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Testing the Effect of Cognitive Behavioral Group Psychotherapy on Relapse Tendency in Individuals Who Received Substance Addiction Treatment

Madde Bağımlılığı Tedavisi Gören Bireylerde Nöro-Bilişsel Davranışçı Grup Psikoterapisinin Nüks Eğilimi Üzerindeki Etkisinin İncelenmesi

 Ezel AVCI¹,  Ömer Faruk ŞİMŞEK²

¹ İstanbul Arel University,
Institute of Social Sciences,
Department of Clinical
Psychology, İstanbul, Türkiye

² İstanbul Rumeli University,
Faculty of Economics,
Administrative and Social
Sciences, Department of
Psychology, İstanbul, Türkiye

*Correspondence:
Ezel AVCI

E-mail:
avciezel81@gmail.com

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ABSTRACT

Objective: This study aimed to examine the effect of Cognitive Behavioral Group Psychotherapy (CBGP) on relapse tendency, emotion regulation difficulties, psychological resilience, irrational beliefs, and general self-efficacy among individuals who had previously received substance addiction treatment. **Materials and Methods:** A pre-test/post-test control group 2x2 split-plot factorial design was used in this study. The sample consisted of 24 male participants aged 18–24 years who had previously undergone substance addiction treatment and were under probation supervision. Participants were randomly assigned to either the experimental group (n=12) or the control group (n=12). The experimental group received a structured 13-week Cognitive Behavioral Group Psychotherapy program, whereas no psychological intervention was applied to the control group. Data were collected using the Relapse Prediction Scale, Difficulties in Emotion Regulation Scale, Psychological Resilience Scale, Irrational Beliefs Scale, and General Self-Efficacy Scale. Mixed ANOVA was used for data analysis (p<0.05).

Results: Substance use desire and substance use probability scores significantly decreased in the experimental group compared with the control group (p<0.01). In addition, significant reductions were observed in emotion regulation difficulties and irrational beliefs, while psychological resilience significantly increased in the experimental group (p<0.01). Although self-efficacy scores increased in the experimental group, the group-by-time interaction effect was not statistically significant (p>0.05).

Conclusion: The findings provide preliminary evidence that Cognitive Behavioral Group Psychotherapy may be associated with favorable short-term changes in relapse tendency, emotion regulation difficulties, psychological resilience, and irrational beliefs among young male participants. However, the small male-only sample and the absence of follow-up assessment require cautious interpretation of the results.

Keywords: Cognitive behavioral group psychotherapy; Substance addiction; Relapse prevention; Emotion regulation; Psychological resilience.

ÖZET

Amaç: Bu araştırmanın amacı, madde bağımlılığı tedavisi görmüş bireylerde Bilişsel Davranışçı Grup Psikoterapisinin (BDGP) relaps eğilimi, duygu düzenleme güçlüğü, psikolojik dayanıklılık, irrasyonel inançlar ve genel öz yeterlilik düzeyleri üzerindeki etkisinin incelenmesidir.

Gereç ve Yöntemler: Araştırmada ön test-son test kontrol gruplu 2x2 split-plot faktöriyel desen kullanılmıştır. Araştırmanın örneklemini, daha önce madde bağımlılığı tedavisi almış ve denetimli serbestlik kapsamında bulunan 18-24 yaş arası 24 erkek birey oluşturmuştur. Katılımcılar deney (n=12) ve kontrol (n=12) gruplarına rastgele atanmıştır. Deney grubuna 13 hafta süreyle yapılandırılmış Bilişsel Davranışçı Grup Psikoterapisi uygulanırken, kontrol grubuna herhangi bir psikolojik müdahale uygulanmamıştır. Veriler Relaps Öngörü Ölçeği, Duygu Düzenleme Güçlüğü Ölçeği, Psikolojik Dayanıklılık Ölçeği, İrrasyonel İnançlar Ölçeği ve Genel Öz Yeterlilik Ölçeği ile toplanmıştır. Verilerin analizinde Mixed ANOVA kullanılmıştır (p<0.05).

