

## The effectiveness of Cognitive Behavioral Therapy on Internet addiction among university students. A systematic review

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### Abstract

**Background:** The rapid growth of internet usage has led to the emergence of internet addiction (IA), particularly among university students, who face significant academic, social, and recreational reliance on the internet. Cognitive Behavioral Therapy (CBT) has been recognized as an effective treatment for various behavioral addictions, yet its efficacy in addressing internet addiction among university students requires further investigation. This systematic review examines the impact of CBT on reducing IA symptoms among university students.

**Methods:** A comprehensive search of multiple electronic databases was conducted to identify studies published from 2018 to 2023 focusing on CBT interventions for IA among university students. Eight studies were included, with findings from countries such as Iran, China, Nigeria, Palestine, and Morocco.

**Results:** The studies' results demonstrated that CBT, including group-based and mindfulness-based approaches, significantly reduced IA symptoms and improved self-control, self-efficacy, and overall mental health. The positive effects were sustained over time, suggesting the long-term benefits of CBT. However, the review also highlighted several limitations, including the exclusion of non-English studies and a small number of studies.

**Conclusion:** The findings suggest that CBT can be an effective and culturally adaptable intervention for IA among university students. CBT consistently demonstrated positive effects in reducing IA symptoms, improving self-control, and enhancing psychological well-being. Future research should explore larger sample sizes, longer follow-up periods, and diverse cultural contexts to strengthen the understanding of CBT's effectiveness. Educational institutions may also benefit from implementing preventative measures and awareness programs to address IA proactively.

### Abstrak

**Latar Belakang:** Pesatnya pertumbuhan penggunaan internet telah menyebabkan munculnya kecanduan internet (IA), khususnya di kalangan mahasiswa, yang menghadapi ketergantungan signifikan pada internet untuk kegiatan akademis, sosial, dan rekreasi. Terapi Perilaku Kognitif (CBT) telah diakui sebagai pengobatan yang efektif untuk berbagai kecanduan perilaku, namun kemanjurannya dalam mengatasi kecanduan internet di kalangan mahasiswa masih memerlukan penyelidikan lebih lanjut. Tinjauan sistematis ini mengkaji dampak CBT dalam mengurangi gejala IA di kalangan mahasiswa.

**Metode:** Pencarian komprehensif terhadap beberapa basis data elektronik dilakukan untuk mengidentifikasi studi yang diterbitkan dari tahun 2018 hingga 2023 yang berfokus pada intervensi CBT untuk IA di kalangan mahasiswa. Delapan studi disertakan, dengan temuan dari negara-negara seperti Iran, Tiongkok, Nigeria, Palestina, dan Maroko.

**Hasil:** Hasil studi menunjukkan bahwa CBT, termasuk pendekatan berbasis kelompok dan berbasis kesadaran, secara signifikan mengurangi gejala IA dan meningkatkan pengendalian diri, efikasi diri, dan kesehatan mental secara keseluruhan. Efek positifnya berkelanjutan dari waktu ke waktu, yang menunjukkan manfaat jangka panjang dari CBT. Akan tetapi, kajian tersebut juga menyoroti beberapa keterbatasan, termasuk pengecualian studi non-Inggris dan sejumlah kecil studi.

**Kesimpulan:** Temuan menunjukkan bahwa CBT dapat menjadi intervensi yang efektif dan dapat disesuaikan secara budaya untuk IA di kalangan mahasiswa. CBT secara konsisten menunjukkan efek positif dalam mengurangi gejala IA, meningkatkan pengendalian diri, dan meningkatkan kesejahteraan psikologis. Penelitian di masa mendatang harus mengeksplorasi ukuran sampel yang lebih besar, periode tindak lanjut yang lebih lama, dan konteks budaya yang beragam untuk memperkuat pemahaman tentang efektivitas CBT. Lembaga pendidikan juga dapat memperoleh manfaat dari penerapan tindakan pencegahan dan program kesadaran untuk menangani IA secara proaktif.

## INTRODUCTION

The rapid proliferation of the internet has brought about unprecedented advancements in communication, information access, and convenience. However, the pervasive and excessive use of the internet has given rise to a phenomenon known as internet addiction, a condition characterized by compulsive internet use that interferes with daily functioning and well-being [1]. Among the demographic groups significantly affected by this phenomenon are university students, who are particularly vulnerable due to their increased reliance on the internet for academic, social, and recreational purposes [2].

