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Efficacy of Cognitive Behavioral Therapy (CBT) in Reducing Relapse Rates among Individuals Recovering from Alcohol Addiction

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Abstract

Background: Alcohol use disorder (AUD) is a chronic, relapsing condition with significant psychological and social consequences. Cognitive Behavioral Therapy (CBT) is widely used to treat addiction, but its efficacy in reducing relapse rates among individuals recovering from alcohol addiction remains an area of active research. **Objective**: This study aims to evaluate the effectiveness of CBT in reducing relapse rates, improving coping skills, and enhancing psychological outcomes (depression and anxiety) among individuals recovering from AUD. **Methods**: A longitudinal study was conducted with 100 participants diagnosed with AUD, randomized into either a CBT treatment group (n = 50) or a control group (n = 50). The CBT group received a structured 12-week intervention, while the control group received standard care. Relapse rates, alcohol consumption, coping skills, self-efficacy, and symptoms of depression and anxiety were measured at baseline, post-treatment, and at a 6-month follow-up. **Results**: The CBT group exhibited significantly lower relapse rates (30%) compared to the control group (55%) at 6-month follow-up ($p = 0.015$). Additionally, the CBT group showed a significant reduction in alcohol consumption, from 25.3 to 8.4 drinks per week, while the control group only reduced consumption from 24.7 to 19.3 drinks per week ($p < 0.001$). Coping skills and self-efficacy improved significantly in the CBT group ($p < 0.001$), and these gains were sustained at follow-up ($p = 0.02$). The CBT group also experienced significant reductions in depression (BDI) and anxiety (GAD-7) scores, compared to minimal changes in the control group ($p < 0.001$ for both). **Conclusion**: CBT is an effective therapeutic intervention for reducing relapse rates, improving alcohol consumption patterns, enhancing coping skills, and alleviating depression and anxiety in individuals recovering from AUD. These findings suggest that CBT should be integrated into standard treatment protocols for alcohol use disorder and further explored for long-term efficacy.

Keywords: Cognitive Behavioral Therapy (CBT), Alcohol Use Disorder (AUD), Relapse Rates, Recovery, Addiction Treatment, Therapeutic Efficacy

Introduction

Alcohol use disorder (AUD) is a pervasive and chronic condition, characterized by the persistent consumption of alcohol despite significant negative consequences, including physical, psychological, and social impairments. Globally, AUD contributes to substantial morbidity, mortality, and economic burden, affecting millions of individuals (World Health Organization, 2019). A hallmark of AUD is its relapsing nature, with individuals often experiencing periods of remission followed by recurrence of problematic drinking, complicating the treatment process (Muench & Holder, 2022). This cyclical pattern of relapse poses a major challenge in achieving sustained recovery, underscoring the need for effective interventions aimed at preventing relapse and promoting long-term sobriety.

Traditional treatment approaches for AUD, such as detoxification and pharmacotherapy (e.g., disulfiram, naltrexone), have demonstrated limited success in preventing relapse over time (Grant et al., 2020). In contrast, psychotherapeutic interventions like Cognitive Behavioral Therapy (CBT) have garnered attention for their potential to address the psychological and behavioral factors that contribute to addiction. CBT focuses on modifying maladaptive thought patterns and behaviors, enhancing coping mechanisms, and building resilience in the face of stress and triggers (Beck, 2020). By equipping individuals with practical tools to manage cravings and avoid high-risk situations, CBT aims to reduce the likelihood of relapse and support long-term recovery (Hester et al., 2021).

The efficacy of CBT in treating substance use disorders, including alcohol addiction, has been supported by numerous studies. CBT has been shown to reduce alcohol consumption, improve coping strategies, and enhance overall psychological functioning (Miller & Rollnick, 2019; Kelly et al., 2021). Additionally, it has been associated with improved outcomes in individuals with co-occurring mental health disorders, such as depression and anxiety, which are common among those with AUD (McHugh et al., 2022). Despite these promising findings, most existing studies have focused on short-term outcomes, with limited research examining the long-term impact of CBT on relapse rates and sustained recovery.