Bulgular: Deney grubunda madde kullanma isteği ve madde kullanma olasılığı puanlarının kontrol grubuna göre anlamlı düzeyde azaldığı belirlenmiştir (p<0.01). Ayrıca deney grubunda duygu düzenleme güçlüğü ve irrasyonel inanç puanlarında anlamlı azalma, psikolojik dayanıklılık düzeyinde ise anlamlı artış saptanmıştır (p<0.01). Genel öz yeterlilik puanlarında artış görülmesine rağmen grup-zaman etkileşimi istatistiksel olarak anlamlı bulunmamıştır (p>0.05).

Sonuç: Bulgular, Bilişsel Davranışçı Grup Psikoterapisinin genç erkek katılımcılarda relaps eğilimi, duygu düzenleme güçlüğü, psikolojik dayanıklılık ve irrasyonel inançlar açısından kısa vadeli olumlu değişikliklerle ilişkili olabileceğine dair ön kanıt sunmaktadır. Bununla birlikte, örneklemin küçük olması, yalnızca erkek katılımcılardan oluşması ve takip ölçümünün bulunmaması nedeniyle sonuçlar temkinli yorumlanmalıdır.

Anahtar Kelimeler: Bilişsel davranışçı grup psikoterapisi; Madde bağımlılığı; Relaps önleme; Duygu düzenleme; Psikolojik dayanıklılık.

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1. INTRODUCTION

Substance addiction is a chronic and relapsing disorder that negatively affects individuals' biological, psychological, and social functioning. Chronic substance use causes alterations in the brain's reward system and impulse control mechanisms, leading to compulsive substance-seeking behaviors (1,2). In addition to neurobiological vulnerabilities, childhood trauma, adverse life experiences, and environmental stressors increase susceptibility to addiction (3). Relapse, defined as the return to substance use after a period of abstinence, remains one of the greatest challenges in addiction treatment. High relapse rates indicate that physical detoxification alone is insufficient and that psychological interventions targeting maladaptive cognitions and emotional processes are necessary for long-term recovery (4). Difficulties in emotion regulation, impulsivity, and experiential avoidance are among the primary psychological mechanisms underlying substance use disorders (5,6). Moreover, low psychological resilience and self-efficacy may impair individuals' ability to cope effectively with stressors, thereby increasing relapse risk (7).

Cognitive Behavioral Therapy (CBT) is one of the most widely used evidence-based approaches in the treatment of substance use disorders. CBT focuses on restructuring dysfunctional beliefs, automatic thoughts, and maladaptive behaviors associated with addiction (8). Previous studies have shown that CBT-based interventions reduce substance use behaviors, improve emotional regulation, and strengthen coping skills in individuals with addiction (9,10). Group-based CBT interventions additionally provide social support and shared coping experiences that may enhance resilience against relapse triggers (11).

Despite growing evidence supporting the effectiveness of CBT in addiction treatment, studies examining the effects of Cognitive Behavioral Group Psychotherapy on relapse tendency and related psychological variables among young adults under probation remain limited. Therefore, this study aimed to investigate the effect of Cognitive Behavioral Group Psychotherapy on relapse tendency, emotion regulation difficulties, psychological resilience, irrational beliefs, and general self-efficacy among individuals who had previously received substance addiction treatment.

The research questions of the study are as follows:

1. Is Cognitive Behavioral Group Psychotherapy effective in reducing relapse tendency (substance use desire and substance use probability) among individuals who have received substance addiction treatment?
2. Does Cognitive Behavioral Group Psychotherapy have a significant effect on emotion regulation difficulties, psychological resilience, and irrational beliefs among individuals who have received substance addiction treatment?
3. Is Cognitive Behavioral Group Psychotherapy effective in increasing general self-efficacy levels among individuals who have received substance addiction treatment?

2. MATERIAL AND METHOD

2.1. Research Design

This study was conducted using an experimental pre-test/post-test control-group design. A 2×2 split-plot factorial, or mixed, design was employed. The between-subjects factor consisted of the experimental and control groups, whereas the within-subjects factor consisted of two measurement points: pre-test and post-test. The independent variable was the Cognitive Behavioral Group Psychotherapy program. The dependent variables were relapse tendency, including substance use desire and substance use probability, difficulties in emotion regulation, psychological resilience, irrational beliefs, and general self-efficacy.

