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Impact of mindfulness-based cognitive therapy on health care utilization: A population-based controlled comparison

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ABSTRACT

Objective: Elevated rates of mood and anxiety disorders among high utilizers of health care have been suggested as one driver of increased service use. We compared the impact of Mindfulness Based Cognitive Therapy (MBCT), a structured group treatment, on the rates of health care utilization with matched control participants receiving non-MBCT group therapy.
Methods: Using Ontario health administrative data, we created a retrospective cohort of population-based patients receiving MBCT and an age- and gender-matched (3:1) cohort of non-MBCT group therapy controls. Subjects were recruited between 2003 and 2010 and stratified according to high/low rates of primary care utilization, with the high utilization cohort being the cohort of interest. The primary outcome was a reduction in an aggregate measure of non-mental health utilization comprising Emergency Department, non-mental health primary care, and non-psychiatrist specialist visits.
Results: There were 10,633 MBCT recipients, 4851 (46%) of whom were high utilizers. The proportion of high utilizers was 13,274 (45%, N = 29,795) for non-MBCT group therapy controls. Among high utilizers, there was a significant reduction in non-mental health utilization among MBCT recipients compared to non-MBCT group therapy recipients (0.55 (0.21–0.89)) suggesting that for every two MBCT patients treated, there is a reduction in 1 non-mental health visit.
Conclusion: Among high utilizers of primary care, MBCT reduced non-mental health care utilization 1 year post-therapy compared to non-MBCT, group therapy controls. The reductions suggest that MBCT, an established treatment modality for a variety of mental illnesses, has the added benefit of reducing distress-related high health care utilization.

Introduction

In most segments of health care delivery, a relatively small proportion of individuals utilize the majority of service resources [1,2]. In the primary care setting, "high-utilizers" of primary care services have been systematically evaluated [3–6]. Approximately half of high-utilizers of primary health care are distressed, and a substantial proportion of these individuals meet diagnostic criteria for major depression, dysthymic disorder, generalized anxiety disorder or somatization disorder [3]. Interventions to systematically assess and manage psychiatric conditions among high-utilizers have been implemented, initially with positive results with respect to improved depression outcomes [7], with more recent studies unable to replicate the earlier positive findings [8]. While the outcomes for depression remain mixed, there is little evidence to suggest that interventions aimed at high utilizers of health care resources, whether they address underlying distress or target high health care use specifically, reduce their high service utilization patterns.

Mindfulness-based cognitive therapy (MBCT) is a structured, evidence-based psychotherapy that combines elements of cognitive behavior therapy with mindfulness meditation. It is delivered in a group format over 8 weekly, 2 h sessions. Initially, MBCT was designed to prevent relapse among those suffering from recurrent depression [9,10], but has since been applied to individuals with chronic pain [11], anxiety [12], and somatization conditions [13,14]. There is recently published evidence that MBCT is effective at improving mental and social functioning for individuals who are frequent health care utilizers with medically unexplained symptoms [15]. The study suggested shifts in health care utilization towards increasing mental health care and reduced hospitalization, but was likely underpowered to detect health care utilization and cost differences [16]. Other studies have shown that MBCT has significant economic benefits such as reduced duration of disability days and/or disability insurance costs for somatization

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disorder, a more severe and disabling form of the phenomenon of somatization [17]. One reason for MBCT's effectiveness with somatizing patients may lie in the reduction of anxious and depressive symptoms [3]—a consequence of the program's original focus on mood disorders. More intriguingly, however, is the fact that MBCT trains adaptive skills in attentional control [18] and teaches patients how to reduce excessive attending to somatic sensations and rumination about the potential negative consequences of bodily sensations [19] . As recent qualitative data indicate, [20] these skills enable patients to tolerate greater degrees of uncertainty and encourage accepting, rather than resisting, distressing thoughts and emotions. As such, they may be especially relevant to individuals who are high-utilizers of primary care and other health services [3] because, as one recent qualitative study indicated, they promote approach and acceptance rather than resistance. If, as the literature suggests, one of the drivers of high service utilization is the uncertainty, worry and fear that is reduced by primary care consultation [21], it is reasonable to assume that treatment with MBCT would reduce service utilization by raising the subjective threshold for this type of worry fueled outreach to primary care [22].

The objective of the present study was to determine whether a population-based sample of high-utilizers uses fewer health care resources following exposure to MBCT. We conducted a controlled study, using individuals who received traditional, non-MCBT group therapy to test the specificity of any changes observed that could be attributable to MBCT versus the benefits provided by generic group treatment. We hypothesized that MBCT would reduce non-mental health service utilization, but would not have an impact on mental health service utilization.

