

# Enhancing Ego Strength, Emotional Stability, and Communication Skills in Prisoners with Antisocial Personality Disorder: Evaluating the Impact of Cognitive-Analytic Therapy

Marzie Hashemi<sup>1,\*</sup>, Mohammad Ali NajmZaadeh<sup>1</sup>, Mandana Niknam<sup>1</sup>

1. Department of Psychology and Education, Faculty of Humanities, Khatam University, Tehran, Iran

\* **Corresponding author:** Marzie Hashemi, Department of Psychology and Education, Faculty of Humanities, Khatam University, Tehran, Iran. M.hashemi2@khatam.ac.ir

Received 2025 November 03; Accepted 2026 January 12.

## Abstract

**Background:** Antisocial Personality Disorder is a chronic and prevalent condition among incarcerated populations and is associated with impaired ego functioning, emotional instability, and deficient interpersonal communication.

**Objective:** This study aimed to evaluate the effectiveness of Cognitive-Analytic Therapy on ego strength, emotional stability, and communication skills in male prisoners diagnosed with ASPD.

**Methods:** This study explored the effectiveness of Cognitive-Analytic Therapy on ego strength, emotional stability, and communication skills in male prisoners with Antisocial Personality Disorder. A pre-test and post-test quasi-experimental design was employed, with an intervention group (n = 18) and a control group (n = 18), selected from male prisoners in Tehran with a confirmed ASPD diagnosis in 2023. The subjects were selected using purposive sampling and assigned to the groups randomly. Data were collected using standardized psychometric measures, including the Millon Clinical Multiaxial Inventory, the Psychosocial Inventory of Ego Strengths, the NEO Five-Factor Inventory – Short form, and the Communication Skills Test-Revised. The CAT intervention consisted of 10 sessions, held twice weekly for 2 hours each. Data were analyzed using SPSS, with descriptive statistics and covariance analysis.

**Results:** revealed that there were considerable improvements in ego strength (F = 6.809,  $\eta = 0.180$ ), communication skills (F = 31.221,  $\eta = 0.502$ ), and emotional stability (F = 17.083,  $\eta = 0.355$ ) in the intervention group compared to the control group ( $p < 0.05$ ).

**Conclusion:** The findings suggest that Cognitive-Analytic Therapy can be an effective therapeutic approach for enhancing psychological functioning and interpersonal skills among individuals with ASPD.

**Keywords:** Antisocial Personality Disorder, Cognitive-Analytic Therapy, Communication Skills, Ego Strength, Emotional Stability.

## 1. Background

Personality disorders are among the most common and chronic disorders in various societies, with an estimated prevalence of 10 to 15 percent of the general population (1, 2). Among the different types of personality disorders, Antisocial Personality Disorder (ASPD) has attracted the most attention from researchers. This disorder is characterized by repetitive and persistent patterns of criminal, deviant, or antisocial behavior that typically

begin in childhood or early adolescence and affect all aspects of the individual's life(3). Antisocial Personality Disorder is a chronic condition that typically shows limited improvement over time and reaches peak severity in late adolescence. Individuals with this disorder are characterized by impulsive behavior, poor delay of gratification, and disregard for the consequences of their actions, often resulting in unstable occupational patterns and increased

tendencies toward aggression(4).

Ego strength is a key factor in the prediction and management of personality disorders, particularly antisocial personality disorder, reflecting an individual's capacity to regulate internal impulses and adapt effectively to external social realities(5). Ego, as the system responsible for managing the psyche, ensures the individual's capacity to realistically perceive challenging situations and respond effectively to them (6). Ego strength can enhance an individual's flexibility in using defense mechanisms; however, if these mechanisms are rigidly and dogmatically employed, they may lead to the development of personality disorders(7). Research findings also confirm that low ego strength is associated with personality disorders(8).

Low ego strength is associated with distorted thinking, reduced motivation, and emotional instability. In contrast, high ego strength enables effective emotion regulation, resilience, and adaptive coping with challenges(9). Furthermore, Demirkan et al. found a relationship between low ego strength and anxiety problems, which may lead to a loss of control over conscious thoughts and a lack of influence on their environment(10). The findings by Iveren Atser et al. also confirm that low ego strength is significantly correlated with emotional instability in prisoners with Antisocial Personality Disorder(11).