2.2. Study Setting and Participants

The study was conducted with individuals under the supervision of the Gaziantep Probation Directorate after the necessary official permission had been obtained from the Ministry of Justice. The participants were male individuals aged 18–24 years who had previously used substances and received treatment for substance addiction.

The adequacy of the sample size was evaluated using G*Power version 3.1.9.7. The calculation was performed using the F-test family and the “ANOVA: Repeated measures, within–between interaction” option, in accordance with the 2×2 mixed design. The analysis was based on a large effect size of Cohen’s $f = 0.40$, an alpha error probability of .05, a statistical power of .80, two groups, two measurement points, a correlation of .50 between repeated measurements, and a nonsphericity correction of 1.00. The analysis indicated that a minimum total sample of 16 participants, corresponding to eight participants per group, was required. The final sample consisted of 24 participants, with 12 participants in each group, and provided an estimated statistical power of approximately .963.

The inclusion criteria were being male, being between 18 and 24 years of age, having previously used substances, having received treatment for substance addiction, being under probation supervision, being able to understand and complete the data collection instruments, being able to participate in the group sessions, and voluntarily agreeing to participate in the study by providing written informed consent. Individuals who did not meet these criteria, did not provide written informed consent, were unable to complete the pre-test or post-test measurements, could not participate regularly in the intervention process, or requested withdrawal from the study were excluded. The 24 eligible participants were assigned to the experimental and control groups at a 1:1 ratio using simple random assignment. Random assignment was completed before the administration of the pre-test measurements. Twelve participants were assigned to the experimental group and 12 participants were assigned to the control group. All 24 participants had complete pre-test and post-test data and were included in the statistical analyses.

Baseline comparability of the groups was evaluated using independent samples t-tests. No statistically significant differences were found between the experimental and control groups in terms of substance use desire, substance use probability, difficulties in emotion regulation, psychological resilience, irrational beliefs, or general self-efficacy pre-test scores ($p > .05$).

2.3. Data Collection Tools

2.3.1. Relapse Prediction Scale

The Relapse Prediction Scale, originally developed by Wright et al. (12) and adapted into Turkish by Türkçapar, was used to assess relapse tendency (25). The scale assesses substance use desire and substance use probability in high-risk situations. Higher scores indicate a greater tendency toward relapse. In the current sample, the Cronbach's alpha coefficient of the scale was .75, indicating acceptable internal consistency.

2.3.2. Difficulties in Emotion Regulation Scale

The Difficulties in Emotion Regulation Scale was developed by Gratz and Roemer (13) and adapted into Turkish by Rugancı (14). The scale consists of 36 items and six subdimensions and was used to evaluate participants' difficulties in regulating their emotions. Higher scores indicate greater difficulty in emotion regulation. In the current sample, the Cronbach's alpha coefficient of the scale was .84, indicating good internal consistency.

2.3.3. Psychological Resilience Scale

The Psychological Resilience Scale developed by Gürgân (15) was used to assess participants' psychological resilience. The scale consists of 50 items and eight subdimensions rated on a five-point Likert scale. Higher scores indicate higher levels of psychological resilience. In the current sample, the Cronbach's alpha coefficient of the scale was .81, indicating good internal consistency.

2.3.4. Irrational Beliefs Scale

The Irrational Beliefs Scale was developed by Jones (16) and adapted into Turkish by Yurtal (17). The scale consists of 45 items and eight subdimensions and was used to assess irrational belief patterns. Higher scores indicate stronger irrational beliefs. In the current sample, the Cronbach's alpha coefficient of the scale was .78, indicating acceptable internal consistency.

2.3.5. General Self-Efficacy Scale

The General Self-Efficacy Scale was developed by Jerusalem and Schwarzer (18) and adapted into Turkish by Köseoğlu et al. (19). The scale consists of 10 items and was used to assess participants' perceptions of general self-efficacy. Higher scores indicate higher levels of general self-efficacy. In the current sample, the Cronbach's alpha coefficient of the scale was .88, indicating good internal consistency.

