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Review articles (systematic or scoping)

Effectiveness of Interventions for Depression in College Students: A Systematic Review

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Abstract

This study addresses the growing crisis of depression in young individuals, with a notable prevalence among university students who do not receive adequate treatment. The objective of this study is to assess the effectiveness of mental health interventions focused on improving depression in college students. To achieve this, a systematic literature review was conducted to identify research evaluating these treatments in the Web of Science, Scopus, PubMed, PsycInfo, and Scielo databases from 2018 to 2023. 13 articles were included, comprising research conducted in various countries, with a total of 939 participants, with a homogeneous average age of 19,7 ± 2,98 to 24,21 ± 5,21. 61,5% of the interventions followed approaches derived from Cognitive Behavioral Therapy (CBT), 77% were conducted in person, and 53% were in group format. All interventions demonstrated efficacy through statistical significance "p," considering $p < 0.05$ when comparing treatment and control groups. Although the small sample sizes may limit generalization, the results suggest recommending these interventions. Further studies need to be conducted considering the identified limitations and cultural diversity, aiming at the implementation of long-term interventions.

Keywords: depression, university students, mental health interventions, systematic review, efficacy

EFICÁCIA DE INTERVENÇÕES PARA DEPRESSÃO EM ESTUDANTES UNIVERSITÁRIOS: UMA REVISÃO SISTEMÁTICA

Resumo

Este estudo aborda a crescente crise de depressão em jovens, com prevalência notável em estudantes universitários que não recebem tratamento adequado. Tendo isso em vista, o objetivo deste estudo é avaliar a eficácia das intervenções em saúde mental com foco na melhora da depressão em universitários. Para isso, foi realizada uma revisão sistemática da literatura para identificar pesquisas avaliando esses tratamentos nas bases de dados *Web of Science*, *Scopus*, *Pubmed*, *PsycInfo* e *Scielo*, no período de 2018 a 2023. Foram incluídos 13 artigos com pesquisas realizadas em diversos países, totalizando 939 participantes com idade média homogênea de 19,7 ± 2,98 a 24,21 ± 5,21. 61.5% das intervenções seguiram abordagens provenientes da terapia cognitivo-comportamental (TCC), 77% foram realizadas no formato presencial e 53% foram em grupo. De 13 estudos, 12 demonstraram eficácia por meio da significância estatística "p," considerando $p < 0,05$ comparando grupos tratamento e controle. Embora o pequeno tamanho das amostras possa limitar a generalização, os resultados encontrados sugerem a recomendação dessas intervenções. Outros estudos precisam ser realizados considerando as limitações encontradas e a diversidade cultural, além de visar à implementação de intervenções a longo prazo.

Palavras-chave: depressão, estudantes universitários, intervenções em saúde mental, revisão sistemática, eficácia

EFECTIVIDAD DE LAS INTERVENCIONES PARA LA DEPRESIÓN EN ESTUDIANTES UNIVERSITARIOS: UNA REVISIÓN SISTEMÁTICA

Resumen

Este estudio aborda la creciente crisis de depresión en jóvenes, con una notable prevalencia en estudiantes universitarios que no reciben un tratamiento adecuado. Con esto en mente, el objetivo de este estudio es evaluar la eficacia de las intervenciones en salud mental centradas en mejorar la depresión en estudiantes universitarios. Para ello, se llevó a cabo una revisión sistemática de la literatura para identificar investigaciones que evalúan estos tratamientos en las bases de datos de Web of Science, Scopus, PubMed, PsycInfo y Scielo, en el período de 2018 a 2023. Se incluyeron 13 artículos con investigaciones realizadas en diversos países, con un total de 939 participantes, con una edad media homogénea de 19,7 ± 2,98 a 24,21 ± 5,21. El 61,5% de las intervenciones siguieron enfoques derivados de la Terapia Cognitivo-Conductual (TCC), el 77% se llevaron a cabo en formato presencial y el 53% fueron en grupo. Todas las intervenciones demostraron eficacia mediante la significancia estadística "p," considerando $p < 0,05$, comparando grupos de tratamiento y control. Aunque el pequeño tamaño de las muestras puede limitar la generalización, los resultados sugieren recomendar estas intervenciones. Se deben realizar más estudios considerando las limitaciones identificadas y la diversidad cultural, además de dirigirse a la implementación de intervenciones a largo plazo.

Palabras-clave: depresión, estudiantes universitarios, intervenciones en salud mental, revisión sistemática, eficacia

Introduction

Depression is a mental disorder that causes significant suffering and can impair various aspects of life (WHO, 2023). While the severity, frequency, and duration of symptoms vary among individuals, it is characterized by a depressed mood and a loss of pleasure in previously enjoyable activities. Currently, depression affects more than 300 million people worldwide (WHO, 2023).

