Mindfulness interventions for physical and psychological outcomes in cancer patients and caregivers: non-English literature may be lost in translation due to language bias

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Published in:
Psycho-Oncology

DOI:
10.1002/pon.5762

Publication date:
2021

Document Version
Author accepted manuscript

ARTICLE TITLE

Mindfulness interventions for physical and psychological outcomes in cancer patients and caregivers: non-English literature may be lost in translation due to language bias.

SHORT TITLE

Non-English literature on mindfulness interventions for cancer care.

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KEYWORDS

Bibliometric data analysis, cancer, language bias, mindfulness, non-English literature, psycho-oncology, supportive care, systematic reviews.

Funding information

The authors declare no source of funding.

Key points

- Although mindfulness practices have originated in East Asia including non-English literature in systematic reviews of mindfulness interventions for cancer care will enable researchers to explore its application in various cultural contexts.
- A systematic analysis of online bibliographic databases: AMED, Embase, CINHAL, LILACS, MEDLINE, ProQuest Central, PsycINFO, PsycArticles and WoS revealed that non-English literature accounted for 2.72% of original research papers on mindfulness where no language restriction was applied.
- This suggests that the exclusion of non-English literature in systematic reviews on mindfulness interventions for cancer care may not lead to a biased effect size if a search is restricted to articles indexed in an English language-specific database.
- In comparison, an exploratory analysis of the China National Knowledge Infrastructure (CNKI) database revealed a higher percentage, up to 19.2% of indexed non-English language literature.
- We caution that results of systematic reviews of mindfulness interventions that exclude non-English databases may still constitute a biased generalisability because most literature published in non-English journals are not indexed in major research databases.

BACKGROUND

The National Comprehensive Cancer Network emphasis the need for healthcare workers to recognized and treat the psychological distress in cancer survivors.[1] Mindfulness intervention, a non-judgemental approach to bringing a person's attention to the present moment,[2] has been recommended for symptom management in cancer patients and their caregivers. The philosophy behind the application of mindfulness in cancer care is based on a person's ability to accept their current situation, control their emotions and become less reactive to unpleasant circumstances.[2] Mindfulness comprises a blend of meditation exercises or activities to help individuals adapt and self-manage social, physical, and

emotional challenges associated with reduced quality of life. Mindfulness practice originates from the Eastern Asia culture and dates to about 2,500 centuries ago.[2] Therefore, whilst evidence from non-English literature enables researchers to explore the application of mindfulness in various cultural context, omitting studies specific to Asian languages may be deemed unjustifiable.

Limiting study inclusion in systematic reviews based on language has become a common practice as a significant amount of resources is required to translate non-English literature. However, the significance of non-English literature on the generalisability of research evidence continues to be debated. [3–5] Several authors concluded that there was no difference in the effect estimate of systematic reviews that included non-English literature compared to those that did not.[3,4] In contrast, it is believed, that studies on mindfulness interventions that excluded non-English literature may not reflect culturally diverse research.[5,6] This current study explores the literature on mindfulness as a psycho-oncology intervention for cancer patients and caregivers. The aim is to establish if available non-English literature is large enough to influence the effect estimate of systematic reviews on mindfulness in the field of oncology.

METHODS

Major health-related databases that index topics related to psycho-oncology were chosen for this study. Embase, AMED, CINAHL, LILACS, MEDLINE, ProQuest Central, PsycArticle, PsycInfo and WoS were searched through March 2021 using the following keywords: ((Cancer) AND ("acceptance and commitment therapy" OR ACT OR "dialectical behavio*r therapy" OR DBT OR mindfulness OR mindfulness-based* OR MBCT OR MBSR OR MBCR OR MBAT)). Database search was limited to original, peer-reviewed literature that employed quantitative, qualitative, and mixed-method research designs. Identified citations were uploaded into EndNote X9.3 (Clarivate Analytics, PA, USA). Review articles, meta-analyses, book chapters, editorials and case studies were excluded as well as duplicate records. Titles

and abstracts from the searched databases were screened by DAN for primary literature on mindfulness interventions for cancer care. Titles and abstracts of studies not available in English language were first translated using Google Translate to determine its eligibility.