Cognitive Behavioral Therapy (CBT), a widely recognized and empirically supported psychotherapeutic approach, has demonstrated efficacy in treating various mental health disorders, including addiction. The fundamental principles of CBT involve identifying and challenging maladaptive thoughts and behaviors, cultivating coping skills, and facilitating behavior change [3]. While CBT has been applied effectively in addressing substance abuse and other behavioral addictions, its potential in treating internet addiction among university students remains an area that demands closer scrutiny [4].

While anecdotal evidence suggests a rising prevalence of internet addiction cases among this demographic, a comprehensive and evidence-based understanding of the effectiveness of CBT as an intervention is lacking. This void in empirical research highlights the need for a systematic review and meta-analysis to synthesize existing studies, discern patterns, and provide a consolidated overview of the impact of CBT on internet addiction among university students [5].

The proposed systematic review and meta-analysis seek to bridge this gap in the literature. By aggregating and analyzing available research, this study aims to offer insights into the potential benefits of CBT in mitigating internet addiction's adverse effects on university students' mental health, academic performance, and overall well-being [6]. The findings are anticipated to inform future interventions, policies, and practices aimed at promoting a healthier internet usage culture among the student population and similar academic settings. Ultimately, this research endeavors to contribute to the advancement of knowledge in the field of internet addiction and therapeutic interventions [7].

## METHOD

A systematic review was conducted to evaluate the impact of Cognitive Behavioral Therapy (CBT) on internet addiction among university students. The study design followed established guidelines for systematic reviews and adhered to PRISMA (Preferred Reporting Items for Systematic Reviews). A comprehensive search strategy was formulated and implemented across electronic databases, including PubMed, ScienceDirect, Web of Science, Embase, Cochrane Library, ClinicalTrials.gov, Research Gate, and Google Scholar. The search aimed to identify relevant studies published from 2018 to 2023, employing a combination of keywords and controlled vocabulary terms related to "("Cognitive Behavioral Therapy"[Mesh]) AND

"Internet Addiction Disorder"[Mesh]) AND "students"[Mesh])".

We conducted an advanced search in PubMed using "("Cognitive Behavioral Therapy"[Mesh]) AND "Internet Addiction Disorder"[Mesh]) AND "students"[Mesh]). In the Web of Science core selection, the following search technique was used: Cognitive Behavioral Therapy AND Internet Addiction AND university students.

In Embase, the search strategy was (Cognitive Behavioral Therapy OR CBT) AND (Internet Addiction OR Internet Use Disorder OR Excessive Internet Use OR Compulsive Internet Use) AND (University Students OR College Students OR Higher Education)" while in Cochrane Library, we used the following search strategy: (Cognitive Behavioral Therapy OR CBT) AND (Internet Addiction OR Internet Use Disorder OR Excessive Internet Use OR Compulsive Internet Use) AND (University Students OR College Students OR Higher Education).

In Research Gate Internet Addiction Disorder AND Cognitive Behavioral Therapy AND Behavior Addictive AND Students, ClinicalTrials.gov, the search strategy was CONDITION/DISEASE = internet addiction, OTHER TERMS = cognitive behavioral therapy, university students AND STUDY DATE = 1/1/2018 up to 1/09/2023. Finally, in Google Scholar, the search terms were: Cognitive Behavioral Therapy AND Internet Addiction AND university students (2018 to 2023).

### Population:

This review exclusively focused on university students as the target population. Studies involving participants outside of this demographic were not considered.

### Intervention

The included studies featured only Cognitive Behavioral Therapy (CBT) as a primary intervention for Internet Addiction among university students.

### Comparison:

Studies selected included those that compared CBT interventions to either alternative therapeutic approaches or control groups that did not receive CBT.

### Outcome:

The included studies provided quantitative data concerning the impact of CBT on Internet Addiction among university students. This data encompassed measures of addiction severity, reductions in Internet usage, and other pertinent outcomes.

### Study Type:

Both randomized controlled trials (RCTs) and non-randomized Quasi-experimental studies were eligible for inclusion. This diversity in study designs enhanced the comprehensiveness of the review.

### Language:

Only studies published in the English language were considered, due to our language capabilities.