2.4. Experimental Procedure

The Cognitive Behavioral Group Psychotherapy program was administered by the researcher to the 12 participants in the experimental group over 13 consecutive weeks. The intervention was delivered in a group format, with one session conducted each week. Each session lasted approximately 90–120 minutes. The same participants continued in the group throughout the intervention period to support group continuity and interaction.

The program was structured around the cognitive behavioral model of substance addiction and relapse prevention. Its primary objectives were to increase participants' awareness of substance-use triggers, help them recognize and restructure dysfunctional thoughts and irrational beliefs, improve emotion regulation and coping skills, strengthen psychological resilience, and develop more adaptive responses to high-risk situations.

The 13-session program progressed through four main phases. The initial sessions focused on establishing group rules, introducing the aims and structure of the program, providing psychoeducation about substance addiction and relapse, and increasing awareness of the relationship among thoughts, emotions, and behaviors. Participants were encouraged to identify individual substance-use patterns, high-risk situations, internal and external triggers, and the short- and long-term consequences of substance use.

The middle sessions focused on cognitive and emotional processes associated with substance use. These sessions included identifying automatic thoughts and irrational beliefs, evaluating the accuracy and functionality of substance-related cognitions, and developing alternative and more adaptive thoughts. Emotion regulation techniques were introduced to help participants recognize, tolerate, and manage negative emotional states that could increase vulnerability to substance use.

Subsequent sessions addressed behavioral and interpersonal skills. The content included coping-skills training, problem solving, assertiveness training, management of craving, behavioral exercises, and the development of alternative responses to stressful or high-risk situations. Particular emphasis was placed on recognizing situations in which participants might experience pressure to use substances and practicing appropriate refusal and coping responses.

The final phase focused on relapse prevention and consolidation of the skills acquired during the program. Participants reviewed their personal relapse triggers, identified early warning signs, developed individualized coping plans, and discussed strategies for maintaining behavioral change after completion of the intervention. Previously covered cognitive, emotional, and behavioral skills were reviewed and integrated into participants' relapse-prevention plans.

Participants in the control group did not receive a structured psychological intervention related to substance addiction, relapse prevention, emotion regulation, or cognitive restructuring during the 13-week study period. However, they were provided with general information on topics unrelated to the study outcomes during selected weeks. The same measurement instruments were administered to both groups before the intervention as pre-test measures. After completion of the 13-week program, post-test measurements were administered to the experimental and control groups under comparable conditions.

2.5. Ethical Considerations

The study was conducted as a doctoral thesis in 2017. Under the institutional procedures applied to this thesis at that time, a separate ethics committee application was not required. However, the necessary official and institutional permission was obtained from the Ministry of Justice and the Gaziantep Probation Directorate before the study was initiated. All participants were informed about the purpose and procedures of the study, the voluntary nature of participation, the confidentiality of the collected information, and their right to refuse to answer any question or withdraw from the study at any time without any adverse consequences. Written informed consent was obtained from all participants. Participants' names were not recorded on the data collection instruments; instead, identification numbers were used to maintain confidentiality. The collected information was used solely for scientific purposes.

2.6. Data Analysis

Data were analyzed using IBM SPSS Statistics version 21.0. The normality of continuous variables was assessed using the Shapiro–Wilk test, and parametric tests were applied because no significant deviations from normality were detected. The homogeneity of variances between the experimental and control groups was evaluated using Levene's test, while the equality of variance–covariance matrices was examined using Box's M test. The independence of observations was ensured by assigning each participant to only one study group. Independent samples t-tests were used to compare the baseline scores of the experimental and control groups, whereas paired samples t-tests were used to examine pre-test–post-test changes within each group. The effects of the intervention were primarily evaluated using two-way mixed ANOVA, with group as the between-subjects factor and time as the within-subjects factor. Separate analyses were conducted for each dependent variable, and the Group $\times$ Time interaction was considered the principal indicator of whether changes over time differed between the groups. Because only two measurement points were included, the assumption of sphericity was inherently satisfied. Effect sizes for the interaction effects were reported using partial eta squared (η^2), with values of .01, .06, and .14 interpreted as small, medium, and large, respectively. All statistical tests were two-tailed, and statistical significance was set at $p < .05$.