Young people are particularly vulnerable to depression due to the transition to adulthood and the complex process of identity formation. This period is often accompanied by the challenges of entering university, including increased independence, responsibility, and academic demands (Mofatteh et al., 2021; Zbuinovicz & Mariotti, 2021). The prevalence of depressive symptoms among university students in low- and middle-income countries reaches 24.4%, while 77% of North American students report moderate to severe psychological distress, with 27% being diagnosed with depression (Aktar et al., 2020).

The consequences of depression for university students include alcohol and substance abuse (Villarosa et al., 2018) and difficulties in performing daily tasks (Hysenbegasi et al., 2005), often leading to university dropout (Eisenberg et al., 2009). Depression can also severely impair quality of life, sometimes culminating in suicide, a leading cause of death among individuals aged 15 to 29 (WHO, 2023). Depression is recognized as one of the primary risk factors for suicide (CDC, 2023).

According to the WHO (2021), depression treatment typically involves psychotherapy and psychiatric medication. However, factors such as drug use, excessive stress, and irregular sleep can hinder recovery in this population (Cuijpers et al., 2016). For this reason, it is critical to deepen our understanding of available interventions, their applicability, and their efficacy—defined as the ability of a procedure to achieve the desired effect (Martins, 2020). This study focuses on interventions for treating depression, given the alarming prevalence of this mental disorder among young people (Auerbach et al., 2016; Aktar et al., 2020).

Previous research has shown that prevention practices for mental disorders, including depression, can effectively reduce symptoms below clinical thresholds (Cuijpers et al., 2021; Breedvelt et al., 2018). Studies focusing on treatment have often addressed mental health in general, emphasizing the reduction of common difficulties rather than exclusively targeting depression (Worsley, Pennington, & Corcoran, 2022). Other research highlights the moderate efficacy of online interventions for stress, anxiety, and depression, both before (Rith-Najarian, Boustani, & Chorpita, 2019) and during (Malinauskas & Malinauskiene, 2022) the COVID-19 pandemic. Additionally, a systematic review of self-guided interventions (Amanvermez et al., 2022) reported modest effects, emphasizing the need for further investigation.

Recent systematic reviews (Wang, 2023; Zhang, 2020; Huang, 2024) have explored prevention and treatment practices for mental health more broadly. However, these studies often fail to address the specific question of the efficacy of psychotherapies tailored to the depressive symptoms experienced by university students. According to the authors, this specificity is essential

for understanding which methods are effective for particular emotional challenges and for developing more personalized treatment options (Huang, 2024). They also recommend that future research categorize results by disorder, context, culture, and therapeutic approach (Wang, 2023; Huang, 2024).

The efficacy of depression interventions has been studied in several contexts, including research conducted before the COVID-19 pandemic (Cuijpers et al., 2016; Huang, 2018), among Chinese university students (Fu et al., 2020), and during the pandemic (Wang, 2023). These studies demonstrate the effectiveness of various methods and underscore the importance of providing treatments to university students, as psychotherapies have shown moderate efficacy (Huang, 2018).

However, the diversity of interventions—ranging from prevention to treatment across different areas and approaches—highlights the need to evaluate efficacy by separating interventions based on the specific disorder or desired outcome. This differentiation allows for a clearer understanding of which treatments have been tested for particular populations and their effectiveness, rather than aggregating all interventions into a single metric.

As a result, there is a need to identify psychotherapeutic interventions specifically effective for treating depression in university students, focusing on studies conducted from 2018 onward. This approach will enable an evaluation of updated, personalized, and effective psychotherapeutic interventions tailored to individuals with specific mental health challenges. The last major review on this topic (Huang et al., 2018) serves as a starting point for this investigation.

This study aims to address this gap by providing updated findings, analyzing the efficacy of various intervention modalities, and highlighting their unique features. The focus on university students with depressive symptoms or diagnoses offers two key advantages: (1) greater homogeneity, which enhances the reliability and applicability of findings, and (2) a more accurate categorization of interventions aimed at reducing depression symptoms. Including studies that mix participants with and without depressive symptoms can be misleading, as pre-intervention symptom severity influences the measured efficacy of treatments.

Thus, the objective of this study is to categorize research evaluating the efficacy of mental health interventions aimed at alleviating depression in university students. By doing so, it seeks to provide an overview of evidence-based treatments for this population, facilitating the discussion of strategies to implement and promote these resources in response to the ongoing mental health crisis.

Method

To conduct this systematic review, the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) methodology was employed for study selection and coding (Liberati et al., 2009). The review aimed to address two central questions: (1) What is the efficacy of mental health interventions for university students with depression? (2) What types of psychotherapy are offered to university students?

These questions guided the study, which used narrative analysis to explore the landscape of psychotherapeutic treatments for university students with depression and their efficacy worldwide. This approach enabled the description of the interventions and programs implemented, along with the evidence supporting them, by assessing methodological quality, risk of bias, and the generalizability of studies targeting this population.

