Complementary Therapies in Clinical Practice 28 (2017) 26–37

Contents lists available at ScienceDirect

Complementary Therapies in Clinical Practice

journal homepage: www.elsevier.com/locate/ctcp

Citation patterns and trends of systematic reviews about mindfulness

Alberto Chiesa [a, b], Teresa Fazia [c], Luisa Bernardinelli [c], Gabriella Morandi [c, *]

[a] Istituto Mente e Corpo, Bologna, Italy
[b] Associazione di Psicologia Cognitiva - Scuola di Psicoterapia Cognitiva, Roma, Italy
[c] Department of Brain and Behavioral Science, Medical and Genomic Statistics Unit, University of Pavia, Italy

ARTICLE INFO

Article history:
Received 6 February 2017
Received in revised form
22 April 2017
Accepted 27 April 2017

Keywords:
Citation analysis
Mindfulness-based interventions
Mindfulness-based stress reduction
Mindfulness-based cognitive therapy

ABSTRACT

Objectives: We performed a citation analysis of the literature about mindfulness aimed at describing the most significant topics and the impact of more relevant papers.
Methods: We classified 128 systematic reviews about mindfulness-based intervention retrieved in Scopus according to their object, the population included and the type of mindfulness proposed. The citation counting was reported. The cumulative citation numbers per chronological years and article life were analyzed thorough a linear regression model.
Results: 1) We observed a general increase in the number of reviews published from 2003 to 2016; 2) two reviews collected the 33% of the overall citations; 3) citation counting for clinical and mixed population collected the 90% of total citations; 4) clinical reviews had higher cumulative citation per publication/year growth.
Conclusions: As mindfulness research advances, higher attention should be given to the mechanisms by which mindfulness interventions work so as to provide fruitful insights for future research.

1. Introduction

In the last two decades, the concepts of both mindfulness and clinical interventions based upon mindfulness meditation practice have received growing attention within the scientific community [1–3]. The concept of mindfulness is rooted in Buddhist philosophy and mindfulness meditation practice is a key element of several types of Buddhist meditation including, among others, Vipassana [4] and Zen [5] meditation. The original term of what is commonly referred to as mindfulness is *Sati*, a Sanskrit word traditionally used to indicate a state of lucid awareness of what is occurring within the phenomenological field [6]. Specifically, mindfulness is commonly defined as a direct understanding of what is occurring before or beyond conceptual and emotional classifications, about what is taking or has taken place [7]. Although traditional descriptions provide an intuitive understanding of mindfulness, they do not easily lend themselves to an operationalization that could be employed within modern psychological theoretical frameworks [1,8]. Indeed, there is not yet complete consensus within modern Western psychology as to how the construct of mindfulness should be properly conceptualized (e.g. Refs. [1,8–10]). However, there is at least some consensus over the fact that mindfulness involves both intentional attention directed towards present moment experience, coupled with a specific attitude with which such attention is directed, characterized by acceptance and non-judgement of such experience as it is (e.g. Refs. [11–13]). While considering the term “mindfulness”, a critical issue relevant to its scientific investigation concerns the notion that the such term is frequently used in different contexts, including: (1) traditional long-term meditation practices, including Vipassana and Zen Meditation, designed to cultivate and maintain a state of mindfulness, usually within spiritual paths such as Buddhism, (2) modern shorter clinical interventions aimed at reducing psychological and/or physical suffering related to different clinical conditions, (3) a specific state that arises only when the individual is purposely attending to present moment experience and (4) a mental trait that is thought to be inherent within everyone's experience that could differ both among and within different individuals at different time points [1,11,14,15]. It is worth noting that, during recent years, large attention has been given to several modern secular Mindfulness Based Interventions (MBIs). The first of these interventions was Mindfulness Based Stress Reduction (MBSR). MBSR is an 8 weeks meditation program, including weekly 2-h-and-a-half sessions, a 1-day retreat, daily homework and the request to mindfully attend to

* Corresponding author. Department of Brain and Behavioral Science, Medical and Genomic Statistics Unit, University of Pavia, 27100, Italy.
E-mail address: gabriella.morandi@unipv.it (G. Morandi).

http://dx.doi.org/10.1016/j.ctcp.2017.04.006
1744-3881/

present moment experiences one or more times daily as a means to generalize formal practice to one's own life, originally developed for people suffering from various chronic pain conditions [12,16]. Mindfulness Based Cognitive Therapy (MBCT) was later developed as an 8 weeks mindfulness meditation program, combining elements of the MBSR program [12] with elements of cognitive behavioral therapy for major depression [17] with the aim to reduce the risk of depression in people with a prior history of major depression episodes [18]. Several other mindfulness-based interventions have subsequently been developed based upon these interventions and modified for specific psychological and medical conditions, including, among others, Mindfulness Based Relapse Prevention (MBRP) [19], Mindfulness based Fitness Training [20] and Mindfulness based Childbirth and Parenting [21]. Although some of the available studies are limited by some methodological shortcomings a large amount of evidence currently suggests the clinical efficacy of such interventions (e.g. Refs. [2,22]), even when they are delivered as online programs [23].

