Spirituality and Psychiatry

Special Interest Group

Prizewinning Essay 2012

Buddhism, Psychiatry and Chronic Disease: The Role of Mindfulness in Modern Medicine

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1. INTRODUCTION

It has been suggested that “the body is the medium by which concepts of the self are formed” (Corbin and Strauss, 1987). Therefore, it is intuitive that chronic illness, deemed to be a failure of the body, presents a monumental challenge to one’s mental health. The psychological sequelae following diagnosis of disease are well documented (Stanton, Revenson and Tennen, 2007). Although the exact mechanisms behind this association remain unclear it has been suggested that negative schema may be responsible for the high levels of affective disorders found in those suffering from chronic illness (Ingram, Miranda and Segal, 1998; Teasdale, Segal and Williams, 1994). These are thought to ensue from rumination of anxiety provoking thoughts such as the impact of a disease on one’s mortality, or in catastrophizing unfamiliar somatic stimuli.

Whilst it remains clear that those suffering from chronic illness carry a harrowing psychological burden, patients have limited access to programmes specifically designed to address psychological and spiritual adjustment to disease. This is despite the knowledge that those patients with concurrent psychological morbidity tend to have poorer clinical outcomes than those who do not (Ciechanowski, 2000; Hermann, Seidenberg and Bell, 2000; Norwood, 2006). The few interventions that do exist specifically target individual disorders and focus on distraction techniques to limit symptom burden (Grossman, Niemann, Schmidt and Walach, 2004). Clearly there is a need for a heterogeneous cost-effective intervention that specifically aims to facilitate the maintenance of psychological and spiritual well-being in patients with chronic disease.

Mindfulness

Mindfulness based mediation (MBM), also known insight-orientated meditation or Vipassana, resides at the core of Theravada Buddhist teaching and has been defined as “the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment” (Kabat-Zinn, 2003, pp.145-146). By maintaining a dispassionate state of constant vigilance one is able to observe mental phenomena in complete acceptance before allowing the thought or emotion to pass and becoming once again fully immersed in the task at hand. In employing this technique of attention regulation, practitioners are able to live in the present, capable of acknowledging both external and internal stimuli as they arise whilst not dwelling on those that may be harmful to one’s psychological health.

Mindfulness Based Stress Reduction

Developed in such a way that would be deemed as acceptable to the West, Kabat-Zinn introduced Mindfulness to the Massachusetts Medical Centre in 1979 (Praissman, 2008). The structured therapy package of Mindfulness Based Stress Reduction (MBSR) harnesses the core concept of MBM combined with Hatha yoga, a gentle form of exercise that can be readily performed by patients with a range of

physical impairments. MBSR has received much attention in recent years due to its growing popularity in conventional Western medicine and the reported empirical evidence of a clear benefit in both clinical and healthy populations.

The highly structured 8-10 week program aims to cultivate the cognitive skills of attention and awareness. It requires considerable commitment. In addition to a full day 'retreat' and weekly group sessions of approximately 2.5 hours, participants are expected hone their newly acquired skills with 45 minutes of daily practice of MBM (Praissman, 2008).

2. HOW MINDFULNESS BASED STRESS REDUCTION WORKS

Attentional Control and Rumination

Recent neuroimaging studies have demonstrated that patients with depression appear to have different patterns of brain activation on functional MRI to controls (Siegal, et al., 2002). These studies suggest that the frontal lobe has an integral role in the onset and maintenance of depression, more specifically the failure of the anterior lobe to inhibit the amygdala. This is thought to be the mechanism responsible for the excessive rumination that accompanies the onset of depression. MBSR aims replace the caustic cycle of rumination with cogitation by enhancing the attentional control of participants; the skill of thought regulation allows one to simply observe emotions in a reflective as oppose to a reactive manner, before once again assuming attentional control.

Interestingly Davidson et al. (2003) demonstrated increased left anterior brain function on electroencephalography (EEG) post-intervention in 25 participants compared to 25 controls who did not receive MBSR. Further support for this theory is provided by Ramel, Goldin, Carmona, and McQuaid (2004). In this unique study rumination was measured amongst other outcomes using the Response Style Questionnaire (the RSQ, a well accepted and reliable tool) following MBSR. Authors note significantly decreased rumination post-intervention, which had a negative correlation with symptoms of depression and anxiety. Interestingly, on conducting a regression analysis, authors found a significant association between the amount of individual MBM practice and decreased levels of rumination (Praissman, 2008).