In this context, emotional stability plays a fundamental role as a personality trait, encompassing the capacity to regulate emotions, control impulses, and cope with life challenges in individuals with personality disorders(12). Studies show that individuals with high emotional stability are able to tolerate delays in gratification, endure a reasonable degree of frustration, and engage in long-term planning (13). Leichsenring et al. also found that emotional expression, particularly negative emotional expression, is associated with personality disorder symptoms(14).

In addition to ego strength and emotional

stability, communication skills are essential for every individual, enabling them to build broader social connections and receive greater social support. These skills help individuals reduce their exposure to life's challenges and use adaptive coping strategies(15). Some findings suggest that one of the characteristics of individuals with personality disorders, especially Antisocial Personality Disorder, is defective and inefficient interpersonal communication patterns(16). These individuals often experience difficulties in interpersonal functioning, empathy, and intimacy. They are unable to recognize the feelings and needs of others, leading to unstable relationships and tumultuous communication patterns(17).

Therefore, the treatment of individuals with personality disorders, including Antisocial Personality Disorder, is of significant importance. In recent decades, Cognitive-Analytic Therapy (CAT) has been recognized as one of the effective therapeutic interventions for enhancing the psychological and emotional functioning of individuals with personality disorders(18). Developed by Anthony Ryle in the 1980s, this therapeutic approach is based on the belief that early life experiences shape thought, emotion, and behavioral patterns and can lead to psychological vulnerability in later life (19). Cognitive-Analytic Therapy, by changing core personality traits and modifying harmful behaviors, enables improvement in clients' psychological and social functioning (20). Despite various efforts to treat Antisocial Personality Disorder, studies indicate that these individuals often show strong resistance to Therapy and frequently abandon treatment sessions(21, 22). Although various therapeutic modalities, including Cognitive Behavioral Therapy (CBT) and traditional psychoanalysis, have been utilized for personality disorders, Cognitive-Analytic Therapy (CAT) was specifically selected for this study due to its integrative framework and time-limited nature, which renders it particularly suitable for forensic settings.

In contrast to traditional CBT, which often

emphasizes symptom reduction and cognitive restructuring, CAT concentrates on recognizing and modifying entrenched "reciprocal roles" (e.g., abuser/abused) and dysfunctional procedural sequences that are fundamental to the disease of Antisocial Personality Disorder. Moreover, unlike long-term psychoanalytic approaches, which may be impractical within the constraints of a correctional institution, CAT offers a systematic, collaborative, and conversational framework. This framework is essential for overcoming the significant resistance commonly seen among offenders, thereby improving ego strength and communication skills more effectively than less organized or solely symptom-oriented therapies.

## 2. Objective

Considering the high prevalence of Antisocial Personality Disorder, the difficulties in treating this group, and the lack of effective research on the impact of therapeutic interventions on psychological and emotional functioning, this study was designed and conducted to investigate the effectiveness of Cognitive-Analytic Therapy on ego strength, emotional stability, and communication skills in prisoners with Antisocial Personality Disorder. The significance of this research is not only due to the need for effective therapeutic approaches to reduce the destructive consequences of Antisocial Personality Disorder but also because of the widespread impact this disorder has on the personal and social life of individuals and society. Moreover, the limited research on the effectiveness of Cognitive-Analytic Therapy underscores the need for further studies in this area.

## 3. Methods

### 3.1. Research design

This study employed a quasi-experimental pre-test–post-test design with

an intervention and a control group. The study population consisted of male prisoners diagnosed with antisocial personality disorder (APD) in Tehran in 2023. Using purposive sampling, 36 eligible participants were selected and randomly assigned to either the intervention group (n = 18) or the control group (n = 18). The required sample size was determined using an a priori power analysis based on the standard formula for comparing means between two independent groups. The analysis was conducted assuming a statistical power of 80% ( $1 - \beta = 0.80$ ) and a two-tailed significance level of 5% ( $\alpha = 0.05$ ). Based on previous meta-analytic findings on the effectiveness of cognitive interventions among offender populations (23), a moderate-to-large effect size (Cohen's  $d \approx 0.80$ ) was anticipated. According to Cohen's (1992) recommendations for behavioral science research, the minimum required sample size was estimated to be 16 participants per group (24). To account for potential attrition, common in correctional and forensic settings, the sample size was increased to 18 participants per group, yielding a total sample of 36 (N = 36). The sample size was calculated using the following formula:

$$n = [2 \times (Z(1-\alpha/2) + Z(1-\beta))^2 \times \sigma^2] / (\mu_1 - \mu_2)^2$$

Both groups completed pre-test assessments prior to the intervention. Cognitive-Analytic Therapy was delivered exclusively to the intervention group through regular sessions. In contrast, the control group received no intervention and was placed on a waiting list. Post-test assessments were conducted for both groups following completion of the intervention.