3. RESULT

Initial (Pre-test) Evaluations of Groups and Demographic Equivalence

Before the intervention, the equivalence of the experimental and control groups was examined. The Shapiro–Wilk test indicated that all variables showed normal distribution ($p > .05$). Independent samples t-test results demonstrated no statistically significant differences between the groups in terms of substance use desire, substance use probability, difficulties in emotion regulation, psychological resilience, irrational beliefs, and general self-efficacy pre-test scores ($p > .05$). These findings indicate that the groups were statistically similar prior to the implementation (Table 1).

Table 1. Independent Samples t-Test Results for Pre-Test Scores of Experimental and Control Groups

Variables	Group	N	Mean	SD	df	t	p
Substance Use Desire	Experimental	12	65.25	22.98	22	0.806	0.429
	Control	12	57.92	21.58			
Substance Use Probability	Experimental	12	71.33	21.22	22	1.060	0.302
	Control	12	62.92	17.61			
Difficulties in Emotion Regulation	Experimental	12	109.75	20.50	22	1.060	0.299
	Control	12	101.92	15.19			
Psychological Resilience	Experimental	12	157.33	33.12	22	1.430	0.168
	Control	12	173.92	22.93			
Irrational Beliefs	Experimental	12	144.67	13.49	22	1.020	0.321
	Control	12	139.92	8.99			
General Self-Efficacy	Experimental	12	28.00	6.31	22	0.640	0.528
	Control	12	29.75	7.05			

The Primary Outcome of Cognitive Behavioral Group Therapy: Changes in Substance Use Tendency

The effects of Cognitive Behavioral Group Psychotherapy on relapse tendency were evaluated using the substance use desire and substance use probability dimensions. Paired samples t-tests were used to describe within-group changes. The intervention effect was interpreted primarily on the basis of the Group $\times$ Time interaction rather than solely on within-group statistical significance.

For substance use desire, the mean score in the experimental group decreased from 65.25 (SD = 22.98) at pre-test to 34.58 (SD = 8.15) at post-test, whereas the control group scores changed from 57.92 (SD = 21.58) to 57.42 (SD = 13.48). The Group $\times$ Time interaction was statistically significant and showed a large effect, $F(1,22) = 10.43$, $p = .004$, $\eta^2 = .322$. For

substance use probability, the experimental group mean decreased from 71.33 (SD = 21.22) to 29.83 (SD = 13.97), whereas the control group mean changed from 62.92 (SD = 17.61) to 64.17 (SD = 16.12). The corresponding Group $\times$ Time interaction was statistically significant and large, $F(1,22) = 18.08$, $p < .001$, $\eta^2 = .451$. These findings indicate that participation in the program was associated with greater short-term reductions in self-reported substance use desire and perceived substance use probability than the control condition; however, they do not establish that objectively verified relapse was prevented (Table 2).

Table 2. Mixed ANOVA and Paired t-Test Results for Substance Use Desire and Probability

Variables	Group	n	Mean	SD	df	t	p
Substance Use Desire	Experimental	12	65.25	22.98	22	0.806	.429
	Control	12	57.92	21.58			
Substance Use Probability	Experimental	12	71.33	21.22	22	1.060	.302
	Control	12	62.92	17.61			
Difficulties in Emotion Regulation	Experimental	12	109.75	20.50	22	1.060	.299
	Control	12	101.92	15.19			
Psychological Resilience	Experimental	12	157.33	33.12	22	1.430	.168
	Control	12	173.92	22.93			
Irrational Beliefs	Experimental	12	144.67	13.49	22	1.020	.321
	Control	12	139.92	8.99			
General Self-Efficacy	Experimental	12	28.00	6.31	22	0.640	.528
	Control	12	29.75	7.05			

Note. SD = standard deviation; df = degrees of freedom.