### Selection and screening

The database was updated with the identified articles by an Excel sheet, and the screened was conducted by four reviewers. A screening process was conducted for the titles and abstracts; all papers potentially meeting the inclusion criteria were retrieved in their full text, and a review (E) would be consulted if there were any discrepancies between the two reviewers.

#### Data Extraction:

The Excel table was used to extract the data from selected full articles. Publication information was included in the data collected (author, title, year, Doi, URL, abstract) by two independent reviewers (Emad and Aml).

#### Quality assessment:

The methodological quality of the included studies was assessed using the Cochrane Risk of Bias tool

(ROB2)[8] for randomized controlled trials (RCTs). Studies were evaluated based on domains such as random sequence generation, allocation concealment, blinding of participants and personnel, incomplete outcome data, selective reporting, and other sources of bias. Quality assessment was conducted independently by two reviewers (Naeima and Aml), and any discrepancies were resolved through discussion. The methodology and standard outcome reporting of the included studies were assessed by two researchers (Naeima and Aml), with any discrepancies resolved through discussions among themselves or consultation with senior researchers. A risk assessment of bias in non-randomized exposure studies (ROBINS-E) was used to evaluate the quality of quasi-experimental studies [9].

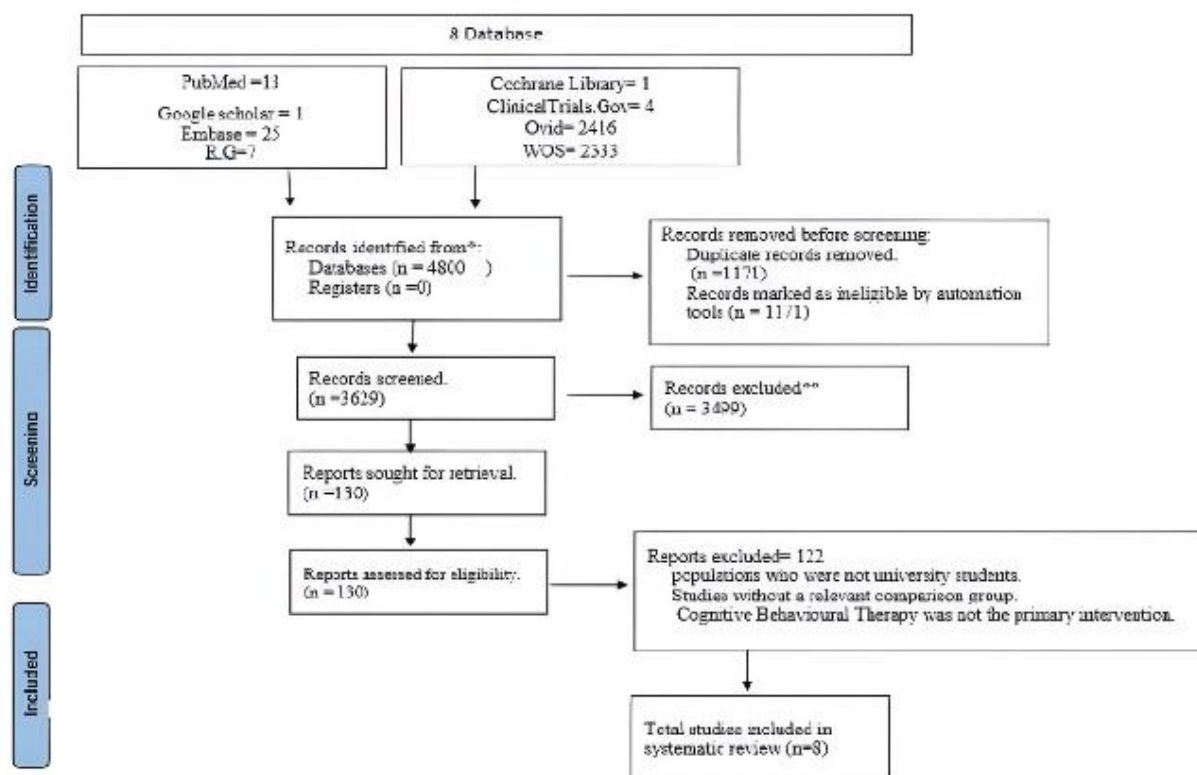


Figure 1. Prisma Flow Diagram [10]