Inclusion criteria were strictly defined to ensure sample homogeneity and diagnostic

accuracy: A primary diagnosis of ASPD was established based on the Millon Clinical Multiaxial Inventory (MCMI-IV) and confirmed via the Structured Clinical Interview for DSM-5 Personality Disorders (SCID-5-PD) administered by a clinical psychologist. Participants were aged 20-60 years. The lower limit (20) was set to minimize the confounding effects of adolescent personality fluctuations, while the upper limit (60) was chosen to exclude potential age-related cognitive decline that could interfere with therapy engagement. A minimum of middle school education (cycle) was required to ensure sufficient reading

comprehension for completing self-report questionnaires. Absence of concurrent psychotic disorders, bipolar disorder, or severe cognitive impairment, as verified by prison medical records and clinical interview. Proficiency in Persian, absence of concurrent psychological treatment, and willingness to attend therapy sessions regularly. Exclusion criteria included missing more than 2 therapy sessions, voluntary withdrawal from the study, or the onset of severe physical illness requiring specialized medical treatment outside the facility (Figure 1).

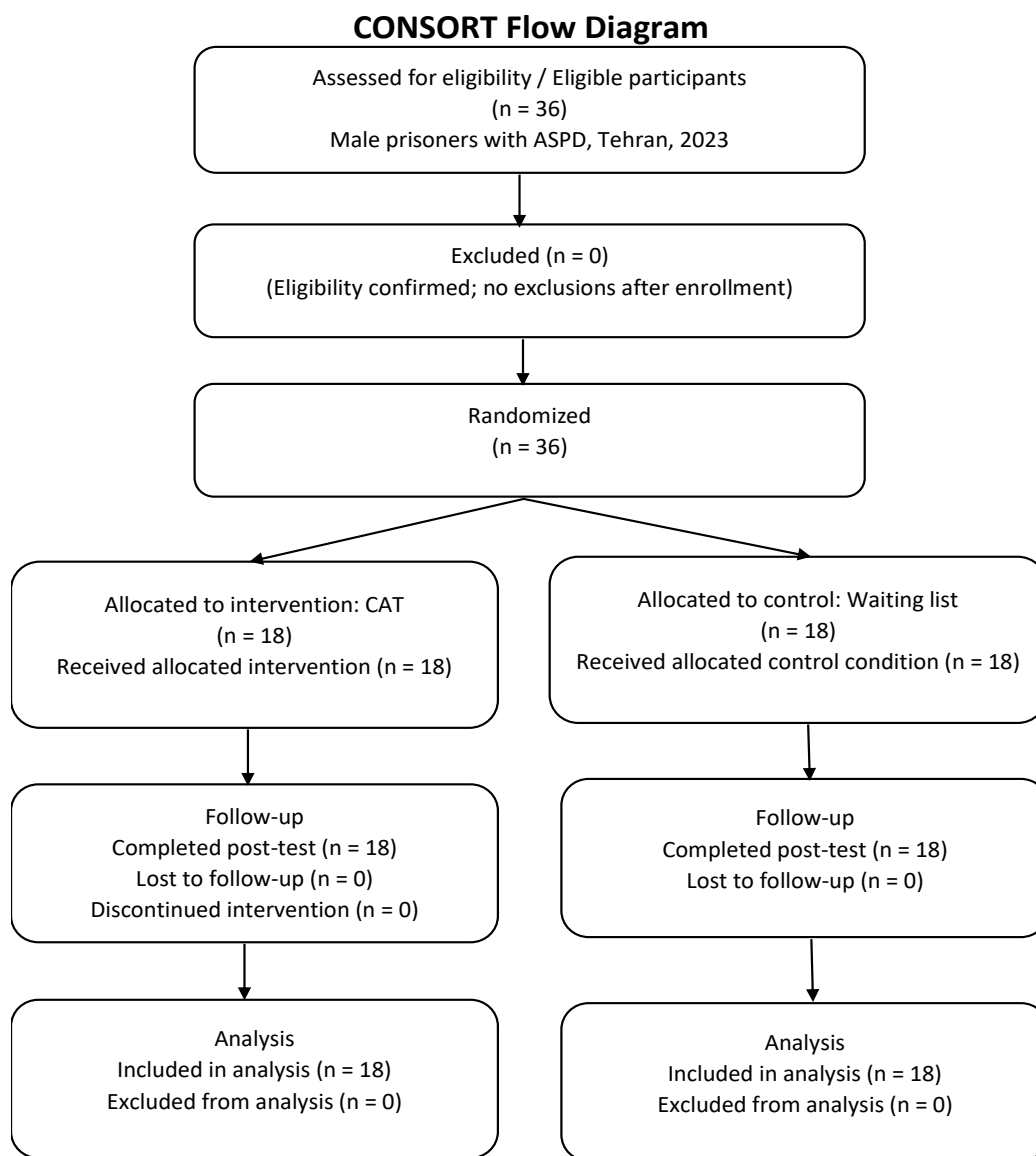


Figure: CONSORT flow diagram of participant recruitment, allocation, follow-up, and analysis

### **3.2 Data Collection Instruments**

In addition to a researcher-designed demographic checklist, four self-report questionnaires were used in the pre-test and post-test stages as follows:

**Millon Clinical Multiaxial Inventory (MCMI-IV):**

This tool, designed by Theodore Millon in 1977, is a standardized instrument for assessing a wide range of personality and clinical disorders. The fourth edition of this instrument was published by Grossman in 2015. It contains 195 yes/no questions that assess 15 personality disorders and 10 clinical patterns based on DSM-5 criteria. The MCMI-IV has been validated in Iran with high reliability and validity(25). The internal consistency reported in Iran ranges from 0.82 to 0.98 (26).

**Psychosocial Inventory of Ego Strengths (PIES):**

Developed by Markstrom et al. in 1997 and revised in 2007, this scale measures eight dimensions: "Hope," "Will," "Purpose," "Competence," "Loyalty," "Love," "Care," and "Wisdom." The long-form version with 64 items was used in this study. In the current study, Cronbach's alpha for the questionnaire's total score was 0.72.

