INPLASY PROTOCOL

Corresponding author:
Romualdas Malinauskas

romualdas.malinauskas@lsu.lt

Author Affiliation:
Lithuanian Sports University.

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Conflicts of interest: None declared.

Meta-Analysis of Psychological Interventions for Reducing Stress, Anxiety and Depression among University Students During COVID-19 Pandemic

Malinauskas, R[1]; Malinauskiene, V[2].

Review question / Objective: The objective of this study was to investigate the effects of internet-based intervention programs for reducing stress, anxiety and depression among university students during COVID-19 pandemic by conducting a meta-analysis

Eligibility criteria: Inclusion criteria above all else for the current analysis were the following: (1) journal articles and "un-published" Ph.D. dissertations, which give a quantitative assessment of the viability of intervention for reducing stress, anxiety, and depression among college under-graduates and graduates in the pandemic context; (2) studies targeting college undergraduate and graduate during COVID-19, aged 18 years or older; (3) studies with publication dates between 2020-2022, while COVID-19 restrictions started in 2020 and went on until 2022; (4) full-text studies published exclusively in English. Excluded from the review selection list were: (1) studies alluding to internet-based mental interventions that do not allude to the COVID-19 pandemic; (2) Studies with the principal text not published in English language (just tables were in English); (3) studies, which does not give signs of stress and/or anxiety and/or depression; and (4) internet-based mental interventions, which do not have a diminishing of stress and/or anxiety and/or depression as their essential intervention focus.

INPLASY registration number: This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 13 June 2022 and was last updated on 13 June 2022 (registration number INPLASY202260054).

INTRODUCTION

Review question / Objective: The objective of this study was to investigate the effects of internet-based intervention programs for reducing stress, anxiety and depression among university students during COVID-19 pandemic by conducting a meta-analysis.

Rationale: We guess in this study that internet-based intervention projects can contrastingly affect the different psychological health issues in light of the fact that a systematic survey and meta-analysis of stress management interventions for colleges/undergrad established that guided stress management interventions have moderate effects on stress and anxiety and small-to-moderate effects on depression. Subsequently, it is conceivable through a meta-analysis to empirically determine the values of mental interventions for lessening anxiety, depression and stress, utilizing the evidence collected from tracked down scientific sources. Even though there are an extensive number of studies that study the effect of mental interventions for lessening anxiety, depression and stress in individuals impacted by the COVID-19 epidemic, a couple of studies inspect the impacts of internet-based intervention programs for diminishing stress, anxiety, and depression of college undergraduate and graduate during COVID-19 epidemic. Coincidentally, not all reviews utilize a control group and incorporate required quantitative information (for example, descriptive statistics contrasting the intervention and the control group at baseline as well as at posttest). Even though meta-analyses have been performed about the utilization of various mental interventions for delegates of various populations experiencing stress, anxiety, and depression with regards to the COVID-19 pandemic (for example, individuals impacted by the COVID-19 epidemic, health workers, patients with affirmed COVID-19), the previous meta-analysis have not uncovered whether such interventions are viable for college undergraduate and graduate during COVID-19 pandemic. This study is a meta-analysis determined to give an evidence-based way to deal with internet-based interventions to lessen stress, anxiety, and depression among college undergraduates and graduates with regard to the COVID-19 pandemic.

Condition being studied: Stress, anxiety, and depression among college undergraduates and graduates during the COVID-19 pandemic.

METHODS

Search strategy: Searches were accomplished in the following databases: MEDLINE, EbscoHost Academic Search Ultimate, and PsycARTICLES using a combination of "Covid-19 AND 'Randomized Controlled Trial' AND students" and using the combination of the following search terms: "internet," "online," "treat_," "psycholog_," "intervention," "program_," "stress_," "depress_," "anxiety," "university," "college," "freshm_," "sophomore_," "undergraduat_,".

Participant or population: College undergraduate and graduate during COVID-19, aged 18 years or older.

Intervention: Internet-based psychological intervention for reducing stress, anxiety, and depression.