The protocol for this review was registered and approved in PROSPERO (International Prospective Register of Systematic Reviews) under registration number CRD42022375838.

Search Strategy

The databases used for this review included Web of Science, Scopus, PubMed, PsycInfo (PsycArticles and PsycBooks), and Scielo. The search strategy was developed using keywords derived from the research questions, combined with the Boolean operator "AND." The main search terms were "Treatment," "Depression," and "University Students."

Additionally, a search in the gray literature was conducted using PubPsych and ClinicalTrials.gov to identify clinical trials that had been completed but not yet published. The same search terms were applied, with platform-specific restrictions, such as temporal filters in PubPsych and the "with results" filter in ClinicalTrials.gov. The primary author conducted the initial search and analysis, with validation by a second reviewer to address any uncertainties.

Study Selection

After retrieving studies from the databases and removing duplicates, an initial screening process was conducted. Two reviewers independently and blindly assessed the titles and abstracts of the studies. This process, performed on the "Rayyan" platform for systematic reviews, followed pre-established inclusion and exclusion criteria.

Eligibility Criteria

Eligibility criteria were defined using the PICOT framework: P (Participants): University students diagnosed with or presenting symptoms of depression; I (Intervention): Mental health interventions aimed at improving or alleviating depression symptoms; C (Comparator): Studies with control groups, randomized or non-randomized; O (Outcome): Primary outcome was a significant reduction in depression symptom scores, assessed with validated quantitative or qualitative instruments (culturally adapted where applicable). Secondary outcomes included evaluations of stress, burnout, and quality of life; and T (Type of study): Studies published in peer-reviewed journals between 2018 and 2023.

The inclusion criteria were: (1) Studies investigating the efficacy of mental health interventions targeting university students with depression; (2) Interventions conducted within universities or online (e.g., via apps), provided they were led by health professionals; (3) Studies with a primary outcome of significant changes in depression scores, using validated instruments;

(4) Articles published in Portuguese, English, French, Spanish, or German; and (5) Freely accessible articles or those available through the University of São Paulo's institutional access.

Exclusion criteria included: (1) Studies with only pre-test and post-test results from the intervention group. (2) Non-peer-reviewed studies, such as conference proceedings or dissertations.

Data Extraction and Classification

The full text of the studies selected in the first screening was analyzed by two reviewers independently and blindly, with 10% of these studies initially analyzed together by pairs to ensure adherence to the criteria before proceeding to independent analysis. Disagreements between reviewers regarding the eligibility of studies were resolved through discussion and consensus, mediated by a third team member.

Data were extracted into a standardized and pre-tested form, which included collecting information related to identification, methodological characteristics, sample characteristics, recruitment method, data treatment, type of control, intervention characteristics, results, level of evidence, and methodological rigor assessment. Data extraction was conducted independently by each reviewer, maintaining the rigor of the systematic review. Similarly, 10% of the included articles had their data extracted by two reviewers, ensuring the quality and accuracy of the process. Discrepancies were resolved following the same procedure as the previous step.

Data Treatment

Primary data analysis focused on a descriptive approach, detailing intervention configurations, therapeutic methods, delivery modes, and participant outcomes before and after interventions. Secondary analysis coded information related to research design, participant characteristics, intervention methods, and results, enabling a comprehensive narrative synthesis.

The narrative synthesis approach was chosen because the included studies varied significantly in methodology, interventions, and populations, precluding statistical meta-analysis. This method allowed for greater flexibility in interpreting the data, ensuring a broader inclusion of studies to address the review's main questions and their practical and research implications.

Quality Assessment

The risk of bias assessment for each article was conducted using the "JBI Critical Appraisal Tool" (Barker et al., 2023). This instrument includes a checklist tailored to the specific type of research under analysis, covering various study designs. This level of detail was crucial in the tool selection process.

A group of reviewers evaluated each study based on these criteria, classifying the overall risk of bias for each study as low, moderate, or high. The assessment process was similar to the screening process: three articles were jointly analyzed in group meetings to ensure understanding

of the tool, while the remaining articles were independently and blindly evaluated by two reviewers. No discrepancies were found between the reviewers' assessments.