Recent meta-analyses have demonstrated that CBT significantly reduces the risk of relapse in individuals with AUD compared to other therapeutic modalities (Lundahl et al., 2022). However, questions remain regarding the consistency of these effects over time, particularly in diverse populations and real-world settings. Understanding the long-term benefits of CBT and identifying potential moderating factors (e.g., addiction severity, co-occurring mental health conditions) are crucial for refining treatment strategies and improving clinical outcomes. This study aims to evaluate the efficacy of CBT in reducing relapse rates among individuals recovering from alcohol addiction, with a particular focus on sustained recovery over a 6-month follow-up period.

The objective of this research is to contribute to the growing body of evidence supporting CBT as an effective intervention for AUD by examining its impact on relapse prevention and long-term recovery outcomes. By utilizing a longitudinal design with a 12-week CBT intervention and

monitoring relapse rates over a 6-month period, this study seeks to provide valuable insights into the ultimate efficacy of CBT in promoting sustained recovery in individuals with AUD.

Objectives of the Study

1. To evaluate the efficacy of Cognitive Behavioral Therapy (CBT) in reducing relapse rates among individuals recovering from alcohol use disorder (AUD).
2. To examine the impact of CBT on maintaining long-term abstinence in individuals with AUD over a 6-month follow-up period.
3. To explore the influence of baseline addiction severity and co-occurring mental health conditions on relapse rates following CBT.
4. To investigate the psychological and behavioral mechanisms underlying the effectiveness of CBT in reducing relapse.
5. To assess the feasibility and real-world applicability of implementing CBT as a long-term treatment option for alcohol addiction.
6. To contribute to the evidence base on the long-term outcomes of CBT for alcohol use disorder.

Literature Review

Alcohol Use Disorder and Relapse

Alcohol use disorder (AUD) is a chronic, relapsing condition that affects millions of individuals worldwide. It is characterized by compulsive alcohol consumption, loss of control over drinking, and the persistence of alcohol use despite adverse consequences (American Psychiatric Association, 2013). AUD is associated with numerous physical, psychological, and social complications, including liver disease, cardiovascular problems, mental health disorders, and disruptions in personal and professional relationships (Rehm et al., 2022). One of the most challenging aspects of AUD treatment is the high relapse rate. Studies have consistently shown that relapse is common, with up to 60-80% of individuals returning to problematic drinking within the first year after treatment (Kohn et al., 2021). Given this high relapse rate, the development of effective interventions to prevent relapse remains a critical focus in addiction research and treatment.

Cognitive Behavioral Therapy (CBT) in Addiction Treatment

Cognitive Behavioral Therapy (CBT) has emerged as one of the most widely used and evidence-based psychological treatments for a variety of mental health conditions, including alcohol and substance use disorders. Rooted in the cognitive-behavioral model, CBT focuses on identifying and modifying maladaptive thoughts, beliefs, and behaviors that contribute to addiction (Beck, 2020). In the context of AUD, CBT helps individuals recognize triggers for alcohol use, develop healthier coping strategies, and improve problem-solving skills to handle stressors that might lead to relapse (Miller & Rollnick, 2019).

The application of CBT to treat alcohol addiction has been well-documented. Meta-analyses have consistently shown that CBT is effective in reducing alcohol consumption and improving overall psychological well-being. For example, a meta-analysis by Magill and Ray (2009) found

that CBT significantly reduced alcohol use and was more effective than other forms of psychotherapy, such as supportive therapy or group therapy. Moreover, CBT's focus on relapse prevention strategies, such as identifying high-risk situations and developing coping mechanisms, has been shown to be particularly beneficial in promoting long-term abstinence (Kelly et al., 2021).

Efficacy of CBT in Reducing Relapse

Numerous studies have explored the efficacy of CBT in preventing relapse among individuals recovering from AUD. Research suggests that CBT is particularly effective in reducing the frequency of alcohol use and preventing relapse in both the short and long term. A randomized controlled trial by Hester et al. (2011) demonstrated that participants who received CBT had significantly lower relapse rates compared to those who received other treatments, such as motivational interviewing or standard care. Additionally, CBT was associated with better coping skills and increased self-control, factors which are crucial in sustaining long-term recovery.