Additionally, the effects of mindfulness training have occasionally been investigated as a brief (e.g. 10 min) mindfulness induction interventions (e.g. Refs. [24,25]). Some authors pointed out that such interventions should be better labeled as brief "acceptance-based processing" (or with other labels that take into account the specific subcomponents of mindfulness treatments under investigation in each study) rather than mindfulness training or mindfulness-based interventions [15]. However, such brief laboratory induction have also been considered as an important means to investigate state mindfulness, as well as an aspect of understanding how the cognitive system incorporates new information or procedures and what short term effects such change can have [1,15].

Finally, in other cases, mindfulness is described as a dispositional mental trait (e.g. Refs. [26,27]) which could arise as a result of a complex interaction of genetic predisposition, environmental circumstances but also explicit training [14]. Indeed, although levels of dispositional mindfulness can vary both among different and within single individuals at different time points depending on factors other than explicit training, there is consistent evidence to suggest that mindfulness training increases dispositional mindfulness levels and that these changes are, in turn, associated with clinical outcomes [28,29].

On the other hand, it is worth mentioning that mindfulness (often referred to as "open monitoring" as well) training is sometimes associated with concentration (or "focused attention") meditation training, a different kind of meditation practice in which subject's attention is directed towards a single point as a way to achieve a state of mental absorption [30–32]. Similarly, other kinds of meditation exist in which particular qualities, such as loving-kindness or compassion, are evoked. Although these practices are linked to traditional mindfulness meditation practice, such that they are frequently cultivated in conjunction with mindfulness practice, consistent evidence suggests that they are associated with significantly different neuropsychological and neurobiological correlates (e.g. Refs. [31–34]). Consequently, these meditation practices are excluded from the present review, unless a given review focuses on different approaches including both interventions mentioned in this paragraph and other conceptions of mindfulness mentioned above (see the methods' section for more details).

Additionally, a number of psychological interventions including, among others, Dialectical Behavior Therapy (DBT) [35] and Acceptance and Commitment Therapy (ACT) [36], are sometimes included among modern mindfulness-based interventions [22,37]. Note, however, that interventions such as DBT and ACT only partially rely on formal mindfulness training. Indeed, they are largely based on cognitive exercises and are characterized by significant differences compared with the descriptions of mindfulness mentioned above [9,38]. Accordingly, reviews focusing on these interventions will also not be considered, unless a given review focuses on different interventions including both interventions mentioned in this paragraph and other conceptions of mindfulness mentioned above (see the methods' section for more details). Finally, this review does not address Langer's model of mindfulness [39,40]. Indeed, Langer's model of mindfulness includes factors such as alertness to distinctions, contexts, multiple perspectives, and openness to novelty [41] and it usually involves working with material external to the participants, such as information to be learned or manipulated. As Langer herself has explained [39], such mindfulness training should be distinguished from other types of mindfulness.

In Pubmed, the most popular biomedical database, the word "mindfulness" has been indexed has "Mesh terms" in 2014. On August 2, 2016 the search for "mindfulness" in Title yielded 2136 papers, 74% of them were published in the last 5 years, the oldest dated 1982 [42]. In Scopus, a multidisciplinary database, the documents retrieved were 4119, the oldest dated 1979 [43].

The rich collections of studies concerning "mindfulness" have required comprehensive and exhaustive summaries of the outcome of all published studies to draw some useful conclusions, opportunity provided by the reviews of the literature. It is worth noting that several reviews have been conducted specifically to bring more knowledge to clinical practice. In addition, reviews of the literature, if conducted systematically, are better in quality, as they provide a detailed description of both the search strategy and the criteria of the studies that can be included [44]. Often, when data made it possible, reviewers also performed meta-analyses, a statistical combination of the result of more papers.

In recent years, the scientific community has seen an increment in the use of a new tool for the treatment of scientific literature results: the bibliometric and citation analysis. Databases such as Scopus, Web of Science and Google Scholar, have been recognized by scholars as useful tools for assessing the scientific relevance of a research topic. By using bibliometric indicators and citation counting, the trends of scientific topics can be better assessed, core journals can be better identified and the productivity and quantification of the impact of papers can be better evaluated as well.

To date, most scientific fields have been investigated by bibliometric and citation analysis; in medicine they include: cancer [45,46], neuroimaging [47], engineering [48], management [49], computer sciences [50] and social sciences [51]. Nevertheless, the use of citation data is controversial and citation behavior is studied in information science and sociology; their use allows for the evaluation of the scientific impact of the literature avoiding any presumption about their quality.

Recently, the increasing interest of scholars and healthcare professionals in using social media and e-tools, has led to new approaches to control the visibility of a journal article. Altmetrics Score (AS), introduced by Priem and Costello [52], is the impact of a work based on metrics such as article views, downloads, or mentions in social media or news media. The final score is a weighted composite score that includes, among others, Twitter, Facebook, Wikipedia, Mendeley (an online reference management and sharing portal). Priem and Costello [52] found that Twitter citations are generated considerably more quickly than traditional citations, with 40% occurring within 1 week of the cited resource's publication.

The citation analysis applied to systematic reviews allowed us to