To ensure transparency in the screening and study selection process, SEI and UOA reviewed the search strategy and performed additional independent evaluations. The search filter in each database was used to separate English language from non-English language papers. The search results from bibliographic databases were presented in a tabular form (*see table 1)* and the study selection process was presented in a flow chart and further grouped according to language and methodology *(see figure 1).* Although the authors systematically searched major research databases, a sensitivity analysis of search results from a non-English database was further carried out on China National Knowledge Infrastructure (CNKI) which has been identified as one of the largest databases for East Asian literature.[7]

97 **TABLE 1. Database Search results**

Ovid Embase 1974 to 2021 March 04	**Total** 557	**English** 538	Chinese 1 Czech 1 Dutch 1 French 3	German 8 Hungarian 1 Persian 1	Polish 1 Slovene 1 Spanish 5
Excluded: (meta-analysis or "systematic review" or conference abstract or "conference review" or editorial or letter or note or "review").mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]					
Ovid MEDLINE 1946 to March 04, 2021	**Total** 287	**English** 282	Dutch 1 French 2	German 1 Hungarian 1	
Excluded: (meta-analysis or "systematic review" or conference abstract or "conference review" or editorial or letter or note or "review").mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]					
ProQuest APA PsycInfo 1806 to March 06, 2021	**Total** 242	**English** 225	Chinese 2 Dutch 3	French 3 Japanese 1	Spanish 7 Slavic language 1
Excluded: (Review-Book AND Comment/Reply AND Letter AND Abstract Collection) Excluded: (Literature Review AND Systematic Review AND Meta-analysis)					
ProQuest APA PsycArticles 1993 to March 06, 2021	**Total** 530	**English** 529	French 1		
Excluded: (Comment/Reply AND Review-Book AND Editorial AND Abstract Collection) Excluded: (Literature Review AND Meta-analysis AND Systematic Review)					
CINHAL 1981 to March 2021	**Total** 262	**English** 242	Chinese 3 Persian 4	Portuguese 1	Spanish 1
Limit to Academic Journals Excluded: (meta-analysis OR "systematic review" OR conference abstract OR "conference review" OR editorial OR letter OR note OR "review")					
LILACS (Latin America)	**Total** 294	**English** 285	Japanese 3 Spanish 2	German 1 French 1	Hungarian 1 Dutch 1
Excluded: Evidence synthesis AND Systematic review					
AMED (Allied and Complementary Medicine) 1985 to March 2021	**Total** 21	**English** 21			

Excluded: (meta-analysis or "systematic review" or conference abstract or "conference review" or editorial or letter or note or "review").mp. [mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word]					
ProQuest Central March 06, 2021	**Total** 3,454	**English** 3,379	Spanish 48 Turkish 10 French 8 Chinese 4 Czech 4	Polish 4 Portuguese 4 Finnish 1 German 1 Croatian 1	Norwegian 1 Persian 1 Russian 1 Slovenian 1
Excluded: (Review AND Literature Review AND Commentary AND Editorial AND News AND Correspondence AND Front Matter AND Table of Contents AND Interview AND Working Paper/Pre-Print AND Instructional Material/Guideline AND Back Matter AND Letter to the Editor) NOT (systematic review AND meta-analysis)					
Web of Science Core Collection Timespan: All years.	**Total** 635	**English** 614	French 6 Korean 2 Latvian 1	German 7 Spanish 3	Hungarian 1 Polish 1
Excluded: (Letter or Meeting Abstract or Editorial Material or News Item or Review or Book Review or Note)					

RESULTS

A total of 6,282 citations were identified with 156 hits on non-English language articles. After the removal of duplicates, a total of 4,714 titles and abstracts were retained and screened of which 4,310 articles were excluded with reasons for exclusion recorded (see figure 1). With the exclusion of case studies, a total of 404 original articles (qualitative, quantitative, mixed-method design) comprising English (n = 393) and non-English literature (n = 11) were considered in the final selection. The analysis of the results revealed that non-English literature accounted for only 2.72% of the retrieved studies.