A more recent study by McHugh et al. (2022) further supports these findings, showing that CBT significantly decreased the likelihood of relapse during a 12-month follow-up period. Participants who received CBT not only showed reduced alcohol consumption but also exhibited better psychological outcomes, such as lower levels of anxiety and depression. These improvements in mental health are particularly important given the high comorbidity of AUD with mood and anxiety disorders (Brady & Sinha, 2021), suggesting that CBT's dual focus on both alcohol use and mental health could contribute to its effectiveness in relapse prevention.

Mechanisms of CBT in Alcohol Addiction

The effectiveness of CBT in reducing relapse rates can be attributed to several psychological and behavioral mechanisms. One key mechanism is cognitive restructuring, which helps individuals identify and challenge the distorted thought patterns that trigger alcohol consumption (Beck, 2020). For instance, individuals may develop maladaptive beliefs such as "I can't cope without drinking" or "I deserve a drink after a stressful day." CBT helps individuals reframe these thoughts and replace them with more adaptive, reality-based cognitions.

Another important mechanism is skills training, which equips individuals with practical strategies to cope with high-risk situations and manage cravings. Through techniques such as role-playing and behavioral rehearsal, individuals learn to navigate situations that may tempt them to drink, thereby reducing the likelihood of relapse (Hester et al., 2011). Self-control enhancement is another core aspect of CBT, as individuals are taught to regulate their behavior through techniques like self-monitoring, goal-setting, and reward-based reinforcement (Miller & Rollnick, 2019). These skills not only help individuals prevent relapse but also promote overall well-being by enhancing self-efficacy and self-regulation.

Co-occurring Mental Health Disorders and CBT

It is well established that individuals with AUD often have co-occurring mental health conditions, such as depression, anxiety, and post-traumatic stress disorder (PTSD) (Sullivan et al., 2021). These comorbidities complicate the treatment of AUD and increase the risk of relapse. CBT is particularly effective for individuals with co-occurring disorders, as it simultaneously

addresses both alcohol use and mental health issues. For example, a study by McHugh et al. (2022) found that CBT was highly effective in treating both AUD and comorbid anxiety and depression, leading to reduced alcohol use and improved psychological functioning.

The dual focus of CBT on both addiction and mental health may also help explain its success in relapse prevention. Individuals who address underlying mental health issues may experience greater emotional stability, which in turn supports their ability to maintain abstinence and avoid relapse triggers. Furthermore, addressing co-occurring mental health conditions can reduce the temptation to self-medicate with alcohol, a common behavior among individuals with AUD (Brady & Sinha, 2021).

Long-Term Efficacy and Follow-up Studies

While the short-term efficacy of CBT in reducing alcohol use is well-established, fewer studies have examined the long-term effectiveness of CBT in preventing relapse. Long-term follow-up studies are critical in assessing whether the benefits of CBT persist beyond the treatment period. Recent studies have suggested that CBT continues to be effective in reducing relapse rates even after treatment has ended. For example, a longitudinal study by Gorski et al. (2022) found that individuals who received CBT maintained lower rates of alcohol consumption and experienced fewer relapses during a 2-year follow-up period compared to those who received other forms of therapy.

However, some studies have indicated that the long-term benefits of CBT may be influenced by factors such as treatment adherence, initial addiction severity, and the presence of ongoing support networks (Muench & Holder, 2022). Therefore, it is important to further explore the role of these factors in enhancing the long-term efficacy of CBT and identify ways to strengthen its impact on sustained recovery.

Research Methodology

This study utilized a longitudinal, randomized controlled trial (RCT) design to evaluate the efficacy of Cognitive Behavioral Therapy (CBT) in reducing relapse rates among individuals recovering from alcohol use disorder (AUD). The research involved two groups: a treatment group that received the CBT intervention and a control group that did not receive CBT. Both groups were monitored over a 6-month follow-up period to assess relapse rates and long-term recovery outcomes.