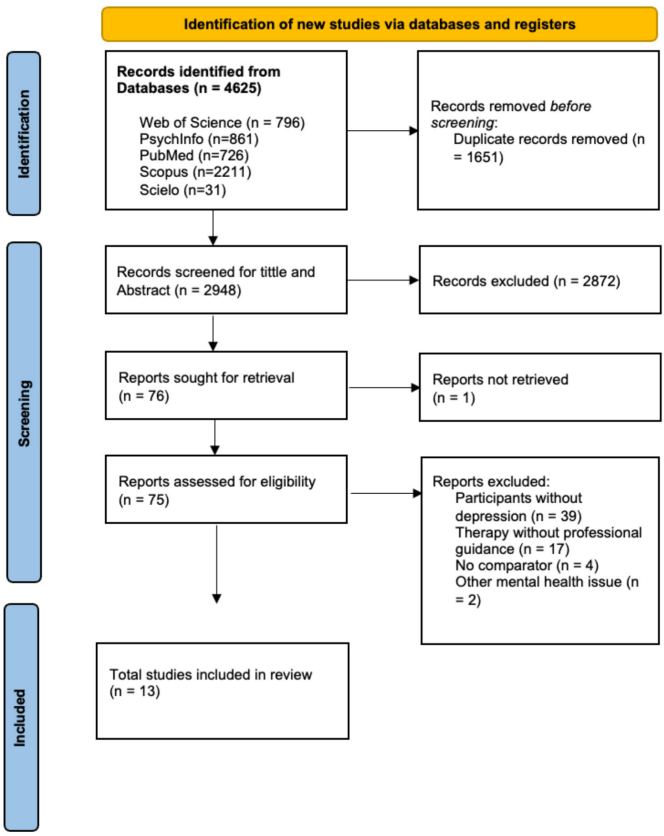
Results

Study and Sample Selection

The review began with a total of 4,625 articles. Of these, 1,651 were removed as duplicates, resulting in 2,948 studies eligible for title and abstract screening. After this selection, 2,872 studies were excluded, leaving 76 articles for full-text review. Among these, one article was inaccessible, and 75 articles were fully reviewed and individually assessed. A group review of all evaluations was conducted to resolve discrepancies, leading to the final selection of 13 scientific articles published between 2018 and 2023 for this systematic review. The screening process described above is illustrated below (Figure 1 – PRISMA).

Figure 1

PRISMA flow diagram



Characteristics of the Studies and Sample

The included studies comprised 939 participants with depressive symptoms. Of these, 61.5% used a diagnosis of depression confirmed by a health professional or determined through a cutoff on a self-report scale; 23% used self-report scales without specifying a cutoff for inclusion; and 15% did not report the instruments used for participant selection. The entire sample consisted of university students, with only two studies conducted at private institutions (Sawamura et al., 2022; Hamed et al., 2021).

The study population was 69% female, with participants' average age ranging from 19.7 ± 2.98 to 24.21 ± 5.2. Only two studies reported the participants' economic status: Ofoegbu et al. (2020) noted that 47.8% of the treatment group received some form of scholarship, while Ezegbe et al. (2019) reported that 67% of participants were classified as middle class.

Eight studies (61.5%) were identified as randomized clinical trials (RCTs), while five (38.5%) were controlled pre- and post-test studies. All articles provided data for T0 and T1, and 61.5% included follow-up measures at T2. It is important to note that T2 measures were not exclusive to RCTs, as shown in Table 1. However, the studies by Ezeudu et al. (2019) and Zhang et al. (2022) did not specify the time intervals between tests.

Of the 13 studies, 11 evaluated the efficacy of mental health interventions of interest compared to a control condition, such as a waiting list, support group, or usual treatment. However, three studies employed distinct designs or objectives. Lerardi et al. (2022) conducted a pre- and post-test study to compare the efficacy of psychodynamic therapies in online and face-to-face modalities. Similarly, Hamed et al. (2021) investigated the differences between cognitive-behavioral therapy (CBT) and physical exercise, using CBT as the control condition. Lastly, Yamamoto et al. (2018) conducted an exploratory clinical trial with a crossover design, in which participants received both treatments sequentially, separated by a "washout" period to minimize interference between interventions.

Comparisons between groups were made, though only Lerardi et al. (2022) did not present a baseline homogeneity analysis. For their study, they utilized SPSS Statistics 27.0 to compare participants who received emergency online counseling during the COVID-19 pandemic (January 2020–July 2021) with those who received on-demand counseling before the pandemic (January 2016–December 2019).

