

Mindfulness Training Intervention to Manage Stress and Burnout : A Bibliometric Review

Mindfulness Training
Intervention to Manage
Stress
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Abstract

Purpose- Mindfulness training is an emerging area in the field of research. There has been increased interest in this area on account of its usefulness to manage stress and prevent burnout. Yet there is limited research in the said area. Most research has either empirically examined the relationship of mindfulness training and burnout with other variables or it is a systematic review of literature in a sub-domain in that area. In this study, bibliometric analysis of Scopus listed publications is used to visualize the relationships between mindfulness training and burnout. Bibliographic coupling using VoSViewer was performed on the 87 Scopus publications obtained by using the keywords "mindfulness training" and "burnout". The application of bibliographic coupling resulted in 6 clusters. The themes of these 6 clusters as well as details of the top publications are examined in detail to understand the state of research in the area.

Purpose: Mindfulness as a concept emerges from Buddhist principles. Mindfulness training is an emerging area of research, particularly in the context of its usefulness in managing stress and also in preventing burnout. In this research paper, the authors aim to systematically present the research in the field of mindfulness training and burnout with reference to most cited publications, countries, journals that are contributing the most to said area of research.

Design/Methodology: This study analyses bibliometrically the links between mindfulness training and burnout for the listed publications in Scopus. For this research paper, the open software VOSviewer (van Eck and Waltman, 2010) was used to analyse the coupling of research papers in the area of mindfulness training and burnout to visualize the publications in this area in terms of the authorship. In this case, bibliographic coupling was carried out using VoSViewer with the sample of 87 Scopus publications obtained by using the keywords "mindfulness training" and "burnout".

Findings/Conclusion: The bibliographic coupling analysis revealed six clusters. The overall structure of the cluster are: Cluster 2 (760), Cluster 1(462), Cluster 3 (300), Cluster 4 (296), Cluster 5 (159) and Cluster 6 (25). The critical papers that link the clusters are Roeser et al., (2013), Mackenzie, Poulin, Seidman-Carlson (2006a), Fortney et al., (2013, p.412), Dobkin, Hutchinson (2013), Moody et al., (2013) and O'Mahony et al., (2017). The application of bibliographic coupling resulted in 6 clusters. The themes of these 6 clusters are - Mindfulness Training Formats, Stress management & well-being, Mindfulness Training and work outcomes, Mindfulness training for Medical professionals and students and Facilitators of Mindfulness Training and end user benefits.

Originality/Contribution/Value: This technique can be useful in understanding the evolution of research in the area. Given that this is an emerging area of research this paper can be useful to future researchers to visualize current research in the area and to identify areas of future research.

Keywords: Mindfulness Training, Burnout, Stress, Bibliometric Coupling, VoSViewer.

Paper type- Research paper.

1. Introduction

Interest in mindfulness has been increasing over the past decade (Eby et al., 2019).



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Mindfulness as a concept has been believed to have originated from Buddhism and as defined by Kabat-Zinn, it is the ability of the person to pay attention, using a higher quality of awareness, without any judgment (Kabat-Zinn, 1990). This essentially means controlling tendencies which could intervene with the present experience. Research has explored mindfulness as an intervention through which individuals can be trained to achieve mindfulness (as a state of mind) (Kabat-Zinn, 1990). There has been research in this area but there is a lack of research that specifically looks at mindfulness-based training interventions exclusively and separately from the related concepts of mindful states and trait-based mindfulness (Eby et al., 2019). Psychological distress is part of professional life though individuals in different professions may experience it differentially. The factors that cause stress and the demands and dilemmas faced in professions are different (Khoury, Sharma, Rush, & Fournier, 2015). For the past four decades, researchers have argued that this chronic distress faced by individuals in professions leads to burnout (de Abreu Costa et al., 2019). Maslach defined burnout as "a syndrome of emotional exhaustion, depersonalisation and reduced personal accomplishment that can occur among individuals who do 'people work' of some kind" (Maslach et al., 1986). Burnout has been studied in relation to numerous outcomes - individual outcomes like physical & mental health, and organizational outcomes like performance, job satisfaction, turnover, etc. (Abraham et al., 2019). Therefore, it is crucial to understand and prevent burnout. In this context, there has been research that has examined different managerial as well as psychological approaches to prevent and reduce burnout. Researchers have also examined numerous methods and interventions that could reduce or help manage burnout. A number of these training interventions include behavioural interventions like acceptance and commitment therapy (ACT), hypnosis, spiritual interventions like yoga, shiatsu, etc and also mindfulness-based interventions like stress reduction (MBSR) (Kabat-Zinn, 2013), cognitive therapy (MBCT) (Segal et al., 2002) etc. One technique that has gained popularity among researchers and practitioners is mindfulness intervention.