Participants

The study sample consisted of 100 participants, aged 18-65, who were diagnosed with alcohol use disorder according to the criteria outlined in the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-5) (American Psychiatric Association, 2013). Participants were recruited from outpatient addiction treatment centers and voluntary rehabilitation programs. Inclusion criteria required that participants had been abstinent from alcohol for at least 1 week prior to enrollment, were not currently undergoing other forms of psychological therapy, and had the capacity to provide informed consent.

Exclusion criteria included severe medical conditions, active psychiatric disorders requiring immediate intervention (e.g., severe depression, schizophrenia), or any history of substance use disorders other than alcohol. Of the 100 participants, 50 were randomly assigned to the CBT treatment group, and 50 were assigned to the control group.

Study Design and Intervention

The intervention group received a structured 12-week CBT program. The CBT protocol was adapted from standard relapse prevention models and was designed to address the cognitive and behavioral components of alcohol addiction. The sessions were conducted weekly for 90 minutes by licensed clinical psychologists with experience in addiction treatment. The core components of the CBT intervention included:

1. **Cognitive Restructuring**: Identifying and challenging maladaptive thoughts that lead to alcohol use.
2. **Behavioral Skills Training**: Teaching coping strategies for managing cravings and avoiding high-risk situations.
3. **Relapse Prevention Planning**: Developing personalized plans to prevent relapse, including coping strategies for stress, social pressure, and negative emotional states.
4. **Goal Setting**: Encouraging participants to set realistic, incremental goals to support long-term abstinence.

The control group did not receive CBT and continued their usual treatment protocols, which may have included pharmacotherapy, support groups, or minimal therapy interventions.

Data Collection

Data were collected at three points: baseline (pre-treatment), immediately after the 12-week CBT intervention, and at the 6-month follow-up. The following data were gathered:

1. **Demographic and Clinical Information**: At baseline, participants provided demographic information (e.g., age, gender, education level, employment status) and clinical data related to the severity of alcohol use disorder, including the Alcohol Use Disorders Identification Test (AUDIT) (Babor et al., 2001) and the Addiction Severity Index (ASI) (McLellan et al., 1980).
2. **Relapse Measurement**: Relapse was defined as any return to regular alcohol consumption, which was assessed through multiple methods:
    - **Self-reported alcohol use**: Participants completed weekly diaries tracking alcohol consumption.
    - **Urine analysis**: Urine samples were collected at the end of treatment and at the 6-month follow-up to detect alcohol biomarkers (ethyl glucuronide, EtG).
    - **Clinical interviews**: Trained clinicians conducted semi-structured interviews at baseline and follow-up to assess alcohol use and related behaviors.
3. **Psychological and Behavioral Assessments**: Participants completed several validated questionnaires to assess their cognitive and behavioral functioning:

- **Cognitive distortions**: Measured using the Cognitive Distortions Scale (CDS) (Spinhoven et al., 2006).
- **Coping skills**: Assessed with the Coping Inventory for Stressful Situations (CISS) (Endler & Parker, 1990).
- **Self-efficacy**: Evaluated using the Alcohol Abstinence Self-Efficacy Scale (AASE) (DiClemente et al., 1994).

4. **Psychiatric Comorbidity**: Participants were screened for co-occurring psychiatric disorders, including anxiety and depression, using the Beck Depression Inventory (BDI) (Beck et al., 1961) and the Generalized Anxiety Disorder Scale (GAD-7) (Spitzer et al., 2006).

Statistical Analysis

Data analysis was performed using SPSS version 27. Descriptive statistics were used to summarize demographic characteristics, baseline addiction severity, and psychiatric comorbidity. Differences between the CBT and control groups at baseline were examined using independent t-tests for continuous variables and chi-square tests for categorical variables. The primary outcome measure was the rate of relapse, which was analyzed using a Cox proportional hazards model to assess the time to relapse over the 6-month follow-up period. Secondary outcomes, including changes in alcohol consumption, psychological functioning, and self-efficacy, were assessed using repeated measures ANOVA to examine group differences at baseline, post-treatment, and follow-up. Additionally, regression analyses were conducted to identify predictors of relapse, including baseline addiction severity, co-occurring mental health conditions, and treatment adherence. Effect size estimates (Cohen's d) were calculated to determine the magnitude of differences between the CBT and control groups.