Mood Clarity

In addition, MBSR aims to alter metacognitive processes by encouraging patients to reflect on and gain insight into their emotions. Not only is metacognitive adaptation seen as a vehicle in enhancing emotional intelligence but it is also a prerequisite of self-regulation of emotion as discussed above. Indeed, in a study of patients with rheumatoid arthritis those that achieved the greatest understanding and recognition of one's mood and emotions through MBSR had superior clinical outcomes (Zautra, Smith, Affleck and Tennen, 2001).

Cognitive change

MBSR encourages the view that thoughts are fleeting and not necessarily reflective of reality. Participants are taught that just because one has the thought that they are useless, or 'tired all the time' for example, this does not make it true. Kristeller and Hallett (1999) attribute the reported success of MBSR in patients with binge eating disorders to cognitive change. Authors argue that participants developed non-judgemental acceptance of negative thoughts surrounding their weight and the need for food and were able to recognise that these thoughts were not necessarily congruent with reality.

Exposure

It was insinuated by Kabat-Zinn (2003) that actively encouraging participants to pay particular attention to somatic pain and discomfort may lead to desensitization. The 'body-scan' technique, for example, promotes the acknowledgement of bodily pain in a safe environment. Participants are taught to focus their attention on each part of the body in turn, accepting any arising somatic stimuli, before intentionally relaxing that particular body part. This is designed to equip participants with a reflective style of coping as oppose to a reactive, hyper-emotional response. Accepting pain dispassionately, the authors suggest, is key in preventing the elicitation of catastrophization when the same symptom arises in the future. Thus MBSR acts as a form of exposure therapy, teaching participants to approach negative stimuli without excessive emotional reactivity thus improving tolerability of their symptoms.

Control

Participants are taught and encouraged to practice 'sitting meditation', which involves remaining in one position for some length of time and resisting the urge to alter their posture in response to physical discomfort. It is argued that this affords participants a sense of physical control over their symptoms. Kristeller and Hallett (1999) suggest that MBSR is able to teach patients with eating disorders the ability to simply acknowledge the urge to binge without feeling the overwhelming need to yield to such an urge.

The incorporation of Hatha yoga into MBSR has also been cited as responsible for giving participants greater authority over their bodies. As Hatha yoga teaches the use of the whole body it may serve to challenge maladaptive schemas in those with significant functional impairment due to somatic disorders (Hamilton, Kitzman and Guyotte, 2006). Practitioners report an increase in flexibility in a single class. Such change in physical ability may provide those that are chronically impaired with increased self-efficacy which is increasingly recognised as critical in improving rehabilitation outcomes (Arnstein et al., 1999).

Acceptance

Whilst it is well recognised that having an achievable goal may augment self-efficacy in rehabilitation, it is also understood this is not constructive for those who strive to regain or maintain an unattainable level of functioning (Orbell et al., 2001). Participants in MBSR are encouraged to adopt a 'non-striving' attitude and to accept physical illness and consequent limitations in a reflective rather than a reactive manner. In this way, patients are able to focus on their abilities, so called positive psychology, as opposed to their disabilities. MBSR teaching encourages positive reflection on the transiency of health and life so that participants may become aware of the anxieties they have attached to their own morbidity and mortality. Central to Buddhist teaching is the concept that suffering results from unconscious attachment to transient states such as youth, health and life; mindfulness of this lessens the influence of morbidity and mortality associated anxiety on the participant (Hamilton, Kitzman and Guyotte, 2006).

Relaxation

The benefits of MBSR are reportedly less profound in patients suffering from chronic pain states than those with an affective diagnosis. However, studies of MBSR in chronic pain groups have shown a benefit; this may be due to the relaxation effect of Hatha yoga which is reported to reduce muscle tension. Studies have also reported the clear benefit of yoga for rheumatic and musculoskeletal conditions (Garfinkel et al., 1994; Greendale et al., 2002).

