INPLASY

Net Meta-analysis of the Effectiveness of Different Interventions for Internet Addiction in College Students

INPLASY202450012

doi: 10.37766/inplasy2024.5.0012

Received: 04 May 2024

Published: 04 May 2024

Corresponding author:
Zhang Meng

3142815908@qq.com

Author Affiliation:
YangZhou University.

Zhang, M; Meng, SQ; Tong, WX; Jamil, H; Han, YH; Han, SS; Li, B; Zhnag, Y.

ADMINISTRATIVE INFORMATION

Support - This research was funded by the Jiangsu Postgraduate Practice and Innovation Programme(SJCX23_1884).

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

Conflicts of interest - None declared.

INPLASY registration number: INPLASY202450012

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 04 May 2024 and was last updated on 04 May 2024.

INTRODUCTION

Review question / Objective To examine the intervention effect of different interventions on college students' Internet addiction by using the reticulated Meta-analysis system, and to clarify the best interventions, to provide a reference basis for the intervention of college students' Internetaddiction.

Condition being studied Internet addiction (IA) is a psycho-behavioral disorder in which an individual's excessive and uncontrolled use of the Internet results in impaired physical and mental functioning.IA is a serious public health problem in the world, especially in Asia. According to the Statistical Report on the Development of the Internet in China, as of December 2022, the number of Internet users in China reached 1.067 billion, an increase of 35.49 million compared to 2021, and the Internet penetration rate reached 75.6 percent. It has been found that suffering from Internet addiction can cause certain psychological distress and disorders in young people, such as social anxiety, and depression. Not only that, but internet addicts can develop varying degrees of mental disorders, including substance use disorders, attention deficit hyperactivity disorder, hostility, and social anxiety disorders. There is now a trend towards a younger age group for Internet addiction, and problematic Internet use usually involves adolescents and young adults, with prevalence rates that can be as high as 25 - 30% in these age groups. The Internet has become a major factor leading to health problems and hindering the academic development of college students, and how to use effective measures to intervene with college students suffering from Internet addiction has become the focus of multidisciplinary attention.

METHODS

Participant or population The study population was a group of college students diagnosed with Internet Addiction.

Intervention Interventions are psychological, motor and pharmacological interventions or one of the other IA interventions.

Comparator Comparison measures were no intervention, psychological, exercise and pharmacological interventions or one of the other IA interventions.

Study designs to be included This investigation focuses on English or Chinese literature. Eligible studies include randomized controlled trials (RCTs), provided that they report suffiffifficient statistical details such as means, standard deviations, participant numbers, etc. Exclusion criteria encompass literature reviews,conference abstracts, research proposals, as well as republished works, studies without accessible full texts, those from which valid data cannot be extracted, or those lacking raw data availa.

Eligibility criteria Studies included in the meta-analysis had to meet the following inclusion criteria: (1) the study population was a group of college students diagnosed with IA; (2) the study design was limited to a randomized controlled trial; and (3) the scores of the Internet-Addiction Scale of Internet addicted patients after receiving the intervention were used as an evaluation index of the effects of different interventions. (4) The Internet Addiction Scale (IAT), Young Diagnostic Questionnaire (YDQ), Chen's Chinese Internet Addiction Scale (CIAS-R), and Bai Yu et al.'s revised 19-item scale based on the CIAS-R (CIAS-R19) were used to diagnose the severity of IA.Exclusion criteria: (1) studies not published in English or Chinese; (2) duplicate publications; (3) conference papers and review articles; (4) studies with incomplete or unreported data; (5) non-RCT studies; and (6) literature for which full text was not available.

Information sources Under the premise of independent double-blind, 2 researchers systematically searched China Knowledge, Wanfang, Wipro, Web of Science, PubMed, EMBASE, Cochrane Library, ProQuest, and CBM databases for relevant journal articles from the time of database construction to May 2023 by using the combination of subject words + free words.

Main outcome(s) The outcome indicator is the Internet addiction score of college students with Internet addiction after receiving the intervention.

Quality assessment / Risk of bias analysis The risk of bias was assessed by two researchers according to the revised Cochrane Randomized Trials Risk of Bias Tool (RoB2), which consists of five evaluation domains: bias during randomization, bias in deviation from established interventions, bias in missing outcome data, bias in outcome measurement, and bias in selective reporting of results. The risk of bias in each domain was categorized into three levels: "low risk," "some risk," and "high risk."

Strategy of data synthesis All Meta-analyses were performed using R studio Software and State 14.0. Standardized mean difference (SMD) was used to combine effect sizes because the outcome variables were continuous random variables and different scales were used. The heterogeneity of effect sizes between studies was assessed using Cochran's Q and I2. Subgroup analyses were conducted according to language of publication (English or Chinese), sample size, participant characteristics, outcome measures, intervention, and intervention duration. Sensitivity analyses were performed by excluding each study and rerunning the meta-analysis. To assess the risk of publication bias, funnel plots, Eager test, and the cut-and-patch test (α=0.05) were performed.
Net meta-analysis was performed using a Bayesian random effects model. Inconsistency between direct and indirect comparisons was assessed using node splitting. P-values were used to identify the presence of inconsistency. If $p>0.05$, the consistent model was used for reticulated meta-analysis, otherwise the inconsistent model was used. The area under the cumulative ranking curve (SUCRA value) was calculated to rank the efficacy of various interventions. To check the publication bias of the studies, network funnel plots were generated and the symmetry of the plots was tested.

Subgroup analysis We stratified the results according to sample size, measurement tool, intervention, intervention period, and risk of bias.The results of all subgroup analyses showed that the combined effect size was significant in reducing the total IA score. In the measurement tool subgroup, the I2 statistic showed less heterogeneity than the overall heterogeneity for CIAS-R(19) (I2=0%, p=0.62) and YDQ (I2=0%, p=0.52) (I2=86%,p<0.01). Among the intervention subgroups, the I2 statistic showed lower

heterogeneity in the exercise intervention group (I2=72%,p<0.01).

Sensitivity analysis Sensitivity analyses of the studies through a random effects model showed that the overall results did not change after excluding any of the studies (p<0.01), indicating stable results.

Country(ies) involved China.

Keywords Internet addiction; College students; Intervention; Network meta-analysis.

Contributions of each author
Author 1 - Zhang Meng.
Author 2 - Meng shu Qiao.
Author 3 - Tong Wen Xia.
Author 4 - Hasan Jamil.
Author 5 - Han YaHui.
Author 6 - Han Shanshan.
Author 7 - Li Bo.
Author 8 - Zhang Yu.