Ethical Considerations

The study adhered to ethical guidelines for research involving human participants. All participants provided written informed consent before participation. The study was approved by the institutional review board (IRB) of the affiliated university, and all procedures followed ethical standards set forth by the Declaration of Helsinki. Participants were informed that they could withdraw from the study at any time without any impact on their ongoing treatment.

Results

Table 1: Participant Demographics and Baseline Characteristics

Variable	CBT Group (n = 50)	Control Group (n = 50)	p-value
Age (years)	38.4 (9.6)	39.1 (10.2)	0.75
Gender			
Male	30 (60%)	31 (62%)	0.83
Female	20 (40%)	19 (38%)	
Employment Status			
Employed	35 (70%)	34 (68%)	0.85
Unemployed	15 (30%)	16 (32%)	

Education Level			
High School or Less	25 (50%)	23 (46%)	0.74
College Degree or Higher	25 (50%)	27 (54%)	
AUDIT Score (Baseline)	22.3 (5.7)	22.1 (6.0)	0.86
Addiction Severity Index (ASI)	0.75 (0.15)	0.76 (0.14)	0.72
Co-occurring Depression (BDI)	18.4 (7.3)	19.2 (6.8)	0.58
Co-occurring Anxiety (GAD-7)	12.1 (4.9)	12.5 (5.2)	0.75

Table 1 presents the demographic and baseline characteristics of the participants in the CBT and control groups. The mean age of participants was 38.4 years (SD = 9.6) in the CBT group and 39.1 years (SD = 10.2) in the control group, with no significant difference between the groups (p = 0.75). Both groups had a similar gender distribution, with 60% of participants in the CBT group and 62% in the control group identifying as male (p = 0.83). Regarding employment status, 70% of participants in the CBT group and 68% in the control group were employed, showing no significant difference (p = 0.85). Educationally, 50% of both groups had a high school education or less, while the other 50% had a college degree or higher, with no significant difference between the groups (p = 0.74). Baseline alcohol use severity, measured by the AUDIT score, was comparable between the groups (CBT group: 22.3, SD = 5.7; control group: 22.1, SD = 6.0, p = 0.86). Similarly, the Addiction Severity Index (ASI) scores were similar for both groups (CBT: 0.75, SD = 0.15; control: 0.76, SD = 0.14, p = 0.72). Co-occurring mental health conditions, measured by the Beck Depression Inventory (BDI) and Generalized Anxiety Disorder Scale (GAD-7), were also similar between the groups, with no significant differences in depression (CBT: 18.4, SD = 7.3; control: 19.2, SD = 6.8, p = 0.58) or anxiety (CBT: 12.1, SD = 4.9; control: 12.5, SD = 5.2, p = 0.75). These findings indicate that the two groups were well-matched at baseline, ensuring that any differences observed in treatment outcomes could be attributed to the intervention itself.

Table 2: Relapse Rates by Group

Group	**Relapsed**	**Did Not Relapse**	**Total**	**p-value**
CBT Group	15 (30%)	35 (70%)	50	0.015
Control Group	27 (55%)	23 (45%)	50	
Total	42 (42%)	58 (58%)	100	

Table 2 presents the relapse rates by group over the 6-month follow-up period. In the CBT group, 15 participants (30%) experienced a relapse, while 35 participants (70%) maintained abstinence. In contrast, the control group had a higher relapse rate, with 27 participants (55%) relapsing and 23 participants (45%) remaining abstinent. The difference in relapse rates between the CBT and control groups was statistically significant (p = 0.015), indicating that participants in the CBT group were significantly less likely to relapse compared to those in the control group. Overall, 42% of all participants relapsed, while 58% sustained their recovery throughout the study period. These results highlight the effectiveness of CBT in reducing relapse rates among individuals recovering from alcohol addiction.

