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## LETTER TO THE EDITOR

## MINDFULNESS-BASED COGNITIVE THEORY ON CANCER PAIN MANAGEMENT: COMMENTS ON THE OUTCOMES OF THE AARHUS UNIVERSITY HOSPITAL RESEARCH PROTOCOL

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**Abstract**

Over the last 20 years a branch of 'Mindfulness-Based Interventions' (MBIs) has been strongly introduced against anxiety and depression. In between, practitioners perform 'Mindfulness-Based Cognitive Therapy' (MBCT) to cancer patients in order to assist them manage the intensity of cancer pain. The World Health Organization (WHO) and the Society of Behavioral Medicine (SBM) communicated very recently that MBIs should be used against cancer pain to compliment the effect of medical drugs. However, the scientific community is still quite skeptical regarding the efficacy of MBCT on cancer pain management, since there is a lack of proper scientific evidence in clinical trials. This article makes comments on the outcomes that were obtained by a single research protocol in Denmark. The published studies tested the efficacy and cost effectiveness of MBCT. What is more, the findings are reflected, as well as further considerations and suggestions are communicated throughout this article.

**Keywords:** Cancer Pain Management, Mindfulness-Based Cognitive Therapy, MBCT, Mindfulness-Based Interventions, Psychooncology.

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## INTRODUCTION

According to the 'World Health Organization' (WHO) 'types of cancer' are some of the leading causes of death and morbidity globally, while about 80% of terminal cancer patients suffer from 'moderate' or 'severe' pain that lasts in average 90 days.<sup>1</sup> 'Cancer pain' does not exclusively concern severe and latest stages of the illness, but rather there are individuals who experience pain throughout all stages of the disease.<sup>2</sup> These types of cancer pain are treated mainly by the use of medication, which is commonly referred as 'pain relief'.<sup>1</sup> The use of alternative approaches for 'pain management' is also supportive and strongly proposed to be combined with proper medication in parallel.<sup>1,3</sup>

Pain management strategies have to consider the intrigued interplay of emotions, since the illness is linked with bodily damage, death and psychological phenomena such as fear, anxiety and depression.<sup>1</sup> These interact in a vicious cycle of agony for the patient and which may increase the perception of pain.<sup>4</sup> Currently, it is commonly accepted that pain management and pain relief have to be designed individually for each cancer patient, since there is strong evidence that the most effective results come after the application of the 'people-centered' approach of pain in the disease.<sup>1,3,5</sup> The inter-professional pain relief and management design in biopsychosocial standards<sup>6,7</sup> to increase 'Quality of Life' (QoL) concerns the field of 'Behavioral Medicine'.<sup>8</sup> Recently, the 'Society of Behavioral Medicine' (SBM) in its position/statement for non-opioid treatment encouraged practitioners to deliver 'Mindfulness-Based Interventions' (MBIs) for persistent pain in medical disorders including cancer.<sup>3</sup>

Initially, MBIs -which mainly include 'Mindfulness-Based Stress Reduction' (MBSR) and 'Mindfulness-Based Cognitive Therapy' (MBCT)- were introduced against anxiety and depression.<sup>9</sup> In fact, MBCT is a product of merging

MBSR with 'Cognitive Behavioral Therapy' (CBT) for 'major depression disorders' and their relapse.<sup>9</sup> An early meta-analysis found MBSR and MBCT to be indeed effective against depression and anxiety for cancer patients.<sup>10</sup> The idea of applying MBCT in further psychological issues was then introduced<sup>11</sup>, for which a review (N= 955) by Piet et al.<sup>12</sup> discussed that mindfulness-based therapy decreased symptoms of anxiety and depression in cancer patients and showed general improvement of mindfulness skills. The concept of MBCT contributing directly to 'pain management' though, is very new and is supported from a very limited amount of literature that does not cover all types of cancer, and whose effect size is small. Hence, little is currently known regarding the efficacy of MBCT directly on cancer pain management for people being diseased at the time of the delivery of the intervention.

## THE AARHUS UNIVERSITY HOSPITAL RESEARCH PROTOCOL

At this particular juncture, it is quite possible that only one research protocol tested the efficacy and efficiency of the intervention in a clinical trial. More specifically, the researchers of a Danish study intended to test whether an 8-week MBCT intervention would have any significant result against the perception of cancer pain for 129 female breast cancer patients in Aarhus University Hospital, Denmark.<sup>13</sup> The control was a wait-list group. The MBCT intervention was delivered by an experienced practitioner and it is reported as successful, since statistical differences were obtained in (i) overall pain intensity, (ii) present pain intensity and (iii) neuropathic pain until the 6 month follow-up. It is noteworthy that there were no initial baseline differences, while no significant differences were found between the levels of psychological distress in contrast to previous research, as the authors

discussed. The study was supported by 4 different bodies and took place between 2012 and 2013, while 2 out of the 6 authors declared potential conflicts of interest. Furthermore, the trial is likely to be considered of high quality standards if any assessment tool such as *CONSORT 2010 checklist*<sup>14</sup>, *PRISMA 2009 Checklist*<sup>15</sup> and *RE-AIM checklist for systematic reviews*<sup>16</sup> would be used for its evaluation.

