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Mindfulness-Based Interventions and the Hypothalamic-Pituitary-Adrenal Axis: A Systematic Review

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ADMINISTRATIVE INFORMATION

Support - Colombian Association of Endocrinology, Diabetes and Metabolism (Order: 005/13.10.2024).

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 4 November 2024 and was last updated on 4 November 2024.

INTRODUCTION

Review question / Objective To analyze and summarize the different studies that have evaluated the effect of MBIs on cortisol levels and to elucidate the possible underlying biological mechanisms.

Rationale Numerous studies have evaluated the effect that Mindfulness-based interventions (MBIs) have on multiple health outcomes, with results both in favor and against. For its part, stress is a natural response to environmental disturbances and within the associated metabolic responses, alterations in cortisol levels and its measurement in different tissues are a way to determine the stress state of an individual. In this sense, it has been proposed that MBIs can modify cortisol levels in different clinical scenarios.

Condition being studied Mindfulness-Based Interventions and cortisol levels.

METHODS

Search strategy We followed the “Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)” guidelines for our systematic review.

A comprehensive and sensitive search for related evidence was performed in the following databases: MEDLINE, AMED, CINAHL, Web of Science, Science Direct, PsycINFO, SocINDEX, PubMed, the Cochrane Library and Scopus. The search terms “mindfulness”, “mindfulness-based interventions” and “cortisol” were used, and the search was limited to studies from January 1990 to May 2024.

Intervention studies with MBIs (ideally with control groups) were considered to be eligible; systematic reviews and meta-analyses were also reviewed

and analyzed, and studies that could be useful in accordance with the requirements were extracted. Textbooks were also manually searched for information related to mindfulness, meditation and stress management, to deepen and expand the available evidence.

Participant or population Individuals with different degrees of stress.

Intervention Mindfulness-Based Interventions.

Comparator Other different interventions.

Study designs to be included Intervention trials or clinical trials.

Eligibility criteria Original or similar mindfulness based interventions.

Information sources To carry out this systematic review, we followed the “Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)” guidelines (Databases: MEDLINE, AMED, CINAHL, Web of Science, Science Direct, PsycINFO, SocINDEX, PubMed, the Cochrane Library and Scopus). Intervention studies with MBIs (ideally with control groups) were considered to be eligible; systematic reviews and meta-analyses were also reviewed and analyzed, and studies that could be useful in accordance with the requirements were extracted. Textbooks were also manually searched for information related to mindfulness, meditation and stress management, to deepen and expand the available evidence.

Main outcome(s) Significant changes in cortisol following MBIs were found in 25 studies, while 10 did not.

Additional outcome(s) The small sample size, lack of randomization, blinding, and probable confounding and interaction variables stand out in these studies.

Data management This review does not contain protected health information, and the original contributions in the review are included in the article/references. Further inquiries can be directed to the corresponding author/s.

Quality assessment / Risk of bias analysis The studies/abstracts were initially selected and analyzed by the main author and another author, with the purpose of choosing those that met the objectives and purposes of the review.

Strategy of data synthesis Each article was scrutinized per JBI Critical Appraisal Checklist independently by the lead author (H. V-U) and HD. V-S. Only English-language articles were included.

Subgroup analysis Not applicable.

Sensitivity analysis Not applicable.

Language restriction Only English-language articles were included.

Country(ies) involved Colombia.

Other relevant information None to highlight.

Keywords Mindfulness; cortisol; adrenal; stress; interventions.

Dissemination plans publication in high impact journal.

Contributions of each author

Author 1 - Hernando Vargas-Uricoechea - Data collection, selection and analysis of articles for review, condensation of the data and conception of the final manuscript.

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