Table 3: Alcohol Consumption (Mean Drinks per Week)

Time Point	CBT Group (n = 50)	Control Group (n = 50)	p-value
Baseline	25.3 (8.1)	24.7 (7.8)	0.81
Post-Treatment	7.1 (4.3)	18.6 (6.4)	< 0.001
6-Month Follow-Up	8.4 (4.8)	19.3 (7.1)	0.002

Table 3 shows the mean number of drinks consumed per week at three time points: baseline, post-treatment, and 6-month follow-up. At baseline, alcohol consumption was similar between the two groups, with the CBT group consuming a mean of 25.3 drinks per week (SD = 8.1) and the control group consuming 24.7 drinks per week (SD = 7.8), with no significant difference ($p = 0.81$). After completing the 12-week CBT intervention, participants in the CBT group significantly reduced their alcohol consumption to a mean of 7.1 drinks per week (SD = 4.3), compared to 18.6 drinks per week (SD = 6.4) in the control group ($p < 0.001$). This difference remained significant at the 6-month follow-up, with the CBT group reporting a mean of 8.4 drinks per week (SD = 4.8) and the control group consuming 19.3 drinks per week (SD = 7.1) ($p = 0.002$). These results demonstrate that CBT led to a significant and sustained reduction in alcohol consumption compared to the control group.

Table 4: Coping Skills and Self-Efficacy Scores

Group	Time Point	Coping Skills (CISS)	Self-Efficacy (AASE)	p-value
CBT Group (n = 50)	**Baseline**	40.5 (9.8)	62.7 (10.5)	0.99
Post-Treatment	56.4 (8.2)	75.3 (9.1)	< 0.001	
6-Month Follow-Up	54.1 (9.5)	72.8 (9.2)	0.02	
Control Group (n = 50)	**Baseline**	41.2 (10.1)	63.1 (11.2)	0.92
Post-Treatment	47.6 (9.6)	67.4 (10.3)	0.04	
6-Month Follow-Up	48.1 (9.8)	66.2 (9.8)	0.11	

Table 4 presents the changes in coping skills and self-efficacy scores over time for both the CBT and control groups. At baseline, coping skills (measured by the Coping Inventory for Stressful Situations, CISS) and self-efficacy (measured by the Alcohol Abstinence Self-Efficacy Scale, AASE) scores were similar between the two groups, with no significant differences (CBT: 40.5, SD = 9.8 for CISS; 62.7, SD = 10.5 for AASE; control: 41.2, SD = 10.1 for CISS; 63.1, SD = 11.2 for AASE, $p = 0.99$ and $p = 0.92$, respectively). However, significant improvements were observed in the CBT group post-treatment, with coping skills increasing to 56.4 (SD = 8.2) and self-efficacy rising to 75.3 (SD = 9.1) ($p < 0.001$ for both), and these gains were sustained at the 6-month follow-up (coping skills: 54.1, SD = 9.5; self-efficacy: 72.8, SD = 9.2, $p = 0.02$ for self-efficacy). In contrast, the control group showed more modest improvements, with post-treatment increases in coping skills (47.6, SD = 9.6) and self-efficacy (67.4, SD = 10.3), but the changes were less pronounced ($p = 0.04$ for both). At the 6-month follow-up, the control group's scores remained relatively stable (coping skills: 48.1, SD = 9.8; self-efficacy: 66.2, SD = 9.8, $p = 0.11$ for self-efficacy). These findings suggest that CBT significantly improved both coping skills and

self-efficacy compared to the control group, with lasting benefits observed at the 6-month follow-up.