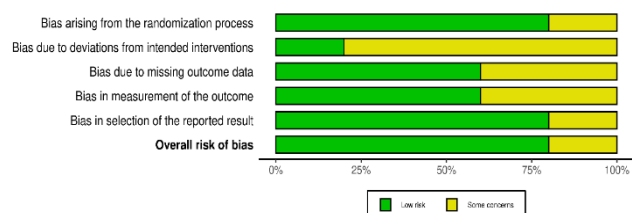


Figure 2. Rob2 Tools For RCT Studies [8]

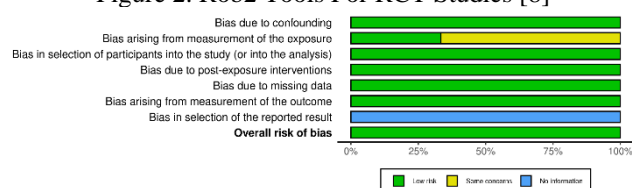


Figure 3. Robin-E Tools For Quasi-Experimental Studies [9]

## RESULT

This literature review contains eight journals as a Prisma flow diagram for analysis and synthesis in discussing the effectiveness of cognitive behavioral therapy in reducing Internet-addicted (IA) college students. The area of these eight studies used in this systematic review was in different countries, with particulars of two studies in Iran, two studies in China, one in Nigeria, one in Palestine, and one in Morocco at the time of publication between 2018 and 2023.

The research study design used in this research has been diverse, with almost all randomized control trials with a pre-post-test design. The main intervention was CBT at different times of the sessions, but with the same results (reducing IA) see Table 1 below.

Table 1. Literature Review Result about Effectiveness Of Cognitive Behavioral Therapy In Reducing Internet-Addicted (IA)

Author	Title	Study design	Participants	Sample size	Intervention	outcome	Sessions
Hamu et al, 2020 [11]	The Effect of Cognitive Commitment Behavioral Therapy on Internet Addiction among Adolescents in Kupang City	Quasi-experimental	Adolescents	N=58 Control group=28 Intervention group=30	Cognitive Commitment Behavioral Therapy (CCBT)	Internet addiction	5
Zeidi,et al 2020 [12]	The Effectiveness of Group Cognitive-Behavioral Therapy on General Self-Efficacy, Self-Control, and Internet Addiction Prevalence among Medical University Students	RCT	University Students	N=80 Control group=40 Intervention group=40	Group Cognitive-Behavioral Therapy	Self-control Compulsive internet use Internet addiction	10
Ksiksou,et al 2023 [13]	Effects of Cognitive-Behavioral Group Therapy on the Management of Internet Addiction, Depression, Anxiety, and Stress Among Nursing Students in Morocco	pretest and posttest design	Higher Institute of Nursing	N=60 Control group =30 Intervention group=30	Cognitive-Behavioral Group Therapy	Internet Addiction Test. Depression, Anxiety, and Stress.	8
Lan et al 2018 [14]	A pilot study of a group mindfulness-based cognitive-behavioral intervention for smartphone addiction among university students	RCT	University students	N=70 Control group =29 Intervention group =41	group mindfulness-based cognitive-behavioral intervention	smartphone addiction. Mobile Phone Internet Addiction Scale	8
Ede et al, 2021 [15]	Testing the efficacy of group cognitive-behavioral therapy for pathological Internet Use among	RCT	University students	N=40 Control group =20 Intervention group=20	group cognitive-behavioral therapy	The Generalized Problematic Internet	8
Affouneh et al 2021 [16]	The efficacy of a training program for social skills in reducing addictive Internet behaviors among Palestinian University students	RCT	University students	N=30 waitlist =15 treatment group=15	training program	Internet Addiction. Social skills.	8
Yang et al, 2022 [17]	Impact of Short-Term Intensive-Type Cognitive Behavioral Therapy Intervention on Internet Addiction among Chinese College Students: A Randomized Controlled Trial	RCT	University students	N=43 Control group =21 Intervention =22	Cognitive Behavioral Therapy (CBT)	Internet Addiction Tendency. Psychological State Indicators. Internet Addiction Improvement Motivation	5
Alavi et al 2020 [18]	The effects of cognitive behavioral group therapy for reducing symptoms of internet addiction disorder and promoting quality of life and mental health	quasi-experimental	University students	N=50 Control group=25 Intervention group=25	cognitive-behavioral group therapy	Internet addiction symptoms, quality of life (QOL), and mental health (depression, anxiety, and somatization symptoms using the SCL90-R	15

