors Corrected

[2]This is a lower bound of the true significance.

Hypothesis Test Summary

	Null Hypothesis	Test	Sig.	Decision
1	The distribution of Secondary_Traumatic_Stress is normal with mean 17.81 and standard deviation 3.586.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.
2	The distribution of MAAS_Score_MD is normal with mean 60.99 and standard deviation 7.994.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.
3	The distribution of PSS_MD is normal with mean 12.15 and standard deviation 3.798.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.
4	The distribution of CES_MD is normal with mean 4.73 and standard deviation 0.344.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.
5	The distribution of com_md is normal with mean 38.81 and standard deviation 4.496.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.
6	The distribution of burnout_md is normal with mean 22.43 and standard deviation 3.026.	One-Sample Kolmogorov-Smirnov Test	.200[1,2]	Retain the null hypothesis.

Asymptotic significances are displayed. The significance level is .05.

[1] Lilliefors Corrected

[2] This is a lower bound of the true significance.

T-Test

Group Statistics

	Test	N	Mean	Std. Deviation	Std. Error Mean
com_md	Baseline	33	38.6667	5.21217	.90732
	Six weeks	21	38.8131	4.49564	.98103
burnout_md	Baseline	33	24.1852	3.84415	.66918
	Six weeks	21	22.4286	3.02608	.66034
Secondary_Traumatic_Stress	Baseline	33	21.4545	4.50063	.78346
	Six weeks	21	17.8095	3.58635	.78261
MAAS_Score_MD	Baseline	33	52.2098	10.31846	1.79621
	Six weeks	21	60.9946	7.99402	1.74444
PSS_MD	Baseline	33	14.8485	5.42057	.94360
	Six weeks	21	12.1491	3.79836	.82887
CES_MD	Baseline	33	4.5140	.38401	.06685
	Six weeks	20	4.7258	.34371	.07686

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
com_md	Equal variances assumed	.874	.354	-.106	52	.916	-.14645	1.38145	-2.91854	2.62564
	Equal variances not assumed			-.110	47.244	.913	-.14645	1.33628	-2.83434	2.54144
burnout_md	Equal variances assumed	1.559	.217	1.772	52	.082	1.75668	.99149	-.22289	3.74625
	Equal variances not assumed			1.869	49.526	.068	1.75668	.94014	-.13209	3.64545
Secondary_Traumatic_Stress	Equal variances assumed	1.760	.190	3.129	52	.003	3.64502	1.16481	1.30767	5.98238
	Equal variances not assumed			3.292	49.255	.002	3.64502	1.10738	1.41996	5.87008
MAAS_Score_MD	Equal variances assumed	1.176	.283	-3.315	52	.002	-8.78477	2.64966	-14.10171	-3.46784
	Equal variances not assumed			-3.508	49.861	.001	-8.78477	2.50389	-13.81433	-3.75522
PSS_MD	Equal variances assumed	1.125	.294	1.989	52	.052	2.69934	1.35696	-.02361	5.42228
	Equal variances not assumed			2.149	51.436	.036	2.69934	1.25595	.17844	5.22024
CES_MD	Equal variances assumed	1.254	.268	-2.022	51	.048	-.21176	.10471	-.42198	-.00154
	Equal variances not assumed			-2.079	43.753	.044	-.21176	.10186	-.41708	-.00644

Means

Report

Test		Secondary_Traumatic_Stress	MAAS_Score_MD	PSS_MD	CES_MD	com_md	burnout_md
Baseline	Mean	21.4545	52.2098	14.8485	4.5140	38.6667	24.1852
	N	33	33	33	33	33	33
	Std. Deviation	4.50063	10.31846	5.42057	.38401	5.21217	3.84415
	Median	22.0000	52.0000	14.0000	4.6000	39.0000	24.0000
	% of Total N	61.1%	61.1%	61.1%	62.3%	61.1%	61.1%
Six weeks	Mean	17.8095	60.9946	12.1491	4.7258	38.8131	22.4286
	N	21	21	21	20	21	21
	Std. Deviation	3.58635	7.99402	3.79836	.34371	4.49564	3.02608
	Median	17.0000	62.0000	13.0000	4.7333	39.0000	23.0000
	% of Total N	38.9%	38.9%	38.9%	37.7%	38.9%	38.9%
Total	Mean	20.0370	55.6261	13.7987	4.5939	38.7236	23.5021
	N	54	54	54	53	54	54
	Std. Deviation	4.50561	10.34821	4.99491	.38033	4.90249	3.62285
	Median	19.0000	55.5000	13.5000	4.6667	39.0000	23.0000
	% of Total N	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

ANOVA Table

			Sum of Squares	df	Mean Square	F	Sig.
Secondary_Traumatic_Stress * Test	Between Groups	(Combined)	170.506	1	170.506	9.792	.003
	Within Groups		905.420	52	17.412		
	Total		1075.926	53			
MAAS_Score_MD * Test	Between Groups	(Combined)	990.377	1	990.377	10.992	.002
	Within Groups		4685.150	52	90.099		
	Total		5675.527	53			
PSS_MD * Test	Between Groups	(Combined)	93.509	1	93.509	3.957	.052
	Within Groups		1228.793	52	23.631		
	Total		1322.302	53			
CES_MD * Test	Between Groups	(Combined)	.558	1	.558	4.090	.048
	Within Groups		6.963	51	.137		
	Total		7.522	52			
com_md * Test	Between Groups	(Combined)	.275	1	.275	.011	.916
	Within Groups		1273.549	52	24.491		
	Total		1273.824	53			
burnout_md * Test	Between Groups	(Combined)	39.603	1	39.603	3.139	.082
	Within Groups		656.023	52	12.616		
	Total		695.626	53			

Measures of Association

	Eta	Eta Squared
Secondary_Traumatic_Stress * Test	.398	.158
MAAS_Score_MD * Test	.418	.174
PSS_MD * Test	.266	.071
CES_MD * Test	.272	.074
com_md * Test	.015	.000
burnout_md * Test	.239	.057