Mindfulness training programs have received increased research attention over the past 3 decades. A number of the studies involve randomized controlled trials (RCTs) (Creswell, 2017). One of the primary reasons for the interest in mindfulness training is because of the promising results researchers have reported in terms of improved physical as well as mental outcomes (Creswell, 2017; Kuyken et al., 2016). One of the ways in which such training is believed to result in improved health outcomes is by buffering the individuals from the negative effects caused by stress (Khoury, Sharma, Rush, & Fournier, 2015; Creswell & Lindsay, 2014). However, there is still need for research that examines the mechanisms through which mindfulness training reduces stress. One possibility is that the mindfulness training helps individuals learn specific psychological skills. Understanding how mindfulness training reduces stress can ensure that the design of the training is more specific and effective. This is a gap that research is still looking to explore.

Researchers have extensively reviewed literature using qualitative methods (e.g. Eby et al., 2019) and meta-analysis (e.g. Regehr et al., 2014) but there is a lack of bibliometric analysis-based research in this area. Bibliometric analysis to examine a research area, allows for a quantitative evaluation of research (Chatterjee & Sahasranamam, 2018). This technique can be useful in understanding the evolution of research in the area and given that this is an emerging area of research, it can benefit from bibliographic analysis. This can be useful to visualize the research landscape. Tools like the VoSViewer provide a way to understand the research in the area. In this research paper, the authors aim to portray the research in the area of mindfulness training interventions and burnout. The paper first begins with an overview of mindfulness-based training, followed by details of the methodology. The next section examines the bibliographic coupling of documents and examination of the resulting cluster. Finally, the conclusion summarizes the findings.

2. Review of Literature

Research has well established the benefits of mindfulness for individual outcomes for

treatment of medical and psychological disorders (de Abreu Costa et al., 2019). Meta-analysis have also highlighted that mindfulness training interventions are effective in adults, children and also adolescents. However, the focus of the research has been largely on the medical and related professionals. Research interest in mindfulness-based training interventions as a technique for improving employee well-being, employee performance and employee engagement has recently increased (Eby et al., 2019). Organizations are exploring mindfulness-based approaches to help employees handle stress and avoid burnout, considering the disadvantages of having stressed employees. Regehr et al. (2013) and Regehr et al. (2014) have demonstrated through meta-analysis that mindfulness-based training interventions have been found to be effective in addressing burnout and occupational stress. More recently, Burton et al. (2017) and Lomas et al. (2018) also pointed out in their meta-analysis that mindfulness interventions had a positive impact on the ability of health professionals to manage stress. The studies however, had pointed out some methodological limitations but there has been an increase in the use of mindfulness-based interventions to prevent burnout (Kelin et al., 2020). And hence there is need for further research in the area.

One extensively used, mindfulness-based training intervention is the Mindfulness-Based Stress Reduction (MBSR) protocol was conceived and standardized by Kabat-Zinn and Hanh (2011). This is a combination of 8-weekly meditation sessions in groups, each of about two and a half hours and a full day meditation practice. As part of this program participants are exposed to different meditation practices. Research has reported that the MBSR process improves the participants' quality of life. One issue often raised for this practice is the individual and organizational commitment required. There have been alternate practices alter the MBSR process and adapt it (Doyle et al., 2019). The MBCT and MBSCR are variants based on the MBSR method. They additionally also focus on cognitive elements. In MBCT, the aim is to understand the relationship between emotions, negative thoughts and actions. On other hand in case of the MBSCR approach, the idea is to reinforce individual resilience.

Thus, there are a number of different tools for mindfulness-based training. And organizations are increasingly interested in exploring and understanding this area to manage stress and burnout in employees.