Cognitive behavioral therapy (CBT) is successful in lowering Internet addiction (IA) among college students through the use of randomized controlled trials (RCTs) with pre-post-test designs. All trials showed a substantial decrease in IA symptoms, regardless of the number of therapy sessions, demonstrating the consistent beneficial effects of CBT. Furthermore, other research emphasized benefits that went beyond lowering IA, such as improved social skills, decreased compulsive internet use, improved psychological well-being, and improved self-control. For instance, Ksiksou et al. (2023) reported decreases in stress, anxiety, and sadness, while Zeidi et al. (2020) discovered that group cognitive behavioral therapy (CBT) enhanced self-control and reduced compulsive internet usage.

Furthermore, Lan et al. (2018) found that mindfulness-based cognitive behavioral therapy treatments were successful in reducing smartphone addiction. Implementation obstacles were identified, nevertheless, including the time commitment needed and the possibility of participant dropout in lengthier sessions. Notwithstanding these difficulties, the results unequivocally demonstrate that CBT is a successful strategy for treating IA and enhancing college students' general mental health.

The comparison of the effectiveness and barriers of Cognitive Behavioral Therapy (CBT) in reducing internet addiction (IA) is shown in Table 2 below.

Table 2. Comparison Of The Effectiveness And Barriers Of Cognitive Behavioral Therapy (CBT) In Reducing Internet Addiction (IA)

Author	Effectiveness of CBT	Barriers to CBT Implementation
Hamu et al 2020 [11]	Teenagers in Kupang City who had five CCBT sessions reported less internet addiction.	Limited generalizability as a result of the study's local focus and small sample size.
Zeidi,et al 2020 [12]	After ten sessions, medical students' excessive internet use decreased, and their self-control improved.	The amount of time needed for group therapy may prevent some students from participating.
Ksiksou,et al 2023 [13]	After eight group CBT sessions, there was a significant decrease in stress, anxiety, sadness, and Internet Addiction Test (IAT) scores.	Possible cultural variations that impact the efficacy of treatment.
Lan et al 2018 [14]	According to the Mobile Phone Internet Addiction Scale, smartphone addiction decreased as a result of mindfulness-based cognitive behavioral therapy.	Therapists must have specific training to incorporate mindfulness practices.
Ede et al, 2021 [15]	Internet Problems in General. After eight group CBT sessions, use declined.	Little long-term impact follow-up data.
Affounneh et al 2021 [16]	Among Palestinian students, the training program decreased Internet addiction and enhanced social skills.	The impact of social skills training is impacted by sociocultural obstacles.
Yang et al 2022 [17]	To lessen internet addiction, a brief, intense cognitive behavioral therapy intervention enhanced motivation and psychological state markers.	Five sessions may not be enough to influence behavior over the long run.
Alavi et al 2020 [18]	CBT improved mental health markers (anxiety, depression), quality of life (QOL), and symptoms of internet addiction.	More sessions are needed, which might result in participant attrition

CBT continuously showed benefits in lowering IA symptoms, boosting psychological well-being, and improving self-control across the eight studies. Notably, Ksiksou et al. (2023) and Alavi et al. (2020) noted other advantages such as a decrease in tension, anxiety, and depression, while Hamu et al. (2020) and Zeidi et al. (2020) showed a decrease in compulsive internet usage and an improvement in self-control among students. Additionally, Lan et al. (2018) found that mindfulness-based CBT successfully treated smartphone addiction, suggesting the possibility of customized therapies.

Notwithstanding its efficacy, several obstacles to the application of CBT were found. In some trials, time commitment was a problem, and extended therapy durations (e.g., 15 sessions in Alavi et al., 2020) resulted in participant dropout. Furthermore, therapy results may be impacted by socio-cultural obstacles (Affounneh et al., 2021) and cultural differences (Ksiksou et al., 2023). Although shorter treatments, like Yang et al.'s five-session program from 2022, demonstrated immediate effects, they raised questions regarding long-term behavior change. Additionally, the incorporation of mindfulness practices necessitated specific training for therapists (Lan et al., 2018), which could have limited its availability. These results highlight the necessity for flexible CBT techniques

that strike a compromise between practical implementation issues and efficacy.