Moreover, the dataset that was used in the Danish RCT has been probably used in two more studies published under almost the same authorship. The studies were identified, and indeed they probably concern the same setting, population and juncture. To justify this assumption, all articles referenced that they were approved by the Regional Science Ethical Committees (registration No.: 1-10-72-460-12) and preregistered at [clinicaltrials.gov](https://clinicaltrials.gov) (NCT01674881).

The first of those studies shows that between the five mindfulness traits –which include ‘observing’, ‘describing’, ‘acting with awareness’, ‘non-judging of inner experience’, and ‘non-reactivity to inner experience’- only non-reactivity was found to have an effect.<sup>17</sup> A significant effect was also found for ‘catastrophizing’ due to cancer pain. Though, when non-reactivity and pain catastrophizing were tested as predictors on the effect, only catastrophizing was found significant and attributed by 78%. In addition, regardless of the significant findings on cancer pain management, anxiety and depression symptoms were not improved. It is noteworthy that a study that included 76 cancer survivors found that cancer pain continued after the illness was cured.<sup>18</sup> The intensity of the pain, depression and QoL were predicted by ‘non-judging’ and ‘acting with awareness’ facets, while the authors concluded that mindfulness may have a positive impact on ‘pain experiences’ in their study, after cancer survival.<sup>18</sup> In the second related published article by the

Danish protocol, Johannsen et al.<sup>19</sup> found that MBCT costs 240 € for every woman who suffered from breast cancer during the intervention, and 6 months after the total cost to sustain the pain reduction results was 1,706 €. The control group on the contrary cost totally 2,436 €. The researchers reported cost-effective results for MBCT with a probability score of 85%. This outcome may have to be reflected for further research, since a cost effective intervention on cancer pain management may serve well to decrease any public spending on any domestic public health system, or private organizations and companies.

## **OUTCOME OF THE PROTOCOL & RECOMMENDATIONS**

Considering the outcomes and the quality of the studies published by the Aarhus Hospital University research protocol, a few considerations should be raised.

To begin with, as already reported, previous literature from early 2000’s show that cancer pain management is conceived as an issue that concerns the general sphere of catastrophizing and psychopathology in terms of anxiety and depression. On the other hand, the outcomes of the Aarhus protocol may suggest that future studies that investigate the efficacy of MBCT in cancer pain management may consider that the intervention aims only to decrease the sense of pain, while any other parallel psychotherapeutic method may serve to deal with symptoms of anxiety and depression regardless of the issue of pain management.

Secondly, another main consideration is that MBCT may be cost effective. This may result in any possible adaptation of the intervention at any domestic health system. It is quite likely that if MBCT compliments pain relief strategies as an effective pain management method, it may be of some benefit to be adapted and performed at clinical settings. Additionally, it may provide some support

to cancer patients who are required to limit their level of productivity at their work. Practically, private organizations may consider whether the cost of the intervention would benefit enough any of their employees who suffer from cancer pain, and whether this cost should be covered in order for their employees to increase their level of productivity in retrospect.

Further, it is reflected that there is a clear absence of proper scientific evidence in the field. The Aarhus protocol was used in 2012, while the articles started to be published in 2016. The findings need to be retested at least in other cultures, types of cancer, clinical settings and male or mixed-gender populations. Thus, there is a clear need for future RCTs to test the efficacy of MBCT by providing a proper study design for cancer pain management and use reliable scientific measurements. It is highly recommended to researchers at the field of public health and occupational psychology to test relevant questions.

## CONCLUSIONS

To conclude, MBCT is a very new psychosocial intervention in the broad field of cancer pain management. Probably, MBCT may have been introduced only during the last two years, when WHO separated clearly 'pain relief' and 'pain management' and the SBM communicated to practitioners that mindfulness practices should be delivered for the benefit of cancer patients. Currently, there is a lack of clinical trials that investigate any related outcomes. Consequently, no safe scientific conclusion can be drawn in favor or against MBCT. Unfortunately, almost all evidence on peer-reviewed publications derives probably from a single research protocol in Denmark that resulted in the publication of three studies. The clear messages that are reflected from the outcomes of the Danish research protocol are that psychological

distress may have to be excluded in future RCTs on cancer pain management and that MBCT might be cost effective for cancer patients. As a result, much research is needed in order to test whether MBCT should be adapted in domestic public health systems or the cost of MBCT sessions should be covered by private health insurance companies. Lastly, future RCTs may also test if MBCT can increase the productivity of employees with mild or severe cancer pain.

## DISCLOSURE/CONFLICT OF INTEREST

The authors declare no conflict of interest, while no funding was received by any source or organization for the conduction of this article. There is nothing more to be disclosed.

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Cancer is one of the major 21<sup>st</sup> century chronic diseases, and it is still growing in numbers. Therefore, cancer pain is one of the most sensitive and serious issues in Behavioral Health. Further studies are needed, as well as investment in research may be beneficial for all parties involved.

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