3. COMPARISONS WITH COGNITIVE BEHAVIOURAL THERAPY

MBSR has been likened to Cognitive Behavioural Therapy (CBT) in that both techniques discourage emotional reactance and encourage adoption of a reflective as oppose to a suppressive or reactive coping style. As previously discussed MBSR employs the technique of desensitization that can be likened to the deconditioning effect of exposure therapy used in CBT.

The fundamental difference is that CBT assumes psychopathology, whereas MBSR does not. CBT teaches the identification of negative schema as pathological and destructive; patients are then encouraged to reject these harmful thoughts arising from pathology, in order to reduce rumination. In contrast, MBSR teaches participants to embrace such thoughts as they occur in a state of naturalistic observation. Kabat-Zinn (1990, p.3) summarises this distinction eloquently through metaphor; "if you only know how to sail with the wind at your back, you will only go where the wind blows you". By using MBSR, or "turning into the wind", we may "orient ourselves in such a way that we can use the pressure of the problem itself to propel ourselves through it". Thus MBSR actively encourages reflection on negative schema, but in a distanced manner. Hence, whilst both techniques teach the

uncoupling of thought and emotion, the process of achieving such affective detachment is incongruous.

4. LITERATURE REVIEW OF CURRENT EVIDENCE FOR MBSR

Methods

A systematic literature review was conducted to evaluate the empirical evidence of a clinical benefit of MBSR. Medline, PsycINFO and the Cochrane Library were searched using the key terms: *mindfulness, meditation, stress reduction, MBSR, vipassana, yoga.* Reference lists of relevant articles were also hand searched. All study designs evaluating the independent use of MBSR in both clinical and non-clinical populations with an abstract published in the English language were included. Excluded studies evaluated the effect of non-mindfulness meditation techniques or the combined effect of MBSR and cognitive or didactic behavioural therapy. Unpublished dissertations or conference abstracts were also excluded.

Overview

Twenty-nine studies were identified as fulfilling the inclusion criteria. The use of MBSR has been investigated in groups with an array of psychiatric diagnoses including: affective, anxiety, somatic and eating disorders; medical diagnoses including: fibromyalgia, cancer, coronary artery disease, rheumatic disease and chronic pain states; as well as nonclinical populations, students and healthcare professionals.

Somatic disorders and chronic pain

Three studies were identified as evaluating the effect of MBSR in groups of patients with chronic pain. All three were conducted by the same lead author (Kabat-Zinn, et al., 1982, 1985, 1987) using the same pool of patients. Therefore, there is considerable overlap between samples (Bishop, 2002). In addition, the studies are all relatively small, the largest consisting of 90 patients, and none employed the use of a control group. Initial results suggested some mitigation of pain; although self - reported pain did increase following completion of MBSR, it did not return to pre-interventional levels. The authors also report a significant decrease in psychological distress, and that this benefit was maintained over an extensive follow up period of 4 years.

One further study was identified reporting on the use of MBSR specifically in fibromyalgia patients (Kaplan, Goldenberg and Galvin-Nadeau, 1993). Authors note a significant reduction (39%) in psychological distress although one must take into account the serious methodological limitations of this particular study which include the lack of control group and arbitrary determinant of clinical response (Bishop, 2002).

Affective disorders

Kabat-Zinn, et al. (1992) conducted a further study in 22 patients with generalized anxiety and panic disorders. The authors report a significant reduction in symptom burden, with mean reduction to non-clinical or sub-clinical levels. The strength of the study lies in the rigorous assessment used to identify eligible patients and in the evaluation of post intervention psychological morbidity. Miller, Fletcher and Kabat-Zinn (1995) reported on a 3 year follow up of the same study sample and found that these benefits had been maintained. However, the lack of a control group in both studies and the fact that 55% of participants were also receiving pharmacological treatment during the intervention calls into question the validity and clinical applicability of these findings (Bishop, 2002).