## DISCUSSION

This study was a systematic review containing 8 studies after screening in multiple electronic databases. This study aimed to assess the effect of CBT on internet addiction among students. Previous studies used eight sessions of Group cognitive-behavioral therapy (GCBT) as a primary intervention to decrease symptoms of pathological internet use (PIU) among college students in Nigeria. The result stated that the improvements in PIU symptoms were maintained at follow-up, indicating the long-term effectiveness of GCBT [15].

In another research, Alavi et al. [18] used 15 sessions of Cognitive-behavioral group therapy to be effective in reducing symptoms of internet addiction. The result stated that therapy improves the quality of life and mental health of students with internet addiction. The intervention can be used to reduce symptoms of internet addiction and improve the condition of people with behavioral addictions.

The use of social media has grown exponentially, with close to one-third of the world's population being engaged in it. The result stated that social media addiction

is defined as the compulsive use of social media sites that manifests in behavioral addiction symptoms. Training programs that focus on enhancing social skills are effective in reducing Internet addiction and improving social skills among adolescents [16].

Short-term intensive-type Cognitive Behavioral Therapy (CBT) intervention can reduce internet addiction symptoms and improve the sense of coherence among Chinese college students [17]. The intervention program did not significantly reduce average daily internet use time and psychological stress. Sustained effects of the intervention include decreased internet addiction symptoms and improved perceived social support from significant others.

The result of the previous study stated that the intervention group, which received the 8-week GMCI, showed significant decreases in smartphone use time and Mobile Phone Internet Addiction Scale (MPIAS) scores from baseline to the first follow-up. Compared to the control group, the intervention group had significantly less smartphone use time at post-intervention and the two follow-up assessments, as well as significantly lower MPIAS scores at the first follow-up [14]. These findings suggest that the GMCI can effectively alleviate smartphone addiction among university students.

A quasi-experimental study in Kupang City showed that CCBT had a positive effect on reducing the level of internet addiction among the intervention group. The researchers recommend the effective implementation of CCBT in healthcare services, schools, and communities to reduce internet addiction [11]. Another research suggests that GCBT can be an effective treatment for medical university students struggling with IA, improving psychological variables associated with IA [12]. A study in Morocco showed that the intervention group exhibited a reduction in internet addiction, depression, anxiety, and stress scores following the CBGT program [13].

Several research investigations have been carried out to determine the prevalence in this target group. The incidence of Internet addiction varies widely. According to recent research, the incidence among pupils across different countries ranges from 4.0% to 25.3% [19–22]. According to research, the rate ranged from 0 to 26.3% in the USA [23] and from 0.8 to 13.5% in the EU [24–26]. It is estimated that 2.3% to 25.3% of Asians suffer from Internet addiction [27]. In the Middle East, the disorder affected 1 to 28.4% of students [28, 29]. Turkish students had the greatest incidence (11.6–28.4%) [30]. Furthermore, a lot of studies on adult Internet addiction have been conducted across different countries. Studies have revealed prevalence rates of the Young's Internet Addiction Test, which range from 1.2% in the UK [25] to 40% of university students in Jordan [27]. On the other hand, Chen's Internet Addiction Scale revealed that the prevalence of Internet addiction among adult Taiwanese ranged from 12.3% [31] to 17.9% [32]. However, according to the Internet Addiction Diagnostic Questionnaire [33], 1.0% of Norwegians [34] and 22.8% of Iranian Internet users [35] reported having an addiction to the Internet. From the previous studies, there a limited studies in North Africa, and there are no studies in Libya

conducted on internet addiction so this research proposal will be a guide for discovering the situation there.

The study concludes that CBGT is effective in improving the cognitive, psychological, and behavioral skills of nursing students with internet addiction, leading to a reduction in depression, anxiety, and stress levels [36]. Cognitive-Behavioral Group Therapy (CBGT) is a well-organized therapeutic method that emphasizes the intricate relationship between thoughts, emotions, and behaviors. The primary objective of CBGT is to recognize and transform negative patterns of thinking and behavior. This therapeutic approach typically involves a collective of individuals who share similar concerns and actively participate in therapeutic exercises facilitated by a trained professional. CBGT combines various techniques, such as cognitive restructuring, behavioral interventions, and social support, to promote beneficial outcomes and facilitate personal growth.