Table 5: Depression and Anxiety Scores (BDI & GAD-7)

Group	Time Point	BDI (Depression)	GAD-7 (Anxiety)	p-value
CBT Group (n = 50)	**Baseline**	18.4 (7.3)	12.1 (4.9)	0.58
Post-Treatment	9.2 (5.1)	6.8 (3.7)	< 0.001	
6-Month Follow-Up	10.4 (5.7)	7.1 (4.2)	0.05	
Control Group (n = 50)	**Baseline**	19.2 (6.8)	12.5 (5.2)	0.75
Post-Treatment	18.1 (6.5)	12.2 (5.1)	0.07	
6-Month Follow-Up	18.7 (7.0)	12.4 (5.3)	0.10	

Table 5 presents the depression and anxiety scores for both the CBT and control groups at baseline, post-treatment, and 6-month follow-up. At baseline, depression (measured by the Beck Depression Inventory, BDI) and anxiety (measured by the Generalized Anxiety Disorder scale, GAD-7) scores were similar between the two groups, with no significant differences (CBT: BDI = 18.4, SD = 7.3; GAD-7 = 12.1, SD = 4.9; control: BDI = 19.2, SD = 6.8; GAD-7 = 12.5, SD = 5.2, $p = 0.58$ and $p = 0.75$, respectively). After the CBT intervention, both depression and anxiety scores significantly improved in the CBT group (BDI = 9.2, SD = 5.1; GAD-7 = 6.8, SD = 3.7, $p < 0.001$ for both), and these improvements were maintained at the 6-month follow-up (BDI = 10.4, SD = 5.7; GAD-7 = 7.1, SD = 4.2, $p = 0.05$ for anxiety). In contrast, the control group showed only modest changes, with slight reductions in both depression and anxiety post-treatment (BDI = 18.1, SD = 6.5; GAD-7 = 12.2, SD = 5.1) and at the 6-month follow-up (BDI = 18.7, SD = 7.0; GAD-7 = 12.4, SD = 5.3), but these changes were not statistically significant ($p = 0.07$ for depression and $p = 0.10$ for anxiety). These results indicate that CBT significantly reduced both depression and anxiety symptoms compared to the control group, with sustained improvements observed at the 6-month follow-up.

Table 6: Predictors of Relapse: Multiple Regression Analysis

Variable	B	SE	β	p-value
CBT Completion	-0.88	0.42	-0.38	0.04
Baseline Self-Efficacy	-0.10	0.05	-0.45	0.02
Baseline Alcohol Severity (ASI)	0.22	0.18	0.13	0.25
Co-occurring Depression (BDI)	0.15	0.12	0.11	0.22

Table 6 presents the results of the multiple regression analysis, identifying predictors of relapse in individuals recovering from alcohol addiction. The analysis found that CBT completion was a significant negative predictor of relapse, with a beta coefficient of -0.38 (B = -0.88, SE = 0.42, $p = 0.04$), indicating that participants who completed the CBT program were less likely to relapse. Additionally, baseline self-efficacy was also a significant predictor of relapse, with a negative relationship (B = -0.10, SE = 0.05, $\beta = -0.45$, $p = 0.02$), suggesting that higher self-efficacy at baseline was associated with a lower likelihood of relapse. However, baseline alcohol severity (measured by the Addiction Severity Index, ASI) and co-occurring depression (measured by the Beck Depression Inventory, BDI) were not significant predictors of relapse, with p-values of

0.25 and 0.22, respectively. These findings highlight the importance of CBT completion and self-efficacy in predicting sustained recovery and minimizing relapse risk.

Discussion

This study aimed to evaluate the efficacy of Cognitive Behavioral Therapy (CBT) in reducing relapse rates and improving psychological outcomes among individuals recovering from alcohol use disorder (AUD). The results support the hypothesis that CBT significantly reduces relapse rates, improves coping skills, self-efficacy, and mental health outcomes such as depression and anxiety, compared to a control group. These findings contribute to the growing body of evidence supporting the integration of CBT into treatment protocols for AUD.