#### **NEO Five-Factor Inventory – Short form:**

This tool, developed by Costa and McCrae in 1987, consists of 60 items measuring the five major personality factors: "Neuroticism," "Extraversion," "Openness," "Agreeableness," and "Conscientiousness." In this study, neuroticism scores were used inversely to determine emotional stability. The Cronbach's alpha for this tool in Iran was reported as 0.93(27). The internal consistency for emotional stability, as the reverse of neuroticism, was 0.82 in this study.

#### **Communication Skills Test-Revised:**

Initially developed by Hargie & Dickson in 1986 and later revised by Dixon et al. in 1993,

this scale measures three factors: "Emotional Management," "Perception of Others," and "Self-expression." The tool's reliability was assessed using Cronbach's alpha (0.66). In the present study, the Cronbach's alpha for this scale was 0.69.

### **3.3 Research Implementation Method**

To collect data, coordination was established with officials at a correctional facility under the jurisdiction of the Iranian Prisons Organization, and explanations regarding the study's goals and publication ethics were provided. Participants were sampled from this facility after proper evaluations. A prison psychiatrist and clinical psychologist assessed participants' medical records.

After obtaining pre-test data from the selected participants, individuals were randomly assigned to the intervention or control group. The cognitive-analytic therapy intervention was implemented exclusively for the intervention group. No intervention was provided to the control group. The psychotherapy instructions were tailored to the prison's safety and security regulations and the specific variables being studied, including ego strength, emotional stability, and communication skills. Sessions were held twice a week for approximately two hours. The psychotherapy manual employed in the present study is based on the principles of Cognitive Analytic Therapy (28, 29) and was specifically adapted by the investigators for this project. Concerning its face validity, three psychotherapy specialists rated the reference protocol at 7 out of 10, indicating that it is logically coherent, psychometrically sound, and clinically acceptable.

In light of the investigators' review and the similarity between the treatment design and the study sample, the same protocol has been applied in prior work by Manson et al. (2017), beyond its inclusion in Calvert and Kellett's manual. An overview of the session structure

and thematic objectives of the implemented Cognitive-Analytic Therapy program is presented in Table 1. Upon completion of the

therapeutic sessions, a post-test was conducted.