Table 1

Characteristics of the Studies

Study	Country	N	Age	Design	Follow-up	Control	T	p	Statistic	Effect size	IC	Scale
Demir & Ercan, 2022	Turkey	80	20,07 ± 1,69	RCT	3 months	Waitlist	T1	= 0,239	Z =-1.178	Cohen's d=0.136	NR	BDI
							T2	= 0,148	t= -1.464	Cohen's d=0.369	NR	
Ezegbe et al., 2019	Nigeria	55	21,43 ± 1,45	RCT	3 months	Waitlist	T1	=0,000*	F(1,53)=514.47	n2=0.91	38.93-43.42	GDS
							T2	=0,000*	F(1,53)=261.909	n2=918	43.28-47.04	
Ezeudu et al., 2019	Nigeria	23	22,25 ± 2,80	RCT	Yes (NR)	TAU	T1	< 0,001*	F(1,21)= 131.176	ηp2=.862	NR	BDI
Fereydouni & Forstmeier, 2022	Iran	60	23,3 ± 2.26	RCT	No	Minimal intervention support group	T1	<0,001*	F=56.8	Cohen's d=2.55	NR	BDI-II
García & Maldonado, 2022	Spain	139	19,7 ± 2,98	Pre and post test	1 Year	Waitlist	T1	<0,001*	(F[2, 101]=13,01	NR	NR	BDI
							T2	<0,001*	(F[2, 96]= 8,35	NR	NR	
Hamed et al., 2021	Egypt	54	20.77±1.16	RCT	No	Exercise	*****	≥ 0.05	Only reports effect size for exercise group (Wilks' Lambda = 0.07, F (8, 45) = 66.2, p = 0.001).			DASS 21
Lerardi et al., 2022	Italy	115	23,74 ± 3,25	Pre and post test	No	TAU	****	=0,34	F=.90	NR	NR	SCL-90R
Liang et al., 2021	China	52	20,73±1,87	RCT	No	Other	T1	=0,350	F(1,50)=0.890	NR	NR	SSS
							T1	=0,014*	F(1,50)=6.468	NR	NR	PHQ-9
							T1	=0,018*	F(1,50)=5.930,	NR	NR	PSS-10
Ofoegbu et al., 2020	Nigeria	192	24,21 ± 5,21	RCT	4 Weeks	TAU	T1	=,000*	F= 254.56	n2p=.959	64.83-68.05	BDI-II
							T2	=,000*	F=261.89	n2p=.960	63.93-67.06	
Ritkumrop et al., 2022	Thailand	42	21 (94%)	Pre and post test	No	Other	T1	<0,001*	F=36.26	Partial n2=0.53	NR	BDI
Sawamura et al., 2022	Japan	12	19.40 ± 1.14	Pre and post test	4, 8 e 12 Weeks	TAU	T1	=0,54	NR	Cohen's d= .37	NR	SDS
							T2	=0,04*	T=2.30	Cohen's d= 1.35	NR	
							T4	=0,24	NR	Cohen's d=.74	NR	
Yamamoto et al., 2018	Japan	31	20.7 ± 1.1	RCT -Crossover	No	TAU	T1	= 0,029*	t = -2.300,	NR	NR	SDS
Zhang et al., 2022	China	84	20.41±1.84	Pre and post test	Yes (NR)	Other	T1	<0,001*	F inter-group= 14.62	NR	NR	SDS

TAU= Treatment as usual
N= Participants at Baseline
NR= Not reported
* There was a statistically significant difference between them according to the Mann-Whitney U test with Bonferroni correction (p < 0.05).
**** Difference between online and in person treatments
***** Difference between CBT and exercise groups

Efficacy of interventions

The analysis of the research revealed that 12 studies (92.3%) demonstrated a significant reduction in depression scale scores for the treatment groups compared to the control groups. This indicates that the interventions used were effective in reducing depression levels, with the reduction being significantly greater than that observed in the control groups.

Table 1 presents the statistical significance ("p") reported for each study in relation to the improvement in depressive symptoms in the treatment group compared to the control group at T1 and, when applicable, T2 (follow-up). Of the 13 studies, 11 reported $p < 0.05$ for this comparison, indicating that the interventions were significantly more effective than the controls (Ritkumrop et al., 2022; García & Maldonado, 2022; Ofoegbu et al., 2020; Ezegbe et al., 2019; Demir & Ercan, 2022; Sawamura et al., 2022; Ezeudu et al., 2019; Zhang et al., 2022; Liang et al., 2021; Yamamoto et al., 2018; Hamed et al., 2021; Fereydouni & Forstmeier, 2022).

However, the study by Demir and Ercan (2022) did not find a statistically significant difference between the intervention and control groups in symptom improvement. Nonetheless, a significant improvement in depressive symptoms was observed within the treatment group over time (effect size = 0.970, $p < 0.001$). Similarly, Lunardi et al. (2022) reported no significant differences in the effectiveness of face-to-face versus online therapy. However, their study demonstrated the efficacy of both modalities, with face-to-face therapy showing $t = 5.12$, $p = 0.000$*, Cohen's $d = 0.57$, and online therapy showing $t = 2.82$, $p = 0.008$*, Cohen's $d = 0.48$.

Hamed et al. (2021) reported comparable results, showing that both cognitive-behavioral therapy (CBT) and physical exercise effectively reduced depressive symptoms compared to the pre-treatment period ($p \leq 0.001$). However, the study noted that "there was no significant difference in stress and depression between the groups after the intervention ($p \geq 0.05$)" (Hamed et al., 2021).