3. Methodology

Bibliometrics is a statistical technique to evaluate and quantify the research in a specific domain (Mao et al., 2018; Soosaraei et al., 2018). For this research paper, the open software VOSviewer (van Eck and Waltman, 2010) was used to analyse the coupling of research papers in the area of mindfulness training and burnout to visualize the publications in this area in terms of the authorship. Bibliographic coupling provides a current view of the research in the area and thus has great analytical ability Bibliographic coupling focuses on the primary documents as well as the secondary documents cited. Publications are said to be coupled if they have at least one common reference (common secondary publication citation) (Kessler, 1963). The aim of this method is to explore the bibliographic overlap of coupled publications.

The coupling strength is greater for publications with more bibliographic overlap. Since the primary documents are more recent the coupling analysis is can be used for trend analysis. In the data set used for this analysis, the primary publication by Poulin et al., (2008) has the total link strength of 119 and it has a coupling relation with 59 other primary documents (e.g. Cohen, 2009).

The data that have been made use of in this study were extracted from the Scopus database. The term "mindfulness training" and "burnout" were used as search terms. This result yielded 87 documents. Instead of applying the subject area, the authors decided to go through the publications to identify their relevance to the area of management. They concluded that all 87 publications should be included in the study to get a more holistic overview of research in the area; also, the results of the publication in areas like social sciences and medicine were relevant to the area of business management. In this paper, these 87 publications are classified on the basis of language of publication, source i.e.,

journals of publication, type of publication, type of research, bibliographic coupling of authors.

Vos viewer is an open software tool that is used to visually representing bibliometric networks. The network presented by Vos viewer may include source of publications i.e., journals, authors, countries, authors organizations, publications etc. These networks can be constructed based on co-citation, citation, bibliographic coupling, co-authorship etc. the tools also offer co-occurrence analysis of key words in publications.

4. Bibliographic Coupling of Documents:

There has been significant research interest in this area. The figure below (Fig. 1) showing the publications in the area over the years.

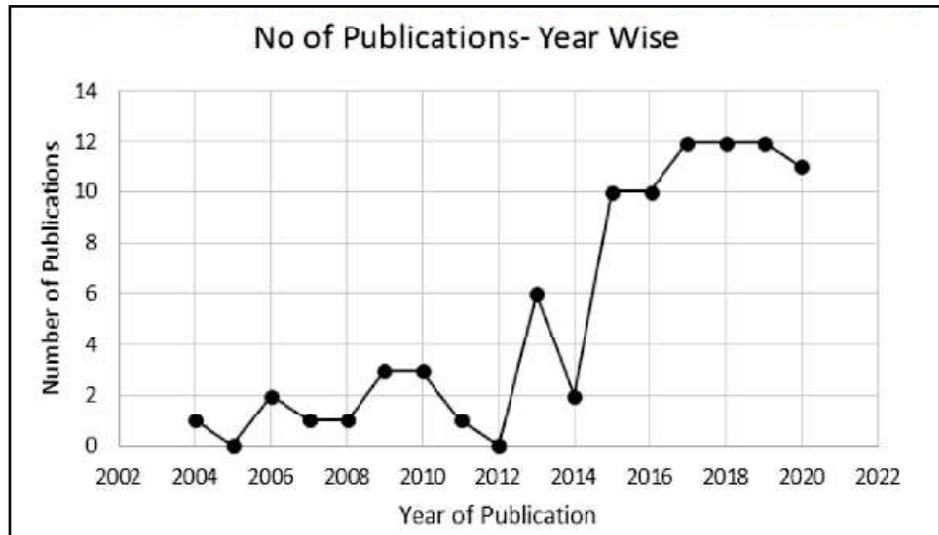


Figure 1.
Year-wise publications

Source: Author Calculations

As depicted in figure 1, here has been a consistent growth in the number of research papers published in Scopus journals over the years. In the span of 2017-19 there have been (n=12) research publications while in the first quarter of the year 2020 there have been (n= 11) papers (Ref. Fig.1).

For the purpose of bibliometric coupling a threshold of minimum 4 citations were applied, 50 out of the 87 met the criterion (n=50). Out of these 50, largest set of connected items contain 48 items, rest items in the network were not connected to each other. So, using VosViewer we obtained a total of 6 clusters (n=6).

