



Effects of mindfulness meditation on occupational functioning and health care utilization in individuals with anxiety



Elizabeth A. Hoge^{a,c,*}, Brittany M. Guidos^a, Mihriye Mete^b, Eric Bui^c, Mark H. Pollack^d, Naomi M. Simon^c, Mary Ann Dutton^a

^a Georgetown University Medical Center, Department of Psychiatry, Washington, DC, United States

^b Medstar Health Research Institute, Washington, DC, United States

^c Center for Anxiety and Traumatic Stress Disorders, Department of Psychiatry, Massachusetts General Hospital, Boston, MA, United States

^d Rush University Department of Psychiatry, Chicago, IL, United States

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ABSTRACT

Objectives: To examine the effect of mindfulness meditation on occupational functioning in individuals with Generalized anxiety disorder (GAD).

Methods: Fifty-seven individuals with GAD (mean (SD) age = 39 (13); 56% women) participated in an 8-week clinical trial in which they were randomized to mindfulness-based stress reduction (MBSR) or an attention control class. In this secondary analysis, absenteeism, entire workdays missed, partial workdays missed, and healthcare utilization patterns were assessed before and after treatment.

Results: Compared to the attention control class, participation in MBSR was associated with a significantly greater decrease in partial work days missed for adults with GAD ($t = 2.734$, $df = 51$, $p = 0.009$). Interestingly, a dose effect was observed during the 24-week post-treatment follow-up period: among MBSR participants, greater home mindfulness meditation practice was associated with less work loss and with fewer mental health professional visits.

Conclusion: Mindfulness meditation training may improve occupational functioning and decrease healthcare utilization in adults with GAD.

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1. Introduction

Mental illness can have a disabling effect on social and occupational functioning. Decline of occupational functioning, typically measured by days of missed work and by decreased job performance, affects not only the individual but also places a significant burden on the national economy. Occupational functioning due to mental illness results in billions of dollars lost every year in the US economy [1]. While efforts continue to reduce symptom burden in patients with mental illness through a variety of treatment methods, it is also important to examine the potential of treatments to improve occupational functioning.

Work impairment is associated with the presence of mental disorders such as depression, generalized anxiety disorder (GAD), and personality disorders [2]. Anxiety disorders in general are associated with reduced labor force participation as well as impaired work performance; in the long term, anxiety is also associated with degraded

employment trajectories [3]. Anxiety disorders have also been shown to be predictive of absenteeism, a common measure of missed work relative to work expectations [4]. Overall, the economic burden of anxiety disorders in the US is in the billions of dollars, with less than one quarter of the cost being used for medical treatment and the majority of the loss resulting from productivity loss [1].

Another potentially related economic cost of GAD is increased healthcare utilization. GAD patients have a high utilization of health care resources, particularly in the primary care setting, compared to non-anxious primary care patients [12,13]. A cohort study looking at over 10,000 people found that those with GAD have more health center visits, secondary care visits, and mental health visits than those without GAD [14]. A review article that focused on the humanistic and economic burden of GAD concluded that GAD is associated not only with higher healthcare utilization, but also with increased medical costs overall [15]. Wittchen et al. [12] noted the added economic burden due to GAD since these individuals utilize additional health services on top of their decreased work productivity [13].

Although conventional treatment for anxiety disorders includes medications and psychotherapy, an emerging treatment modality is mindfulness meditation [5]. Mindfulness-based interventions lower

* Corresponding author: Georgetown University Medical Center, Department of Psychiatry, 2115 Wisconsin Ave NW, Suite 120, Washington, DC 20007, United States.

E-mail address: ehoge@partners.org (E.A. Hoge).

psychological distress and anxiety symptoms [6] as well as perceived stress [7], suggesting that they can mitigate some symptoms of mental illness. Mindfulness-Based Stress Reduction (MBSR), a popular mindfulness meditation training program, has also been shown to improve stress and sleep quality in working adults specifically [8]. In addition, workplace mindfulness training results in improved job performance and work engagement [9], reported not only by the employees but also in employer-rated job performance measures [10]. Interestingly, in a study of mindfulness at work, individuals who received the mindfulness intervention experienced higher job satisfaction and less emotional exhaustion compared to those in the control groups [11]. Taken together, these data support the hypothesis that mindfulness meditation training may be effective in improving absenteeism and decreasing occupational functioning in individuals with anxiety disorders, including GAD. To date, however, this hypothesis has not been examined.