Relapse Rates and Alcohol Consumption

The study found a significant reduction in relapse rates in the CBT group, with 70% of participants remaining abstinent compared to only 45% in the control group ($p = 0.015$). This finding is consistent with previous research that highlights the effectiveness of CBT in promoting long-term abstinence from alcohol and other substances (Dobson et al., 2020; Magill & Ray, 2011). The results suggest that CBT helps individuals manage cravings, avoid high-risk situations, and develop healthier coping strategies, which ultimately leads to lower relapse rates. Moreover, participants in the CBT group demonstrated a significant reduction in alcohol consumption, both post-treatment and at the 6-month follow-up, with consumption dropping from 25.3 to 8.4 drinks per week, compared to a modest reduction in the control group. This sustained decrease in alcohol intake is a critical finding, as it underscores the potential for CBT to not only prevent relapse but also reduce the frequency of alcohol use.

Coping Skills and Self-Efficacy

The improvements in coping skills and self-efficacy observed in the CBT group further support the effectiveness of CBT in treating AUD. Coping skills, measured by the Coping Inventory for Stressful Situations (CISS), increased significantly post-treatment and remained elevated at the 6-month follow-up. Similarly, self-efficacy, as measured by the Alcohol Abstinence Self-Efficacy Scale (AASE), showed significant improvement throughout the study. These improvements are consistent with previous findings that show CBT enhances self-regulation and problem-solving abilities, which are crucial for managing alcohol cravings and preventing relapse (Hofmann et al., 2012). The increase in self-efficacy suggests that participants in the CBT group felt more confident in their ability to remain abstinent, which has been linked to improved long-term outcomes in addiction treatment (Marlatt & Donovan, 2005). In contrast, the control group showed smaller, less consistent improvements in coping skills and self-efficacy, highlighting the unique benefits of the CBT intervention.

Psychological Outcomes: Depression and Anxiety

The study also assessed the impact of CBT on co-occurring psychological symptoms, particularly depression and anxiety. Participants in the CBT group showed a significant reduction in both depression (BDI) and anxiety (GAD-7) scores from baseline to post-treatment,

with these improvements largely maintained at the 6-month follow-up. These findings are in line with previous studies indicating that CBT not only addresses addiction-related behaviors but also improves mental health outcomes, which is critical given the high comorbidity between AUD and mood or anxiety disorders (Johnson et al., 2019; Klenk et al., 2021). The control group, however, showed minimal changes in depression and anxiety symptoms, suggesting that CBT may be particularly effective in improving both substance use and psychological distress in individuals with AUD.

Predictors of Relapse

Multiple regression analysis revealed that CBT completion and baseline self-efficacy were significant predictors of relapse. Specifically, participants who completed the CBT program and had higher baseline self-efficacy were less likely to relapse, which emphasizes the importance of both the therapeutic intervention and individual factors in predicting treatment outcomes. These findings align with research indicating that self-efficacy plays a crucial role in preventing relapse, as individuals with higher self-efficacy are more likely to use adaptive coping strategies and resist temptation (Bandura, 1997; Marlatt & Gordon, 1985). The lack of significant findings for baseline alcohol severity and co-occurring depression may suggest that, while these factors are important, CBT's focus on cognitive and behavioral strategies can be effective across a range of individuals with varying levels of addiction severity and mental health comorbidities.

Limitations and Future Directions

While the results are promising, this study has several limitations. First, the sample size was relatively small, which may limit the generalizability of the findings. Additionally, the study relied on self-report measures for some variables, such as alcohol consumption and relapse, which can be subject to bias. Future research with larger, more diverse samples and objective measures of alcohol use (e.g., biomarkers) would provide more robust evidence of CBT's efficacy. Furthermore, this study focused on short-term outcomes, and long-term follow-up is necessary to determine whether the benefits of CBT are sustained over time. Future studies should also explore the potential for combining CBT with other therapeutic modalities, such as medication-assisted treatment, to address alcohol use disorder more comprehensively.

Conclusion

In conclusion, this study provides strong evidence for the efficacy of Cognitive Behavioral Therapy (CBT) in reducing relapse rates and improving psychological outcomes among individuals recovering from alcohol addiction. The significant improvements in alcohol consumption, coping skills, self-efficacy, and mental health suggest that CBT can be an effective, long-term treatment option for AUD. These findings support the integration of CBT into standard treatment protocols and underscore the need for further research to explore the long-term effects of CBT and its applicability to diverse populations.

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