Characteristics of Interventions

In terms of intervention characterization, 61.5% of the studies investigated therapies based on the cognitive-behavioral approach (Demir & Ercan, 2022; Ezegbe et al., 2019; Ezeudu et al., 2019; García & Maldonado, 2022; Ofoegbu et al., 2020; Hamed et al., 2021; Liang et al., 2021; Ritkumrop et al., 2022). Among these eight interventions, six (75%) were face-to-face, while two (25%) were conducted online. One online intervention was described as "based on ICBT theory" (Ofoegbu et al., 2020), and the other was a conventional CBT program conducted online (Hamed et al., 2021).

Within the cognitive-behavioral approach, 25% of the studies (or 15% of the total articles) followed third-wave cognitive-behavioral therapy frameworks, specifically Dialectical Behavior Therapy (DBT) (Liang et al., 2021) and Acceptance and Commitment Therapy (ACT) (Ritkumrop et al., 2022). Both interventions were conducted face-to-face.

The remaining five studies adopted different theoretical approaches. These included online psychodynamic therapy (Lenardi et al., 2022), interpersonal therapy (Sawamura et al.,

2022; Yamamoto et al., 2018), life education counseling (Zhang et al., 2022), and spiritually sensitive logotherapy (Fereydouni & Forstmeier, 2022). Among these seven studies, only one (Lenardi et al., 2022) involved online and individual psychotherapy. The other interventions were conducted face-to-face, with half delivered in group settings.

Sawamura et al. (2022) followed the traditional model of individual, face-to-face therapy in 50-minute sessions, using interventions from third-wave cognitive-behavioral therapies (ACT and DBT). However, the study did not adhere to the recommended application protocol. Additionally, Zhang et al. (2022) noted that participants in their study received the intervention while undergoing medication treatment, with dosage and use consistent across both the intervention and control groups.

Four interventions followed established protocols previously published and tested by other authors. Ezegbe et al. (2019) used the "Treatment Manual for Cognitive Behavioral Therapy for Depression" by Rosselló and Bernal (2007). Ezeudu et al. (2019) followed the "Managing Depression Using Rational Emotive Behavior Therapy (REBT)" manual by David et al. (2004). Hamed et al. (2021) utilized "A Therapist's Guide to Brief Cognitive Behavioral Therapy" by Cully and Teten (2008). Sawamura et al. (2022) based their intervention on the manual "Interpersonal Counseling (IPC) for Depression in Primary Care" by Weissman et al. (2014), while Yamamoto et al. (2018) referred to the manual "How to Proceed with Interpersonal Counseling" by Mizushima.

However, two studies did not provide sufficient details about the content and organization of their sessions to enable replication (Lenardi et al., 2022; Ofoegbu et al., 2020). In contrast, all other studies described the themes and techniques used during the sessions, allowing for the potential implementation of these treatments in future research.

Table 2

Characteristics of Interventions

Study	Intervention	Mode	Format	Sessions	Duration	Frequency	Description	Adherence
Demir & Ercan, 2022	cognitive behavioral therapy-based group counseling	In person	Group (6-10 persons)	6	60-90 min	Once a week	Yes	80%***
Ezegbe et al., 2019	Cognitive Behavior Therapy (CBT)	In person	Group	12	50-60min	Once a week	Yes	100%
Ezeudu et al., 2019	Rational-emotive behaviour therapy psychoeducational programme	In person	Individual	20	50 min	Twice a week	Yes	100%
Fereydouni & Forstmeier, 2022	Spiritually Sensitive Logotherapy	In person	Group	12	120 min	Once a week	Yes	NR
García & Maldonado, 2022	Brief Cognitive Behavior Therapy (CBT)	In person	Group (8 persons)	4	120 min	Once a week	Yes	100%
Hamed et al., 2021	Cognitive Behavior Therapy (CBT)	Online	Group	8	90 min	Once a week	Yes	NR
Lerardi et al., 2022	Psychodinamic	Online	Individual	4	50 min	Once a week	No	100%
Liang et al., 2021	Dialectical Behavior Therapy	In person	Group (8-9 persons)	8	90 min	Twice a week	Yes	100%
Ofoegbu et al., 2020	guided internet-assisted intervention (GIAI)	Online	Individual	20***	NR	Twice a week	No	100%
Ritkumrop et al., 2022	Integrative psychotherapy ACT + CBT	In person	Individual	8	45-60 min	NR	Yes	85%
Sawamura et al., 2022	Interpersonal therapy (IPC)	In person	Individual	3	50 min	Once a week	Yes	100%
Yamamoto et al., 2018	Interpersonal therapy (IPC)	In person	Individual	3	50 min	Once a week	Yes	NR
Zhang et al., 2022	Psychological Counseling + medication	In person	Group	6	90 min	Once a week	Yes	NR

**** Manually calculated for this review, NR= not reported, TAU= treatment as usual*

Quality Assessment and Risk of Bias

Twelve of the included articles were classified as having a medium risk of bias, while one was categorized as high risk. The study with high risk employed a crossover design but failed to report the washout period between interventions, potentially leading to result interference. Furthermore, only five participants opted to try the alternative intervention after the initial phase, undermining the validity of the crossover design, the analysis between conditions, and ultimately contributing to the high risk of bias (Yamamoto et al., 2018).