Ramel, Goldin, Carmona, and McQuaid (2004) can also be credited on the use of well accepted and validated tools to measure anxiety and depression. Scales included: the Beck Depression Inventory (BDI), the Spielberger State-Trait Anxiety Inventory, the Dysfunctional Attitudes Scale (DAS) and Response Style Questionnaire (RSQ). The study compared 11 controls recruited from the MBSR waiting list to the 11 of the 23 participants in the intervention group who most closely matched them by baseline symptomology and epidemiological characteristics (Praissman, 2008). As discussed elsewhere in this essay authors noticed a significant difference between groups in rumination, which was found to positively correlate with depression and anxiety. However, the small sample size and lack of appropriate control group limits the generalisability of these results.

Eating disorders

Kristeller and Hallett (1999) studied the effect of MBSR in a group of 18 obese women diagnosed with binge-eating disorders. The authors report that depressive symptoms and the number of binge episodes occurring weekly were significantly reduced post intervention. A later study of 25 participants of both genders reproduced these findings, attributing the positive effects of MBSR to increased self-acceptance and reduced need for emotional eating (Smith, Shelley, Leahigh and Vanleit, 2006). Unfortunately neither of these studies demonstrated an effect on weight loss. In addition due to the small sample sizes and lack of control groups the clinical significance of these findings remains unclear.

Cardiovascular disease

A study of 18 women diagnosed with cardiovascular disease yielded positive results following MBSR on comparison with a control group of the same number recruited from the waiting list (Tacon, McComb, Caldera and Randolph, 2003). Anxiety, as measured by the STAI was significantly reduced and the women who had received MBSR were shown to have adopted a more reflective response to stress on the Courtauld Emotional Control Scale (CECS). This was thought to be of clinical importance as suppression has been implicated as a risk factor for developing cardiovascular disease. However, this change was only observed in those women

who had a habitual reactionary style of coping pre-intervention, and not those who tended to use a reflective or suppressive style (Praissman, 2008). Hence whilst this study strongly that suggests that MBSR may reduce anxiety in women with cardiovascular disease this benefit may be limited to those currently using a reactive coping styles.

Cancer

Perhaps the strongest evidence of a positive effect of MBSR is provided by Speca, Garlson, Goodey and Angen (2000). The authors conducted a randomised controlled trial consisting of 63 participants of mixed cancer diagnoses. Authors report a 65% reduction in sleep disturbance (p .001) and 35% reduction in stress symptoms (p<.001). There was a positive correlation between the effect size and time dedicated to practicing MBM outside the weekly classes. In addition it was later reported by Carlson et al. (2001) that these benefits were maintained at 6-month follow up (Baer, 2006).

Carlson, Speca, Faris and Patel (2007) evaluated the effects of MBSR in 59 patients with a diagnosis of prostate or breast cancer without psychological comorbidity. The authors reported on a number of outcomes. Whilst it was reported that there was a reduction in stress related symptoms post-intervention and that this was maintained at 1 year follow up, the effect size was moderate (d=0.4) and the improvement was independent of the amount of MBM practiced individually both during the MBSR course and post-intervention. In addition, no significant effect on immune function, dehydroepiandrosterone sulphate (DHEAS), melatonin or salivary cortisol was noted. The authors did report a decrease in mean daily cortisol but concede that due to the single day of collection and the known variation in cortisol levels that these results need to be ratified with more rigorous data collection.

Psoriasis

A randomised controlled trial of 37 patients undergoing phototherapy (UVB) or photochemotherapy (PUVA) appeared to show that the skin of those patients randomised to receive MBSR whilst undergoing treatment cleared 4 times more quickly than controls (who received PVB or PUVA alone). The study was well designed and controlled for potential bias; dermatologists evaluating photographs of skin status were blind to both patient identity and group assignment (Kabat-Zinn, et al., 1998). Although this research is most promising and warrants further investigation, the small sample size of this particular study limits the generalisability of these findings.

Heterogeneous Clinical Populations

Several further studies have reported significant stress reduction following MBSR in mixed clinical populations although none of these studies used a control group. Roth and Creasor (1997) reported improved clinical outcomes and psychological well-being following implementation of MBSR at an inner city health clinic in the United

States. However, this study suffered from huge loss-to-follow bias as only 54% of English speaking and 64% Latin American patients completed the course of MBSR (Bishop, 2002). However, this study does provide us with an interesting insight as to the acceptability of MBSR across cultures. Majumdar et al. (2002) reported on significant reductions in stress, and increased quality of life, sleep and well-being in 21 German patients with a range of medical and mental illnesses. These benefits were maintained at 3 month follow up and most participants reported that they were extremely satisfied with the intervention.