Most of the research publications in the area (approx. 90%) (n=78) are in English and about 5 % (n=4) are in Spanish. Out of total 87 publications listed in Scopus, 3.45% (n=3) are book chapters while the rest are research articles (n=84). (ref. Fig.2)

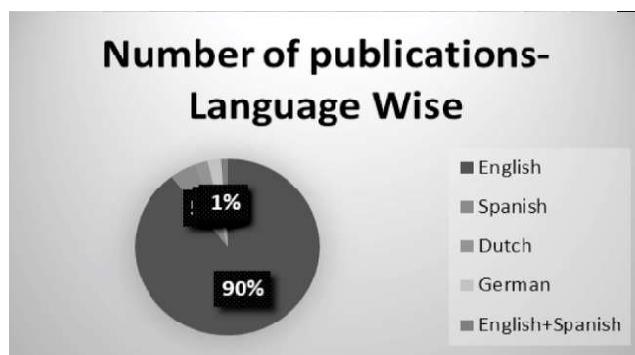


Figure 2.
Language-wise publication details

Source: Author Calculations

As depicted in figure 2, out of 87 documents (n=78) are in English, (n=4) are in Spanish, (n=2) are in Dutch, (n=2) are in German and (n=1) are in published in English as well as Spanish language. Of the 87 documents, papers 3.48% (n=4) are published in Mindfulness, most other journals like International Journal of Health Promotion and Education, Journal of Clinical Nursing, etc. have 1.75% (n =2) publications while a number of journals like International Journal of Psychology and Psychological Therapy, Journal of Nursing Education, etc. have 0.87 %(n=1) publication. This implies that there is no particular journal with predominant publications in the area.

We have then visualized the documents based out their coupling strength in Table-1 and also Fig. 3. The document with the highest coupling strength is Poulin et al., (2008 p) with total link strength of 119. This is a research paper written in 2008 and the paper examine two novel mindfulness-based interventions- the brief Mindfulness Based Stress Reduction and the Mindfulness Based Wellness Education that can be applied across academic and work setting. The study was conducted on human service professionals and showed that they are beneficial in stress reduction and increase in well-being.

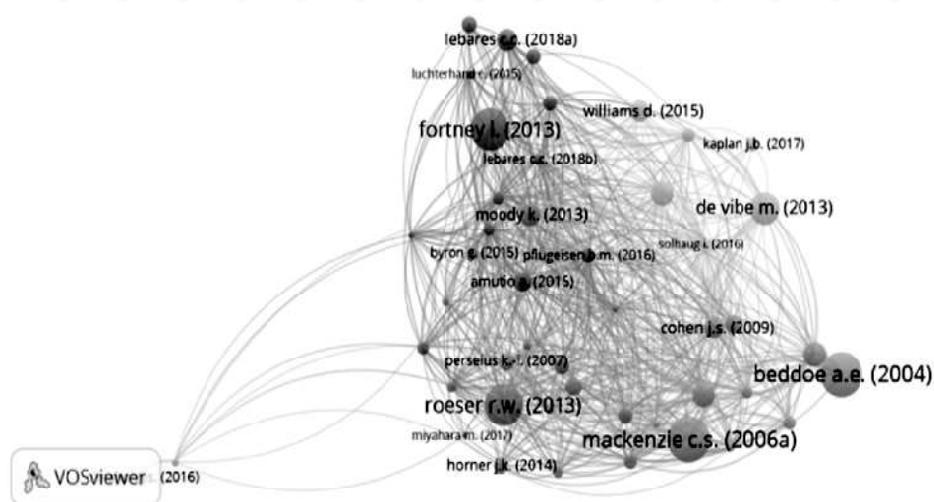


Figure 3.
Network diagram of the
bibliographic coupling of
authors:

The bibliographic coupling analysis revealed six clusters. The overall structure of the cluster are: Cluster 1- 13 papers, Cluster 2- 11 papers, Cluster 3- 8 papers, Cluster 4- 7 papers, Cluster 5- 7 papers and Cluster 6- 2 papers. The critical papers that link the clusters are Roeser et al., (2013), Mackenzie, Poulin, Seidman-Carlson (2006a), Fortney et al., (2013, p.412), Dobkin, Hutchinson (2013), Moody et al., (2013) and O'Mahony et al., (2017). Next, we provide a brief overview of the clusters.