These results are consistent with theoretical explanations for why cognitive-behavioral therapy is effective for addictive disorders in general, such that behavior self-control can be enhanced by addressing the underlying cognitive abilities to help control impulses and increase goal-oriented behavior. The results of the current study were consistent with other findings based on cognitive-behavioral therapies to lower the prevalence of Internet addiction in teenagers [37]. These results support the idea that training through a cognitive-behavioral program raises one's level of self-control and lowers one's propensity for Internet addiction. Internet addiction CBT intervention treatments were reported to gradually reignite offline connections over time. Additionally, only the school-based group CBT demonstrated improved time management abilities as well as better cognitive, behavioral, and emotional symptoms, whereas internet use was reduced in both groups [38].

Therefore, cognitive-behavioral group therapy has significant and beneficial effects on internet addiction (IA) and psychopathological symptoms because internet addiction is a compulsive habit that has substantial consequences, including vocational and social issues. By strengthening various components of interpersonal interactions, health concerns, time management, and tolerance, many intervention paradigms might lessen the symptoms of internet addiction. Additionally, different types of interventions may have different beneficial effects on the psychological symptoms of somatization, social insecurity, OCD, depressive mood, anxiety, aggression, paranoid ideation, and psychoticism; therefore, cognitive group therapy may be given to internet addicts who exhibit a variety of psychopathological symptoms. According to Koyuncu et al. [39], patients with internet addiction also frequently had severe mental health issues such as loneliness, poor self-esteem, anxiety, and depression.

Collectively, the research under consideration shows that Cognitive Behavioral Therapy (CBT) is a flexible and successful strategy for treating Internet addiction in college students. According to these results, CBT therapies may be customized for certain populations, such as teenagers or nursing students, and they can provide a wide range of advantages, such as increases in mental health and general quality of life. The knowledge gathered

from this research is useful for creating focused therapies and support programs for those who are impacted by internet addiction, which is still a common problem. This research concludes that there have been advances and developments based on traditional CBT intervention programs as a result of that finding. This program tried to make participants aware of their attitudes toward internet use and IA symptoms through particular exercises, similar to the traditional CBT therapies, to eradicate "cognitive distortions" and therefore enhance their problem-solving and adaptability abilities [40].

The difference was that college students were encouraged to look at their own lives from a wider perspective rather than only viewing IA as a problem. This helped them enhance their SOC while lessening their IA symptoms. This therapeutic approach included numerous psychotherapy modalities in addition to CBT and group counseling strategies. This intervention program's general philosophy was in line with the positive psychology therapeutic approach that was prevalent in these psychotherapies, which put more of an emphasis on positive assets than on problems. This gave the group leaders the freedom to concentrate on inspiring the group's resources and creativity without belittling or berating the participants. Participants also learned about their problems and resources, as well as how being proactive in finding solutions to problems can help them maintain a positive outlook on their futures [41].

## CONCLUSION

An in-depth investigation of the effectiveness of Cognitive Behavioral Therapy (CBT) in lowering Internet addiction (IA) among university students is shown in this systematic review and meta-analysis. The research highlighted the widespread worry concerning IA among students by including a wide variety of studies from various nations. The results imply that CBT can be a successful treatment for IA in this population, whether it takes the form of group therapy, mindfulness-based therapies, or other modifications. According to the findings of the included research, CBT therapies significantly reduced the symptoms of IA and enhanced self-control, self-efficacy, and general mental health. Studies have also shown how effective CBT is in maintaining these favorable results over the long term. CBT was also discovered to be adaptive to many cultural situations, highlighting its potential for broad use.

Although the results are encouraging, several limitations need to be addressed. First, the review was primarily concerned with studies that were done in English, which would have prevented it from including pertinent findings that were published in other languages. The review period, which includes papers released from 2018 through 2023, could not include all pertinent research on the subject. The generalizability of the results was additionally constrained by the review's inclusion of a very limited number of studies. Last but not least, even if a risk of bias assessment was done, it is important to recognize that biases may still occur within certain research.

Future research should continue to examine the efficacy of CBT therapies for IA among university students in light of the review's conclusions and

limitations. To improve the generalizability of findings, larger sample numbers, longer follow-up times, and more varied cultural settings should be taken into account. Because IA is a worldwide problem, researchers should keep examining how cultural variables affect IA and develop therapies appropriately. To proactively address IA among students, educational institutions can think about establishing preventative measures and awareness campaigns. These initiatives could encourage sensible online behavior and offer help to people at risk of addiction.

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