Secondary Outcomes of the Therapy Program: The Effect on Emotion Regulation and Psychological Resilience

Psychological Resilience

Emotion regulation difficulty scores in the experimental group decreased from 109.75 (SD = 20.50) to 87.92 (SD = 8.27), whereas the control group scores increased from 101.92 (SD = 15.19) to 107.83 (SD = 15.32). The Group $\times$ Time interaction was statistically significant and large, $F(1,22) = 12.77$, $p = .002$, $\eta^2 = .367$.

Psychological resilience scores in the experimental group increased from 157.33 (SD = 33.12) to 189.00 (SD = 22.05), whereas the control group scores decreased from 173.92 (SD = 22.93) to 153.66 (SD = 36.83). The Group $\times$ Time interaction was statistically significant and large, $F(1,22) = 10.71$, $p = .003$, $\eta^2 = .327$. Because this interaction reflected both an increase in the experimental group and a decrease in the control group, it should not be interpreted solely as improvement caused by the intervention. Rather, the groups displayed significantly different short-term patterns of change (Table 3).

Table 3. Mixed ANOVA and Paired t-Test Results for Emotion Regulation Difficulties and Psychological Resilience

Variables	Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	Paired t-test p	Group × Time F(1,22)	p	η^2
Difficulties in Emotion Regulation	Experimental	109.75 (20.50)	87.92 (8.27)	< .01	12.77	.002	.367
	Control	101.92 (15.19)	107.83 (15.32)	> .05			
Psychological Resilience	Experimental	157.33 (33.12)	189.00 (22.05)	< .01	10.71	.003	.327
	Control	173.92 (22.93)	153.66 (36.83)	> .05			

Note. SD = standard deviation; η^2 = partial eta squared. Partial eta squared values of .01, .06, and .14 indicate small, medium, and large effects, respectively.

Cognitive Restructuring: Findings on Irrational Beliefs and Self-Efficacy Perception

Irrational belief scores in the experimental group decreased from 144.67 (SD = 13.49) to 123.25 (SD = 14.28), whereas the control group scores increased from 139.92 (SD = 8.99) to 147.00 (SD = 17.72). The Group × Time interaction was statistically significant and large, $F(1,22) = 16.57$, $p = .001$, $\eta^2 = .430$.

General self-efficacy scores in the experimental group increased from 28.00 (SD = 6.31) to 32.33 (SD = 5.02), while the control group scores decreased from 29.75 (SD = 7.05) to 27.33 (SD = 7.43). The within-group change in the experimental group was statistically significant ($p = .024$). However, the Group × Time interaction was not statistically significant, $F(1,22) = 3.01$, $p = .097$, $\eta^2 = .120$. Therefore, the within-group improvement alone was insufficient to demonstrate a statistically conclusive intervention effect on general self-efficacy relative to the control group (Table 4).

Table 4. Mixed ANOVA and Paired t-Test Results for Irrational Beliefs and General Self-Efficacy

Variables	Group	Pre-Test Mean (SD)	Post-Test Mean (SD)	Paired t-test p	Group × Time F(1,22)	p	η^2
Irrational Beliefs	Experimental	144.67 (13.49)	123.25 (14.28)	.002	16.57	.001	.430
	Control	139.92 (8.99)	147.00 (17.72)	> .05			
General Self-Efficacy	Experimental	28.00 (6.31)	32.33 (5.02)	.024	3.01	.097	.120
	Control	29.75 (7.05)	27.33 (7.43)	> .05			

Note. SD = standard deviation; η^2 = partial eta squared. Partial eta squared values of .01, .06, and .14 indicate small, medium, and large effects, respectively.

4. DISCUSSION

This study examined the short-term effects of a 13-week Cognitive Behavioral Group Psychotherapy program among young men who had previously received treatment for substance addiction and were under probation supervision. Significant Group $\times$ Time interactions were observed for substance use desire, substance use probability, emotion regulation difficulties, psychological resilience, and irrational beliefs, with partial eta squared values ranging from .322 to .451. Although these large interaction effects indicate substantial differences in the patterns of change between the groups, they should be interpreted in light of the small and highly specific sample and the immediate post-intervention assessment. The reductions in substance use desire and substance use probability are generally consistent with previous evidence supporting cognitive behavioral approaches in relapse prevention (10,11,20). However, the outcomes represented self-reported desire and perceived probability of substance use rather than biologically or behaviorally verified relapse events. Therefore, the results cannot be interpreted as direct evidence that the intervention prevented actual or long-term relapse. The absence of follow-up measurement also prevents conclusions about whether these changes were sustained after the program ended.