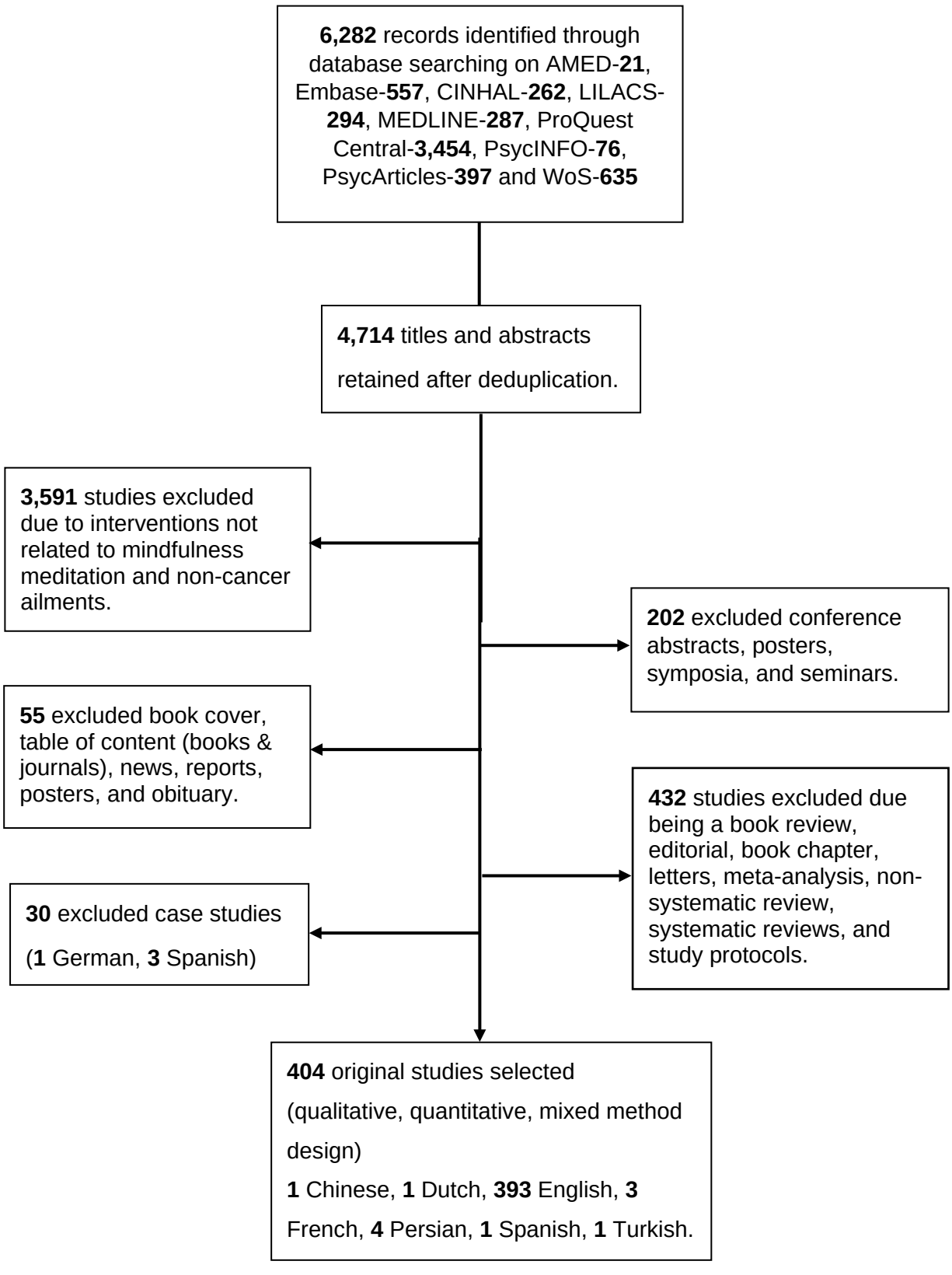

FIGURE 1. Study selection procedure

Sensitivity Analysis

A similar search for indexed titles of original literature on the CNKI database revealed that non-English literature accounted for 19.2% of selected studies (see tables 2). Surprisingly, identified non-English literature that met the inclusion criteria were not indexed in the previously searched bibliographic databases. This seems to agree with earlier research propositions on the need for culturally diverse research that could be generalized to a broader population.[5–7] However, contrary to the hypothesis made by several authors,[5,8] the current study does not validate if non-English bibliographic databases are likely to index more articles published in their native language.

