INPLASY PROTOCOL

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None declared.

A Critical Overview of Systematic Reviews and Meta-Analyses of Light Therapy for Non-seasonal Depression

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Review question / Objective: **Light therapy has increasingly been used in relieving depression in non-seasonal depression. We aimed to summarize the evidence and evaluate the methodological quality regarding the effectiveness and safety of light therapy for non-seasonal depression from systematic reviews/meta-analyses (SRs/MAs).**
Condition being studied: **Meta-analyses (MAs)/Systematic reviews (SRs) are considered reliable criteria to evaluate the effectiveness of therapeutic interventions, but their implementation must strictly follow specific guidelines to minimize bias in studying specific research questions. However, not all SRs/MAs authors are able to strictly adhere to the relevant standards, which leads to a reduction in the quality of reviews and an inability to provide convincing results and conclusions. We searched the necessary databases for published systematic reviews (SRs)/ meta-analyses (MAs) reporting the effectiveness of light therapy for non-seasonal depression, but no previous studies or report have evaluated their quality of evidence and methodological. Therefore, we summarize and analyze the evidence for the efficacy and safety of light therapy in the treatment of non-seasonal depression.**

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 23 March 2022 and was last updated on 23 March 2022 (registration number INPLASY202230122).

INTRODUCTION

Review question / Objective: **Light therapy has increasingly been used in relieving depression in non-seasonal depression. We aimed to summarize the evidence and evaluate the methodological quality regarding the effectiveness and safety of light therapy for non-seasonal depression from systematic reviews/meta-analyses (SRs/MAs).**

Rationale: Objectives. Light therapy has increasingly been used in relieving depression in non-seasonal depression. We aimed to summarize the evidence and evaluate the methodological quality regarding the effectiveness and safety of light therapy for non-seasonal depression from systematic reviews/meta-analyses (SRs/MAs). Methods. Five databases were searched from inception through January 24, 2022. SRs/MAs on light therapy treatment for non-seasonal depression were included. Methodological quality assessment was performed using AMSTAR-2, and evidence quality assessment was performed using the GRADE. Results. Six SRs/MAs on light therapy treatment for non-seasonal depression were included. The AMSTAR-2 showed that the methodological level of five included SRs/MAs were evaluated as critically low quality, and one included SRs/MAs were rated as low quality. According to the evaluation results of GRADE, the quality of evidence was very low in 5 (5/15, 33.3%), low in 8 (8/15, 53.3%), moderate in 1 (1/15, 6.6%), and high in 1 (1/15, 6.6%). Results of descriptive analysis showed that light therapy is an effective alternative treatment for non-seasonal depression. Conclusions. Light therapy is clinically effective as a non-pharmacological intervention for the treatment of non-seasonal depression. Nevertheless, caused by the generally unsatisfied evidence quality and methodological quality of the SRs/MAs included, this conclusion must be interpreted with caution. For further proof, there is a need to design more rigorous SRs/MAs and RCTs with high methodological quality.

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METHODS

Search strategy: ("Depressive Disorder"[MeSH Terms] OR "depress*"[Title/Abstract] OR "melancholia"[Title/Abstract] OR "dysthymic"[Title/Abstract]) AND ("Phototherapy"[MeSH Terms] OR "light therap*"[Title/Abstract] OR "laser therap*"[Title/Abstract]) AND ("Meta-Analysis as Topic"[MeSH Terms] OR "Meta-Analysis"[Publication Type] OR ("meta analys*"[Title/Abstract] OR "meta analys*"[Title/Abstract] OR "data pooling"[Title/Abstract] OR (("clinical trial"[Publication Type] OR "clinical trials as topic"[MeSH Terms] OR "clinical trial"[All Fields]) AND "overview"[Title/Abstract]) OR (("clinical trial"[Publication Type] OR "clinical trials as topic"[MeSH Terms] OR "clinical trial"[All Fields]) AND "overviews"[Title/Abstract])) OR ("systematic review"[Title/Abstract] OR "systematic reviews"[Title/Abstract])).

Participant or population: The participants had non-seasonal depression diagnosed according to any authoritative diagnostic criteria, no restrictions on age, sex, race, the source of cases, or onset time.

Intervention: Light therapy or light therapy combined with antidepressant.

Comparator: Placebo/dim light treatment or antidepressant.

Study designs to be included: SRs/MAs based on randomized controlled trials (RCTs).

Eligibility criteria: The inclusion criteria were as follows: (a) study design: SRs/MAs based on randomized controlled trials (RCTs); (b) participants: the participants had non-seasonal depression diagnosed according to any authoritative diagnostic criteria, no restrictions on age, sex, race, the source of cases, or onset time; (c) intervention: light therapy versus placebo/ dim light treatment or light therapy combined with antidepressant versus antidepressant alone; and (d) outcomes: any scale or evaluation criteria measuring depressive symptoms, such as effective rate, Beck Depression Rating Scale (BDI), Hamilton Depression Rating Scale (HAMD), Geriatric Depression Scale (GDS), etc. The exclusion criteria were as follows: (a) overviews, network MAs, and narrative reviews; (b) animal studies; (c) studies in which the required data were unavailable.

Information sources: 3 English-language databases (the Cochrane Library, PubMed, EMBASE), and 2 Chinese-language databases (China National Knowledge Infrastructure (CNKI) and Wanfang Database. Gray literature including conference proceedings, fund application report.

Main outcome(s): Any scale or evaluation criteria measuring depressive symptoms, such as effective rate, Beck Depression Rating Scale (BDI), Hamilton Depression Rating Scale (HAMD), Geriatric Depression Scale (GDS), etc.

Quality assessment / Risk of bias analysis: The Cochrane risk of bias criteria; The Jadad scale.

Strategy of data synthesis: We use effect size (ES), which expresses changes in depression severity, in each selected meta-analysis to calculate the standardized mean difference on the basis of Hedges' adjusted g.

Subgroup analysis: Subgroup analysis will include Subgroup analysis of different light colors, analyses of comparators, depression measures, intervention lengths, mean age ranges.

Sensitivity analysis: Sensitivity analysis will be performed to ensure that no single study over-influenced the analysis by excluding each individual study and reanalyzing the overall effect on the remaining studies.

Language: No limit on language.

Country(ies) involved: China.

Keywords: light therapy, non-seasonal depression, overview, systematic reviews, meta-analysis.

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