The significant interaction observed for emotion regulation difficulties is consistent with studies linking maladaptive emotion regulation strategies to substance-use motivation and harmful coping responses (21–23). The program included recognition of emotional triggers, cognitive restructuring, and coping-skills training, which may have contributed to the more favorable change observed in the experimental group. Nevertheless, the intervention consisted of several components delivered simultaneously. Consequently, the present design cannot determine whether the change was attributable specifically to emotion regulation training, cognitive restructuring, group support, therapist attention, or the combined effect of these components. Psychological resilience increased in the experimental group but decreased in the control group. Thus, the significant interaction reflected divergent changes in both groups rather than improvement in the experimental group alone. Unmeasured factors, including stressful life events, social support, treatment adherence, or substance-use experiences during the 13-week period, may have contributed to the decline observed in the control group and cannot be excluded as alternative explanations.

The large interaction effect for irrational beliefs is compatible with the theoretical basis of cognitive behavioral therapy, which emphasizes the identification and restructuring of dysfunctional cognitions (8,24). However, because the study did not test mediation, it cannot be concluded that the reduction in irrational beliefs was the mechanism responsible for the observed changes in relapse tendency. General self-efficacy increased significantly within the experimental group, but the Group $\times$ Time interaction did not reach statistical significance. Accordingly, the findings do not provide conclusive evidence that the intervention improved general self-efficacy relative to the control condition. The η^2 value of .120 may indicate a potentially meaningful difference that the small sample was insufficiently precise to confirm; alternatively, a general self-efficacy measure may have been less sensitive than a substance-specific abstinence self-efficacy measure.

The control group did not receive a structured intervention comparable in duration, therapist contact, and group interaction to the experimental condition. Therefore, the observed

differences cannot be attributed exclusively to the cognitive behavioral content of the program. Nonspecific factors such as regular contact with the therapist, peer support, expectations of benefit, and participation in a structured group activity may also have contributed to the findings.

5. Limitations

This study has several limitations. First, the sample consisted of only 24 male participants aged 18–24 years who were recruited from a single probation directorate. This small and homogeneous sample limits statistical precision and restricts the generalizability of the findings to women, other age groups, individuals receiving treatment in different settings, and people with different substance-use characteristics. Second, although no statistically significant baseline differences were detected, the small sample may have limited the ability to identify clinically meaningful baseline imbalances.

Third, all outcomes were measured using self-report instruments and may have been influenced by recall bias, social desirability, or participants' expectations. Actual substance use, biological indicators, and objectively verified relapse events were not assessed. Fourth, the study included only pre-test and immediate post-test measurements, with no follow-up assessment. Therefore, it was not possible to determine whether the observed changes were maintained over time or to draw conclusions regarding the long-term effectiveness of the intervention in preventing relapse. Fifth, the absence of an active control condition and the inability to blind participants and the intervention provider mean that therapist attention, group support, and expectancy effects may have influenced the outcomes. Finally, because the program incorporated multiple therapeutic components, the contribution of each individual component could not be determined.

6. CONCLUSION

The findings provide preliminary evidence that participation in a 13-week Cognitive Behavioral Group Psychotherapy program may be associated with favorable short-term changes in self-reported substance use desire, substance use probability, emotion regulation difficulties, psychological resilience, and irrational beliefs among young men who had previously received substance addiction treatment and were under probation supervision. The findings did not demonstrate a statistically significant Group $\times$ Time effect on general self-efficacy. Moreover, the small male-only sample, single-setting design, reliance on self-reported outcomes, lack of an active control condition, and absence of follow-up assessment limit the strength and generalizability of the conclusions.

Therefore, the results should be considered preliminary rather than definitive evidence of effectiveness. Larger randomized studies involving more diverse samples, active comparison conditions, objective relapse indicators, substance-specific self-efficacy measures, and long-term follow-up assessments are required to confirm the findings and determine their clinical sustainability.

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