Comparator: Not applicable.

Study designs to be included: Meta-Analysis.

Eligibility criteria: Inclusion criteria above all else for the current analysis were the following: (1) journal articles and "unpublished" Ph.D. dissertations, which give a quantitative assessment of the viability of intervention for reducing stress, anxiety, and depression among college under-graduates and graduates in the pandemic context; (2) studies targeting college undergraduate and graduate during COVID-19, aged 18 years or older; (3) studies with publication dates between 2020-2022, while COVID-19 restrictions started in 2020 and went on until 2022; (4) full-text studies published exclusively in English. Excluded from the review selection list were: (1) studies alluding to internet-based mental interventions that do not allude to the COVID-19 pandemic; (2) Studies with the principal text not published in English language (just tables were in English); (3) studies, which does not give signs of stress and/or anxiety and/

or depression; and (4) internet-based mental interventions, which do not have a diminishing of stress and/or anxiety and/or depression as their essential intervention focus.

Information sources: MED-LINE, EbscoHost Academic Search Ultimate, and PsycARTICLES.

Main outcome(s): The focus was on the three psychological health results: stress, anxiety, and depression in the current review. Self-administered evaluation tools were utilized for the assessment of three mental health results. The review included in the meta-analysis utilized different survey scales: PSS-10 - Perceived Stress Scale; WEMWBS - Health Scale; PHQ-4 - Brief survey for Anxiety and Depression estimation; DASS-21 - Depression, Anxiety and Stress Scales; PHQ-9 - Patient Health Questionnaire for Depression estimation; BAI - Beck Anxiety Inventory; BDI-II - Beck Depression Inventory-II; OTAI - Online Test Anxiety Inventory; SHAI - Short Health Anxiety Inventory; PROMIS - Patient-Reported Outcome Measurement Information System (anxiety and depression scales); GAD-7 - Generalized Anxiety Disorder Screener.

Quality assessment / Risk of bias analysis: Egger's regression test and Egger's and Begg-Mazumdar rank correlation test for funnel plot asymmetry were performed to assess the publication bias in the meta-analysis.

Strategy of data synthesis: For every indicator of psychological health, pooled estimates (SMD) and 95% confidence intervals (CI) of impact sizes were determined by utilizing an inverse-variance weighted random-impacts meta-analysis model. The I2 statistic was utilized to evaluate irregularity (heterogeneity) across studies included in the meta-analysis, with values greater than 50% indicating high irregularity. To test for heterogeneity, we likewise determined Cochran's Q-statistic, which considers the degrees of freedom. For the null theory (which posits that all impact sizes are equivalent) to be

dismissed, Cochran's Q-statistic should be statistically significant; and the extent of the blunder variance among the complete difference observed from the impact sizes must be significantly surprisingly high, given sampling blunders. The degree of heterogeneity was evaluated utilizing the equation: I2 = 100 %×(Q-(k-1)))/Q, where k represents the number of studies included. I2 statistic values of 25%, 50%, and 75% show low, moderate, and high degrees of heterogeneity individually.

Subgroup analysis: We collected included in meta-analysis studies as indicated by intervention impacts on the different mental health issues, i.e., stress, depression, and anxiety, and subgroup Meta-analysis was directed.

Sensitivity analysis: Fail-safe N calculation using the Rosenthal approach. The Fail-safe N is the number of nonsignificant studies necessary to make the result nonsignificant and this number is robust when N > 5n+10; Rosenberg, 2005.

Language: English language.

Country(ies) involved: Lithuania.

Keywords: stress; anxiety; depression; university students; meta-analysis; COVID-19.

Dissemination plans: Open access publication.

Contributions of each author:
Author 1 - Romualdas Malinauskas - Conceptualization, methodology, data collection, data analysis, writing, review and editing.
Email: romualdas.malinauskas@lsu.lt
Author 2 - Vilija Malinauskiene - Data collection, data analysis, writing, review and editing, visualization and supervision.
Email: vilija.malinauskiene@lsu.lt