Non-clinical populations

Interestingly, Massion et al (1995) found significantly higher levels of melatonin metabolite in the urine of women who were trained in MBSR and who continued to practice MBM regularly, when compared to those who had not. It has been suggested that melatonin level may be related to immune function (Baer, 2006). In addition Davidson et al. (2003) on giving 25 participants influenza vaccines post intervention, demonstrated higher vaccine titres amongst those that had received MBSR when compared with controls. Stress reduction using MBSR has also been demonstrated in healthy volunteers (Williams, Kolar, Reger and Pearson, 2001).

Use in maintaining psychological well-being and empathy in students

Given the intensity of medical school is perhaps not surprising that higher levels of stress, anxiety, sleep disturbance and other psychopathologies are found within the undergraduate population of today. The concept of burnout is being increasingly recognised as the result of long term exhaustion and mental fatigue and is a psychological term almost exclusively applied to healthcare professionals. Several studies have indicated that MBSR is an effective intervention to reduce the prevalence of this phenomenon amongst both students and staff in medicine. Participants have cited the development of novel strategies to cope with stress as responsible for this reported benefit. Indeed, in a randomised control of trial of 300 students at Jefferson Medical College, Rosenzweig et al. (2009) found that implementing MBSR reduced total mood disturbance, as well as fatigue and depression on the Profile of Mood States. In addition, Shapiro, Schwartz and Bonner (1998) conducted a prospective, cohort-controlled study of preclinical and clinical medical students. The authors reported significant declines in depression and anxiety which were maintained across the exam period.

Interestingly this study also reported increased mean empathy scores post-intervention. The decline in empathy has been recently quantitively demonstrated in undergraduate medical, dental and nursing students and as such has become extremely topical. It has been suggested that this phenomenon may be a manifestation of stress as there is an association between decline in empathy scores and depression, anxiety and sleep disturbance. An expression of increasing cynicism may be the result of an adoption of a ‘tick box’ approach; the aim of ‘getting through’

exams demands the full attention of the student and empathy is no longer a priority. Kabat-Zinn (2003) argues that mindfulness is key in maximising the amount of contact time one has with a patient. MBSR then may be of great benefit in both stress reduction and in increasing the attentional control of students when with patients, despite having a workload that seems all consuming. Confirming the findings of Shapiro, Schwartz and Bonner, Beddoe and Murphy (2004) replicated the successful use of MBSR to significantly decrease stress and foster empathy amongst nursing students and similar findings have also been reported post intervention amongst students enrolled on a counselling psychology course (Sharipo, Warren and Biegel, 2007).

CONCLUSION

The majority of these studies show a significant stress reduction and increases in psychological wellbeing following MBSR. However there is very little definitive evidence for such a benefit. Although many studies do employ the use of a control group often controls were recruited from the waiting list to receive MBSR. This may bias the results of such studies as these subjects; clearly those interested in MBSR are more likely to believe it has a clinical benefit. Aside from the clear methodological problems associated with a lack of a control group, much of the available literature suffers from further flaws which only serve to limit the generalisability and validity of the reported results. These include: use of unvalidated tools to measure outcomes and failure to control for confounding variables such as concurrent treatment and arbitrary determination of the primary outcome measure as evidence for clinical response.

This literature review highlights the need for large trials and methodologically sound research. Yet there is evidence to suggest the potential promise of mindfulness as an effective intervention for enhancing the psychological and spiritual wellbeing of patients with wide range of medical disorders and psychiatric diagnoses, and for healthcare professionals. Whilst the biological basis of both medical and psychiatric disease is advancing exponentially, as we understand more about the human brain questions are raised as to the basis of the mind, and the interface between psychiatry, psychology, philosophy and spirituality becomes ever more interesting. This, and its concurrent growing popularity, might suggest there is a role, alongside more traditional treatments, for MBSR in modern medicine.

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