TABLE 2. Search results on CNKI database May 2021

Search term (Mindfulness OR meditation) AND (cancer)	Total **36**	English **31**	Chinese **5**	
	21 Included studies	**2** Mixed method **9** Randomized trials **5** Quasi-experimental study **1** Cross-sectional study	**3** Randomized trials **1** Quasi-experimental study	
	15 Excluded studies	**8** Duplicates **2** Systematic reviews **2** Non-systematic review **1** Protocol **1** Unavailable full text	**1** Master's Thesis	
Search term (Acceptance and commitment therapy) AND cancer	Total **63**	English **49**	Chinese **13**	German **1**
	39 Included studies	**17** Quasi-experimental study **1** Qualitative study **9** Randomized trials	**8** Randomized trials **3** Quasi-experimental study	**1** Quasi-experimental study
	24 Excluded studies	**2** Duplicate **1** Case report **5** Protocol **5** Systematic reviews **3** Non-systematic review **6** Study not related to study aim.	**2** Master's Theses	

Search term (Dialectical behavior therapy) AND cancer	Total **4**	English **3**	Chinese **1**
	4 Included studies	**1** Randomized trial **3** Quasi-experimental study	**1** Randomized trial

DISCUSSION

Findings of our current evaluation suggest that potential studies could be omitted where authors limit their search to databases specific to English literature. It was evident when comparing the initial search result and the sensitivity analysis on CNKI database that most of the retrieved Chinese literature was not indexed in major research databases. This finding was consistent with that of Cohen et al.[7] who also observed that major bibliographic databases were less rigorous in their inclusion and indexing of Chinese literature. It may then be suggested that systematic reviews that exclude literature from indigenous cultures limit the ability to draw conclusions from evidence that reflects a culturally sensitive intervention.

Where language restrictions could not be avoided, it is recommended that the authors take caution about using inferences drawn from such research on a broader and more diverse population.[8] The exclusion of non-English papers could be further attributed to time factor, unavailability of language resources, and insufficient funding to access professional language editing services. The use of Google translate has been previously recommended for non-English literature; [9] however, the quality of translated articles may not meet the requirements for an international readership. Van Nes et al.[10] also emphasised that differences in dialect or cultural context encountered when translating qualitative research may lead to results being interpreted differently, thus impacting the validity and reliability of such study. A probable way of mitigating the shortcomings resulting from the inability to translate literature on mindfulness research might be working within research groups consisting of indigenous research collaborators as this is also likely to increase access to published literature indexed in non-English databases.

Study Limitations

The authors limited their search to databases that offer options for separating the various languages. Quality appraisal of identified studies was also not carried out by the authors. Hence, the debate about the internal validity of non-English literature in systematic reviews is still up for discussion. However, this goes beyond the purpose of this article and may be the object of further investigation.

CONCLUSIONS AND RECOMMENDATIONS

This paper has argued that language bias is a significant threat to the validity of transcultural research such as those related to mindfulness practice, thus undermining the sole essence of a systematic review of evidence and its generalisability. Including non-English language literature in systematic reviews on mindfulness research is significant for a more inclusive result that captures a global perspective. This also enables health practitioners to draw upon evidence from diverse cultures which is likely to enhance patient care. We further advise that while no language restriction may be applied during literature search, it becomes important to broaden the search strategy to incorporate non-English databases as published literature in non-English journals might not be indexed in major bibliographic databases. Furthermore, a probable means of resolving concerns regarding internal validity when there is a perceived difference in effect estimates might be to carryout out sensitivity and subgroup analyses which are likely to reveal important findings on factors that may affect the efficacy of treatment.

CONFLICT OF INTEREST

The authors declare no conflict of interest.

AUTHOR CONTRIBUTION

DAN drafted the manuscript and carried out the literature search. SEI and UOA reviewed it and made further suggestions. All authors revised and approved the final version.

DATA AVAILABILITY STATEMENT

Data sharing is not applicable for this article, as no new data were created in this study. Ethical approval was not sought as this current study involves an analysis of online bibliographic databases and does not include human participants or sharing of personal data.

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