Nevertheless, some level of bias was present in all studies. A primary source of bias was the lack of blinding for participants and researchers. The nature of psychotherapy research makes it challenging to ensure participants are unaware of the intervention they are receiving. Only three studies included blinding in data analysis, where analysts were not informed of the

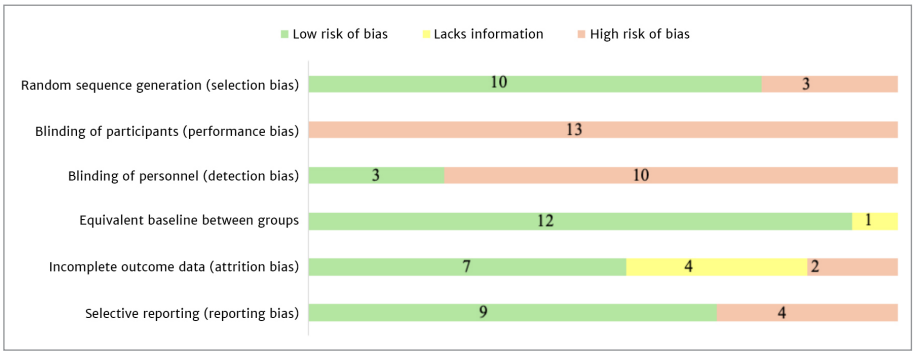
treatment or control groups (Ezegbe et al., 2019; Demir & Ercan, 2022; Sawamura et al., 2022). Other significant sources of bias included randomization of groups, choice of instruments, and transparency in reporting. The distribution of studies by risk of bias is shown in Figure 2.

Randomization of the population is critical for enhancing the reliability of results, and 76% of the reviewed studies employed this methodology. However, potential selection bias remains a concern, as voluntary participation may affect the representativeness of the sample. Another limitation was the reliance on self-report scales to assess participants' depressive symptoms, which compromises data reliability. All studies included in this review used self-report scales. Additionally, 76% of the studies relied on a single scale to measure depression, 20% used both a depression scale and a quality-of-life scale, and only 10% employed more than one self-report scale for depressive symptoms (Table 2). Variability in scales across studies complicates comparisons and result interpretation. Commonly used scales included the Beck Depression Inventory I and II (BDI-I, BDI-II), Depression Anxiety Stress Scales-21 (DASS-21), Zung Self-Rating Depression Scale (SDS), Symptom Severity Scale (SSS), Patient Health Questionnaire-9 (PHQ-9), Perceived Stress Scale-10 (PSS-10), and the Symptom Checklist-90-Revised (SCL-90-R). It is important to note that the DASS-21 measures depression as one of its three subscales.

Transparency issues were also identified. Two studies did not report the follow-up period, and five studies failed to fully conduct follow-ups. Attrition rates were unreported in four studies, and for half of these, attrition was manually calculated during this review, as only limited data were available. Similarly, three articles did not report the number of participants who completed the interventions (Table 2).

Figure 2

Descriptive Risk of Bias



Discussion

The results of the analyzed studies demonstrated that mental health interventions for university students with depression had a positive effect on symptom reduction. Among the 13 included articles, 11 reported statistically significant reductions in depressive symptoms compared to control groups. The remaining two studies also showed significant differences between the two interventions tested as treatments. These findings address the question of the effectiveness of interventions for university students with depression.

Regarding the types of psychotherapy offered, the second question of this research, there was a notable predominance of interventions based on cognitive-behavioral therapy (CBT). This is likely due to the standardized nature of CBT protocols, the ease of training professionals in this approach, and its suitability for controlled methodology research. CBT also stands out for its focus on short-term treatments. Although the review aimed to include a variety of methods, theories, and approaches, psychodynamic and existential approaches were underrepresented, and no studies utilized gestalt or systemic approaches. The methods included randomized clinical trials and pre- and post-test designs, all employing quantitative methodologies. While qualitative studies were eligible for inclusion to provide greater subjectivity in the analysis, none of the included studies utilized this approach alongside a comparator.

The findings align with previous studies on depression treatment in specific populations (Taghvaienia & Alamdari, 2020; Pu et al., 2017) and corroborate prior reviews that concluded that mental health interventions for university students are significantly effective (Wang, 2023; Zhang, 2020; Huang, 2024; Fu et al., 2020). Specifically, this review confirms that interventions targeting depression effectively reduce symptoms.