Past research also supports the idea that mindfulness meditation may help reduce health care over-utilization in the general population. A recent cohort study of 4452 individuals that participated in a type of meditation training that included mindfulness demonstrated a decrease in clinical encounters by nearly 42% compared to their pre-treatment utilization [16]. In another study of 73 volunteers, the 8-week Mindfulness-Based Stress Reduction (MBSR) class, a popular mindfulness meditation training program intervention, was associated with a decreased number of total medical visits as well as chronic care visits compared to before the intervention [17]. One study showed that among individuals with high healthcare utilization, mindfulness based cognitive therapy, a class similar to MBSR but containing cognitive psychotherapy, resulted in a significant decrease in non-mental health utilization compared to controls [18]. In a more recent study, researchers found that mindfulness training was associated with fewer primary care visits and decreased overall healthcare costs, but increases in pharmacy costs; the authors suggest that, taken together, the findings may reflect in the increase in individuals' self-care [19]. Although this data suggest that mindfulness meditation and MBSR in particular may be effective in decreasing health care utilization associated with GAD, no study has tested this hypothesis to date.

In this secondary analysis of a previous published clinical trial [20], we examined data not previously analyzed, from the Health Performance Questionnaire (HPQ). We hypothesized that participation in a MBSR group intervention, compared to a control condition, and would be associated with decreased work loss, absenteeism, and healthcare utilization among individuals with GAD. Further, we hypothesized that those participants who practiced mindfulness more frequently after the intervention (during the follow-up period) would have a greater improvement in work-related variables.

2. Materials and methods

2.1. Participants and procedures

The participants in this study were recruited for a clinical trial examining mindfulness meditation based stress reduction (MBSR) compared to a stress management education control (SME) as a treatment for GAD. Participants in the current study were a subgroup of the parent RCT sample that were either randomly assigned to mindfulness or SME. The Health Performance Questionnaire was added to the study when it was already underway, resulting in a smaller number of participants compared to the parent study ($n = 57$ compared to $n = 93$). Details about patient recruitment, diagnosis and enrollment are reported elsewhere [20]. Briefly, after obtaining consent, study clinicians interviewed potential individuals for study eligibility, using the Structured Clinical Interview for DSM-IV (SCID) [21]. Inclusion criteria included (1) meeting DSM-IV criteria for current primary GAD and designated GAD as the primary problem and also (2) scoring 20 or

above on the Hamilton Anxiety Rating Scale (HAM-A) [22]. The demographic and clinical characteristics of the study sample are reported in Table 1. Participants completed assessments at baseline (week 0), end-point (week 8), and follow-up (week 24).

2.2. Intervention

The Mindfulness-Based Stress Reduction intervention has been described elsewhere [20]. Briefly, the intervention included 8 weekly group classes that were taught by an instructor with 8 years of experience. The individuals also participated in a "retreat" day and were given daily home practice assignments guided by audio recordings. The weekly group classes included breath-awareness, a body scan, and gentle Hatha yoga. These practices were used in order to cultivate an awareness of individuals' internal present-moment experiences with acceptance and non-judgment. Those randomized to the control group received stress management education (SME) for 8 weeks which did not include any mindfulness components. This group also had homework exercises and a weekend "special class" so the time spent in the SME matched the intervention group. The SME course was didactic in format and provided information about topics relevant to stress such as time management, nutrition, exercise, and sleep.

2.3. Instruments

2.3.1. Health performance questionnaire

The World Health Organization Health Performance and Work Questionnaire (HPQ) is a widely used self-report questionnaire used for quantifying workplace performance [23,24]. The HPQ scale is a 28-item scale with questions regarding work performance, productivity, and work absence. This study used the 6-Month Short Form version of the HPQ plus the healthcare utilization section, as was provided to us by the Kessler group. The HPQ has been shown to have good reliability, validity, and it is also sensitive to change [25]. The HPQ measure of absenteeism has significant associations with employer payroll records and is therefore a valid measure of assessment [23]. Absenteeism, healthcare utilization, and work missed were assessed with the HPQ (see details below). Participants completed the HPQ at baseline (week 0), post-intervention (week 8), and after the follow-up period (week 24).

2.3.1.1. Work loss. Absenteeism is a measure of hours of work missed relative to expected number of work hours. The HPQ measure of absenteeism is based on the following questions regarding hours worked and employer's expectations: "How many hours does your employer expect

Table 1
Demographic and Clinical Characteristics.

Characteristic	Mindfulness Based Stress Reduction (N = 27)	Stress Management Education (N = 30)	p-value
Sex: N (%)			0.93
Male	12 (44%)	13 (43%)	
Female	15 (56%)	17 (57%)	
Race: N (%)			0.70
White	18 (81.8%)	22 (84.6%)	
Black	1 (4.5%)	2 (7.7%)	
Asian	2 (9.1%)	2 (7.7%)	
Other	1 (4.5%)	0 (0%)	
Employment Status			0.34
Employed	27 (100%)	29 (97%)	
Unemployed	0 (0%)	1 (3%)	
Age (years): Mean (SD)	41.1 (14.7)	37.7 (10.9)	0.32

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