**Table 1: Summary of Cognitive-Analytic Therapy Sessions and Their Thematic Focus**

Session(s)	Therapeutic Focus	Core Content
1–2	Assessment and Psychoeducation	Introduction to Cognitive-Analytic Therapy, assessment of ASPD-related difficulties, psychoeducation on ego strength, emotional stability, communication skills, and establishment of the therapeutic alliance.
3–4	Identification of Maladaptive Patterns	Identification of problematic cognitive, emotional, and behavioral patterns, exploration of their developmental origins, and examination of past and current interpersonal relationships.
5	Triggers and Consequences	Recognition of common triggers for antisocial behaviors and analysis of their psychological, interpersonal, and life-quality consequences.
6–7	Ego Strength and Emotional Regulation	Enhancement of ego strength through self-efficacy and responsibility-taking, alongside training in emotional regulation, stress tolerance, and self-soothing strategies.
8	Communication Skills Development	Training in effective communication strategies, including active listening, self-expression, and conflict resolution.
9	Review and Consolidation	Reflection on therapeutic progress, identification of challenges in applying learned strategies, and refinement of coping approaches.
10	Closure and Future Planning	Summary of key therapeutic elements, planning for application during incarceration and post-release, and development of a follow-up strategy.

### 3.5 Data Analysis Method

Data were analyzed using SPSS version 26. Descriptive statistics were used to summarize participant characteristics. Assumptions for parametric analyses, including normality, homogeneity of variance, and independence of observations, were examined. To evaluate the effects of cognitive-analytic Therapy on ego strength, emotional stability, and communication skills, univariate and multivariate analyses of covariance (ANCOVA) were conducted.

### 4. Results

The demographic characteristics of participants in the intervention group (n = 18) and the control group (n = 18) are presented in Table 2. Participants ranged in age from 20 to 60 years. No statistically significant differences were found between the two groups regarding baseline demographic variables, including age, education, employment status, marital status, and ethnicity ( $p > 0.05$ ).

**Table 2: Demographic Data of Participants in Both Groups**

Variable	Category	Intervention Group (n - %)	Control Group (n - %)
Age	23-29 years	4 (22.22%)	4 (22.22%)
	30-36 years	3 (7.16%)	7 (9.38%)
	37-43 years	7 (9.38%)	5 (8.27%)
	44-50 years	4 (2.22%)	1 (6.5%)
	51 years and above	0 (0%)	1 (6.5%)
Education Level	Below High School	11 (16.1%)	10 (6.55%)
	High School	4 (2.22%)	3 (7.16%)
	Associate Degree	2 (1.1%)	5 (8.27%)
	Bachelor's Degree and above	1 (6.5%)	0 (0%)
Employment Status	Unemployed	5 (8.27%)	5 (8.27%)
	Laborer	5 (8.27%)	3 (7.16%)
	Driver	1 (6.5%)	2 (1.1%)
	Motorcycle Courier	1 (6.5%)	2 (1.1%)
	Cleaner	1 (6.5%)	2 (1.1%)
	Unknown	5 (8.27%)	4 (2.22%)
	Marital Status	Single	10 (6.55%)
	Married	7 (9.38%)	5 (8.27%)
	Divorced	1 (6.5%)	6 (3.33%)
Ethnicity	Persian	10 (6.55%)	11 (1.61%)
	Turk	5 (8.27%)	3 (7.16%)
	Arab	0 (0%)	1 (6.5%)
	Kurd	2 (1.1%)	2 (1.1%)
	Lore	1 (6.5%)	1 (6.5%)

Table 3 presents the descriptive statistics, including means, standard deviations, and 95% confidence intervals (CI) for Ego Strength, Emotional Stability, and Communication Skills at the pre-test and post-test stages. As shown in Table 3, despite random assignment, a baseline difference in Ego Strength scores was observed between the two groups. Therefore, to control for pre-existing differences and adjust for baseline variability, analysis of covariance (ANCOVA) was applied. Overall, the intervention group demonstrated improvements in all three outcome variables at post-test. In contrast, the control group showed a decline, particularly in Ego Strength.

Before conducting the ANCOVA, the analysis's assumptions were examined. The Shapiro–Wilk test indicated that the data were normally distributed in both groups ( $p > 0.05$ ). Levene's test confirmed the homogeneity of variances for Ego Strength ( $F = 0.248$ ,  $p = 0.62$ ), Emotional Stability ( $F = 0.082$ ,  $p = 0.77$ ), and Communication Skills ( $F = 0.145$ ,  $p = 0.70$ ). In addition, Box's M test supported the assumption of

homogeneity of covariance matrices (Box's  $M = 1.334$ ,  $p = 0.238$ ).

A multivariate analysis of covariance (MANCOVA) was conducted to evaluate the overall effect of the intervention while controlling for pre-test scores. The results showed a statistically significant overall group effect (Wilks' Lambda = 0.469,  $F(3, 30) = 10.937$ ,  $p < 0.001$ , partial eta squared = 0.531).