Despite the diversity of interventions, all achieved their intended outcomes, likely due to "common factors" such as therapeutic relationships, empathy, collaboration, and hope for improvement (Wampold, 2015). Specific factors, including cultural and contextual adaptations, were also important. For example, the use of technology in interventions for university students (Ofoegbu et al., 2020) and CBT strategies such as psychoeducation, action plans, and session structuring facilitated the applicability and dissemination of these interventions (Cuijpers et al., 2021).

Beyond efficacy, this systematic review provided insights into the global landscape of evidence-based treatments for university students with depression. Studies included significant representation from Asian countries (China, Japan, Iran, Thailand), African countries (Nigeria, Egypt), and European countries (Spain, Italy). However, there was no representation from North American countries and limited representation from Latin America, potentially limiting the generalizability of the findings. The review also highlighted how research on psychological interventions is expanding into regions beyond the traditionally dominant Western countries. For example, while the United States has focused on self-guided interventions (Amanvermez et al., 2022), similar modernization efforts are emerging in less economically powerful countries such as Nigeria, where apps like Guided Internet-Assisted Intervention (GIAI) have been tested

(Ofoegbu et al., 2020). These interventions offer quick, cost-effective solutions that are attractive to educational institutions and investors. Nevertheless, most interventions tested were face-to-face.

In the Middle East (Iran and Egypt), interventions often incorporated cultural and spiritual sensitivities, such as spiritually sensitive logotherapy in Iran. In Asian countries like Japan and China, structured approaches such as Interpersonal Therapy and CBT predominated, with adaptations to local contexts. In Europe (Italy and Spain), psychodynamic interventions reflected clinical practices typical of European public health systems. Nigeria was the most represented country, with three studies, all testing CBT-based interventions. China contributed two studies, one testing dialectical behavior therapy (Liang et al., 2021) and the other life education counseling with a more flexible structure (Zhang et al., 2022). In Japan, both studies explored interpersonal therapy (Sawamura et al., 2022; Yamamoto et al., 2018).

The widespread use of CBT in these interventions reflects its broad dissemination and the availability of training and support for its implementation. Group interventions, which require fewer resources, also facilitate implementation. They promote interaction among students and foster a sense of belonging within the university. Face-to-face interventions further enhance this sense of belonging by encouraging connection with peers and faculty (Arslan, 2021).

While the included studies demonstrated efficacy, they did not address the availability of these interventions for students beyond the research phase. The lack of plans for long-term implementation limits their potential impact. Although effective, the studies did not discuss how these interventions could be made sustainable.

The limited number of studies in this review can be attributed to the specificity of the inclusion criteria and practical and methodological challenges. For example, robust methodologies, including control groups, were required. Additionally, many studies did not screen participants for diagnoses or symptoms, making it difficult to categorize interventions for specific populations. However, this limitation is offset by the benefit of generating data on targeted interventions for university students, which can guide professionals and institutions.

While the composition of the sample and average age allow for some generalization of the results, the small sample sizes in most studies are a limiting factor. As noted in the risk of bias analysis, the lack of randomization was another limitation. The reliance on self-report scales with varying validity also affected data quality. Furthermore, no study used alternative measures of depression, such as therapeutic evaluations, psychiatric assessments, or physiological tests.

Limitations

This review has important limitations. It did not restrict inclusion to randomized controlled trials (RCTs), aiming to encompass quantitative and qualitative studies and underrepresented approaches. However, no included study employed qualitative methodologies, limiting the depth and subjectivity of the findings. Other limitations include the small number of included articles, heterogeneity among studies, and the absence of a meta-analysis.

Future Research

Future research should address the feasibility of long-term interventions, including resource availability, funding, and the training of qualified professionals. Additionally, studies should focus on the practical application of intervention protocols, ensuring their rigor and sustainability in real-world settings.

Final Considerations

This systematic review categorized existing research on psychological interventions for university students with depression, providing evidence to inform decision-making on this global issue. The review concluded that the interventions effectively reduced depressive symptoms in this population. It also presented an overview of evidence-based treatments, including culturally sensitive interventions, expanding access to information for the scientific community and aiding decision-making for the feasibility and implementation of these interventions.

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Ariane Voltolini Paião: Contributed to defining the research topic, participated in the study selection process, including article screening and inclusion decisions, data extraction, article analysis, risk of bias assessment, manuscript writing, and revision.

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Camila Stefany da Silva: Contributed by following weekly discussions on inclusion and risk of bias assessment, data extraction, analysis of included studies, and provided support in result synthesis and manuscript writing.

Andrés Eduardo Aguirre Antúnez: Contributed by organizing the team and researchers under his supervision, overseeing weekly meetings and progress, and conducting the final manuscript review.

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