Coupling cluster 1 (red): Mindfulness Training Formats.

The 13 publications in cluster 1 and they are primarily empirical publications with focus on evaluating the effectiveness of different mindfulness training techniques. The top 5 papers are all between 2015-2019, (see Table 3 for a description of the top five weighted papers by cluster), underscoring the recent research interest in the exploring the effectiveness of different formats for implementing mindfulness interventions. Publications in this cluster focus on different formats - video, online as well as different duration of interventions and their relationship with individual and organizational variables. The top 5 publications (in terms of the total link strength) are all published in different mainstream journals related to medicine.

Table 1.
Summary of clusters

Sample	N	Year of Publication	Type of Publication	Type of Paper	Type of Research
Overall	48	2004-2019	Research Papers (100%)	33 Empirical (69%), 15 theoretical (31%)	27 quantitative (56%), 18 qualitative (38%), 3 mixed method (6%)
Cluster 1 (Red)	13	2015-2019	Research Papers (100%)	9 Empirical (69%), 4 theoretical (31%)	7 quantitative (54%), 4 qualitative (31%), 2 mixed method (15%)
Cluster 2 (Green)	11	2004-2015	Research Papers (100%)	8 Empirical (73%), 3 theoretical (27%)	5 quantitative (45%), 6 qualitative (55%)
Cluster 3 (Blue)	8	2013-2019	Research Papers (100%)	6 Empirical (75%), 2 theoretical (25%)	5 quantitative (62.5%), 2 qualitative (25%), 1 mixed method (12.5%)
Cluster 4 (Light green)	7	2013-2018	Research Papers (100%)	4 Empirical (57%), 3 theoretical (43%)	4 quantitative (57%), 3 qualitative (43%)
Cluster 5 (Purple)	7	2009-2017	Research Papers (100%)	4 Empirical (57%), 3 theoretical (43%)	4 quantitative (57%), 3 qualitative (43%)
Cluster 6 (Sky blue)	2	2016-2017	Research Papers (100%)	2 Empirical (100%)	2 quantitative (100%)

Source: Author Calculation

Sr. No.	Label	Cluster	Total link strength	Citations	Topic	Journal
1	(Poulin et al., 2008)	2	119	59	Mindfulness training as an evidenced-based approach to reducing stress and promoting well-being among human services professionals	International Journal of Health Promotion and Education
2	(Solhaug et al., 2016)	4	112	10	Medical and Psychology Student's Experiences in Learning Mindfulness: Benefits, Paradoxes, and Pitfalls	Mindfulness
3	(Kemper, 2017)	1	91	18	Brief Online Mindfulness Training: Immediate Impact	Journal of Evidence-Based Complementary and Alternative Medicine
4	(Kinsler et al., 2016)	1	88	17	"Awareness is the first step": An interprofessional course on mindfulness & mindful-movement for healthcare professionals and students	Complementary Therapies in Clinical Practice
5	(Arredondo et al., 2017)	3	82	4	A mindfulness training program based on brief practices (M-PBI) to reduce stress in the workplace: a randomised controlled pilot study	International Journal of Occupational and Environmental Health

Source: Author Calculation

Table 2.
Top 5 documents of all
publications

Table 3.
Analysis of Cluster 1 (top 5 documents by link strength) Mindfulness training formats

Sr.no	Document Citation	Description of Document	Sample	Link Strength	Total Citations
1	(Kemper, 2017)	Effectiveness of Online mindfulness training	Health care Professionals (HCPs)	91	18
2	(Kinser et al, 2016)	A mixed method study that aims to find the acceptability, feasibility and effect of curriculum related to mindfulness, in healthcare professionals	HCPs	88	17
3	(Pflugeisen et al, 2016)	The quantitative study aims to evaluate the effectiveness of mindfulness training on the basis of a video module to manage stress and burnout.	HCPs	80	21
4	(Amutio et al, 2015)	A longitudinal study that studies the effect of mindfulness -based stress reduction program (MBSR) on enhancement of well-being	HCPs	77	40
5	(Fortney et al, 2013)	A mixed method study that studies the impact of mindfulness intervention on burnout, quality of life, job satisfaction/	HCPs	75	189

Source: data generated from VOSviewer

Coupling cluster 2 (green): Mindfulness Training for Stress Management and Well Being
Cluster 2 comprises of 11 publications and there are two identifiable trends. Firstly, like in cluster 1 the publications are largely empirical. Close to half (54%) are quantitative and focus on mindfulness training for professions prone to high stress. Also, of these publications approximately 64% (n=7) specifically examine mindfulness training for sub-sets of Health Care Providers (HCP). Secondly this cluster is dominated by research papers that examine the effect that different types of mindfulness interventions have on stress related variables and on well-being and related constructs.