Methods

Setting and design

This study used a retrospective cohort design and took place in Ontario, Canada where physician visit billings, hospitalizations, and Emergency Department visits are captured in administrative health databases under Ontario's universal health care setting.

Data sources

Demographic data such as age, gender, and income quintile (measured as average income from patients' neighborhoods, and based on census data) were obtained from the Registered Persons Database. Emergency Department (ED) visit data were obtained from the National Ambulatory Care Reporting System (NACRS), a database that captures information on every ED visit in Ontario. Physician visit data were obtained from the Ontario Health Insurance Plan (OHIP) database, which captures information from physician billings, including type of physician, nature of service provided and visit date.

Study participants

There were two separate cohorts: a cohort of patients who received MBCT group therapy and a cohort of patients who received non-MBCT group therapy. The non-MBCT group therapy control sample was matched 3:1 with the MBCT group therapy sample based on age (within 5 years), gender, service utilization level (high vs. low) and the year the group therapy started. Patients were recruited starting April 1, 2003 until March 31, 2010. We were able to capture MBCT recipients because we were able to identify trained MBCT therapists (psychiatrists or primary care physicians) who submit group therapy billings and for whom the group billings would only be for MBCT. By identifying these physicians who only bill MBCT-based group billings, we were able to assemble a highly specific, population-based sample of MBCT group therapy recipients. In other words, using therapists who only submit group therapy billing codes for MBCT in Ontario, we were able to identify a population-based cohort of patients who received MBCT by virtue of the fact that they were the patients identified by the MBCT specific group therapy billings. In total, there were 15 primary care physicians and 9 psychiatrists who submitted MBCT-specific group therapy billings. The non-MBCT group therapy sample was captured using psychiatrist group billings from non-MBCT practitioners. In Ontario, psychologist billings are not captured in the administrative data. We restricted to psychiatrist billings because very few primary care physicians bill group therapy, and the patients receiving group therapy from psychiatrists are more likely to reflect a similar patient population as patients receiving MBCT. Non-MBCT group therapy would include cognitive behavioral therapy (CBT), interpersonal psychotherapy, and psychodynamic group psychotherapy. While we are unable to ascertain the exact nature of the group therapy these patients received, our objective was to create a population-based cohort of individuals who received non-MBCT group therapy. Restricting to psychiatrists who submit billings for group therapy in Ontario would result in a patient population receiving group therapy that is more comparable to trained MBCT therapists (both primary care physicians and psychiatrists) than any group therapy billed by any physician in Ontario.

The main exclusion criterion for the non-MBCT control group was receipt of MBCT from a MBCT-specific group therapist. Patients were excluded from both cohorts if they were younger than 15 or older than 105 years of age, a non-Ontario resident, ineligible for Ontario health care in the 1 year prior to starting MBCT or non-MBCT group therapy, or not having a minimum of 12 months following the end of MBCT. The MBCT end date was defined as 12 weeks following the first group therapy claim. The study groups were categorized as high utilizers of primary care (the most common and frequent health care use) based on the number of physician visits per year for the highest two quintiles of primary care use in the Ontario population. Primary care use was chosen for the high utilization definition to be consistent with previous literature on high utilization [3,5] and because primary care visits in Ontario are, by far, the most prevalent type of health care consumed. Individuals who seek group psychotherapy are likely to be higher health care utilizers than the general population. To address this bias, we generated a distribution of primary care utilization that was representative of the entire population, and not just group therapy recipients, to capture the highest two quintiles (top 40%) of primary care utilization. We first created a random sample of the general population (age- and sex-matched to the MBCT cohort) ($N = 10{,}313$). For this population-based sample, the cut-off for the upper two quintiles of primary care visits in this random sample of age- and sex-matched Ontario residents was 5; 38% of the age- and sex-matched random sample of Ontario residents had 5 or more primary care visits. Accordingly, we used this general population-based primary care high utilization cut-off for the MBCT and non-MBCT cohorts.

Outcomes

Our primary outcome was an aggregate measure of non-mental health service utilization, including Emergency Department (ED) visits, non-psychiatrist specialist visits, and non-mental health primary care visits. We measured all of these variables individually and in aggregate 12 months prior to therapy initiation and 12 months after therapy termination. Specifically, we measured the post-therapy vs. pre-therapy difference in mean number of visits to the non-mental health service providers (ED visits, non-psychiatrist specialist visits, and non-mental health primary care physician (PCP) visits). We secondarily measured psychiatrist and mental health PCP visits in the same time period. PCP visits were categorized as mental health-related vs. non-mental health related based on a validated algorithm [23].

Covariates

We captured demographic information about age, gender, and income. We also measured medical comorbidities (incident acute