Table 4.
Analysis of Cluster 2 (top 5 documents by link strength): Stress management & well being

Sr.no	Document Citation	Description of Document	Sample	Link Strength	Total Citations
1	(Kemper, 2017)	Effectiveness of Online mindfulness training	Health care Professionals (HCPs)	91	18
2	(Kinser et al, 2016)	A mixed method study that aims to find the acceptability, feasibility and effect of curriculum related to mindfulness, in healthcare professionals	HCPs	88	17
3	(Pflugeisen et al, 2016)	The quantitative study aims to evaluate the effectiveness of mindfulness training on the basis of a video module to manage stress and burnout.	HCPs	80	21
4	(Amutio et al, 2015)	A longitudinal study that studies the effect of mindfulness -based stress reduction program (MBSR) on enhancement of well-being	HCPs	77	40
5	(Fortney et al, 2013)	A mixed method study that studies the impact of mindfulness intervention on burnout, quality of life, job satisfaction/	HCPs	75	189

Source: data generated from VOSviewer

Coupling cluster 3 (blue): Mindfulness Training and work outcomes

There are 8 documents in the cluster and 75% (n=6) are empirical papers with approx. 63% (n=5) which have a quantitative approach. Most of the research in this cluster has looked at performance parameters and other work outcomes like psychological well-being, organizational and team climate, resilience, etc. Overall, the papers examine the relationship between mindfulness training and work outcomes for samples like nurses in teaching hospitals, sports coaches, elementary and secondary school teachers, etc. So, this cluster has publications that largely explores how mindfulness training can affect specific work outcomes that are context specific.

Sr.no	Document Citation	Description of Document	Sample	Link Strength	Total Citations
1	(Arredondo et al., 2017)	An exploratory study that aims to find the impact of mindfulness program based on brief integrated mindfulness practices (M - PBI) on stress reduction	Random employees with PSS-14>22	82	4
2	(Bartlett et al., 2019)	This article discusses the impact of heterogeneity in the workplace and the characteristics of mindfulness -based intervention in order to minimize perceived stress	HCPs	75	12
3	(Longshore and Sachs, 2015)	Positive impact of mindfulness training in sports coaches	Sports Coaches	70	21
4	(Craigie et al., 2016)	Evaluating possibility of mindfulness training to decrease compassion fatigue	HCPs	62	29
5	(Roeser et al., 2013)	Effect of MT on physiological and psychological indicators	Teachers	59	189

Table 5.
Analysis of Cluster 3 (top 5 documents by link strength): Mindfulness Training and work outcomes

Source: data generated from VOSviewer

Cluster 4 (light green): Mindfulness training for Medical professionals and students

The fourth cluster consists of seven publications, and 57% (n=4) publications are based on empirical examination. So, there is a comparable number of conceptual and empirical publications in this cluster. The publications in this cluster (e.g. Yang et al., 2018; De Vibe et al., 2013) argue that medical professions and students report distress, burnout and fatigue more commonly and there is need for individuals associated with this profession to have better coping skills and strategies. The publications examine if mindfulness training for individuals in this profession reduces stress and burnout and related outcomes. The theoretical papers have reviewed research in this area to identify the way forward and to evaluate the effectiveness of different approaches taken in mindfulness training for medical and related professionals and students.

Sr.no	Document Citation	Description of Document	Sample	Link Strength	Total Citations
1	(Solhaug et al., 2016)	The study aims to explore the experiential dimensions of mindfulness learning	HCPs	112	10
2	(Yang et al., 2018)	Effectiveness of MT using a mobile app	Medical students	71	20
3	(De vibe et al., 2013)	Studies effect of MBSR program on mental distress	HCPs	67	117
4	(Dobkin and Hutchinson, 2013)	A study that aims to find the impact of including mindfulness in curriculum of medical schools	Medical students	65	70
5	(Sansó et al., 2018)	Studies the impact of MT program on self-compassion, quality of life and mindful attention .	HCPs	65	5

Table 6.
Analysis of Cluster 4 (top 5 documents by link strength): Mindfulness training for Medical professionals and students

Source: data generated from VOSviewer

Cluster 5 (purple): Facilitators of Mindfulness Training and end user benefits

There are a total of 7 papers in this cluster approximately 57% (n=4) publications are empirical in nature while the others are conceptual papers. The conceptual papers review various factors that can facilitate and hinder mindfulness training. The empirical publications have examined if mindfulness improves end user outcomes like improved patient care, quality of care, etc. The conceptual papers examine if factors like leadership securing buy-in with staff, ensuring quiet space for training and practice, allocating staff time to participate etc.

Table 7.
7Analysis of Cluster 5 (top 5 documents by link strength): Factors affecting Mindfulness Training

Sr.no	Document Citation	Description of Document	Sample	Link Strength	Total Citations
1	(Solhaug et al., 2016)	The study aims to explore the experiential dimensions of mindfulness learning	HCPs	112	10
2	(Yang et al., 2018)	Effectiveness of MT using a mobile app	Medical students	71	20
3	(De vibe et al., 2013)	Studies effect of MBSR program on mental distress	HCPs	67	117
4	(Dobkin and Hutchinson, 2013)	A study that aims to find the impact of including mindfulness in curriculum of medical schools	Medical students	65	70
5	(Sansó et al., 2018)	Studies the impact of MT program on self-compassion, quality of life and mindful attention .	HCPs	65	5

Source: data generated from VOSviewer

Cluster 6 (Sky blue): Mindfulness training in extreme stress situations.

The sixth cluster consists of only two publications O'Mahony et al. (2017) and O'Mahony et al., (2016). Both the papers are written by the same author (some of the co-authors are also the same). In both the papers, the focus is on mindfulness training as a tool for health care providers that deal with patients that are in end-of-life care, a very traumatic and stressful scenario. Both the papers are published in Palliative care related journals.

Table 8.
Analysis of Cluster 6: Mindfulness Training in extreme stress situations

Sr.no	Document Citation	Description of Document	Sample	Link Strength	Total Citations
1	(O'Mahony et al., 2017)	Effect of MT on reducing burnout in medical providers dealing with children in critical conditions	HCPs	17	6
2	(O'Mahony at al., 2016)	Relation between post-traumatic stress disorder symptoms and MT	HCPs	6	19

Source: data generated from VOSviewer

5. Conclusion and Discussion

The purpose of this paper was to provide a comprehensive view of research in the area of burnout and bibliographic coupling. The authors used the method of bibliographic coupling to identify and assimilate research in the domain of mindfulness training. Content of the documents was analyzed to identify research themes in the area. This paper has uncovered the language in which most mindfulness related publications have been published other than uncovering the top journals and publications in mindfulness area. The paper has uncovered the themes related to mindfulness, there are total 6 clusters. The first theme is about finding effectiveness of various mindfulness interventions. The theme of second cluster or second theme is pertaining to understanding the effectiveness of mindfulness on stress related variables. The third cluster is about examining the relationship between mindfulness training and work outcomes. The fourth theme is related to exploring if mindfulness reduces stress and burnout related outcomes in medical professionals and students. The fifth theme is pertaining to identifying the factors that support or hinders mindfulness training. The sixth theme is about mindfulness training as a tool to manage and cope with stress in healthcare providers.

The paper would be useful to future researchers to identify areas that warrant further research and explore the inter-connections between clusters.

6. Limitations and Future Scope of Research

This research too is not without its limitations. There are specific keywords that were used to identify publications in the research area, but researchers could have chosen different keywords when examining this or related concepts. This could have a bearing on the results. Secondly, by setting the threshold for citations to be considered by bibliometric coupling there is the possibility that a bias may occur, but this is necessary to maintain the feasibility of the study. In order to minimize the effect of this limitation the authors compared different thresholds to examine if there was a substantial impact on the results, but the authors did not find any substantial differences. Also, the Scopus database was used as a source of identifying publications. Use of the Web of Science database could lead to a different set of results.

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