Follow-up univariate ANCOVA results (Table 4) indicated that Cognitive-Analytic Therapy produced statistically significant effects on all dependent variables:

For Ego Strength, a significant difference was found between groups ( $F(1, 33) = 6.809$ ,  $p = 0.014$ ), with a medium-to-large effect size (eta squared = 0.180). The intervention significantly improved emotional stability ( $F(1, 33) = 17.083$ ,  $p < 0.001$ , eta squared = 0.355). For Communication Skills, a significant improvement was observed in the intervention group compared to the control group ( $F(1, 33) = 31.221$ ,  $p < 0.001$ , eta squared = 0.502).

**Table 3. Descriptive Statistics (Mean, SD, and 95% Confidence Intervals) for Study Variables**

Variable	Group	N	Phase	Mean	SD	95% CI (Lower – Upper)
Ego Strength	Intervention	18	Pre-test	44.20	27.48	31.51 – 56.89
			Post-test	72.22	37.23	55.02 – 89.42
	Control	18	Pre-test	88.19	28.23	75.15 – 101.23
			Post-test	11.20	26.06	-0.84 – 23.24
Emotional Stability	Intervention	18	Pre-test	26.83	7.35	23.43 – 30.22
			Post-test	22.66	5.90	19.93 – 25.39
	Control	18	Pre-test	31.72	5.43	29.21 – 34.22
			Post-test	31.83	4.21	29.88 – 33.77
Communication Skills	Intervention	18	Pre-test	103.77	8.15	100.00 – 107.53
			Post-test	110.38	12.47	104.62 – 116.14
	Control	18	Pre-test	101.11	13.41	94.91 – 107.30
			Post-test	98.61	14.08	92.10 – 105.11

**Table 4. Results of Univariate Analysis of Covariance (ANCOVA) Controlling for Pre-test Scores**

Dependent Variable	Source	Sum of Squares	df	Mean Square	F	p-value	Partial $\eta^2$	Power
Ego Strength	Group	8543.21	1	8543.21	6.809	0.014*	0.180	0.72
	Error	41405.11	33	1254.70				
Emotional Stability	Group	245.33	1	245.33	17.083	<0.001*	0.355	0.98
	Error	473.88	33	14.36				
Communication Skills	Group	1422.56	1	1422.56	31.221	<0.001*	0.502	0.99
	Error	1503.44	33	45.55				

\*Significant at  $p < 0.05$

## 5. Discussion

This study's findings illustrate the efficacy of Cognitive-Analytic Therapy (CAT) in enhancing ego strength, emotional stability, and communication skills in incarcerated individuals diagnosed with Antisocial Personality Disorder (ASPD). These findings support prior studies demonstrating the beneficial effect of this therapy method on ego functioning. In line with our findings, prior research has emphasized CAT's ability to improve ego strength. Debashi et al. indicated that although short-term Cognitive Analytic Therapy (CAT) resulted in minimal structural changes, prolonged treatment yielded substantial symptom enhancement, emphasizing the necessity of adequate treatment length (28). Likewise, further research has validated the effectiveness of CAT for improving tolerance to uncertainty and strengthening ego functions in personality disorders (6, 29). Theoretically, in individuals with ASPD, stiff and ineffective ego defenses limit self-regulation. This study attributes the enhancement of ego strength to the CAT strategies of "recognition, reframing, and revision." By recognizing maladaptive defense mechanisms, the Therapy assisted participants in altering these patterns, resulting in enhanced self-regulation and an increased ability to manage stress without participating in acting-out behaviors.

The investigation additionally revealed a substantial positive impact on emotional stability, aligning with previous studies. For instance, Azita et al. showed the efficacy of CAT in enhancing mental health outcomes in Obsessive-Compulsive Disorder(30), while Taylor et al. and Hallam et al. reported decreases in self-harm behaviors and heightened distress tolerance in personality disorders(31, 32). Individuals with ASPD typically endure chronic negative emotions and anxiety when confronted with stress.

Cognitive Analytical Therapy (CAT) improves emotional stability by changing maladaptive cognitive processes and enhancing awareness of incorrect "Reciprocal Roles" (RRs). The Therapy facilitated the acceptance of emotions and encouraged adaptive psychological reactions by modifying self-reinforcing patterns, thus diminishing the emotional instability frequently seen in this population.

Our findings indicate significant enhancements in communication abilities, supported by prior research, including Hadizadeh et al., which showed that CAT efficiently improves self-efficacy and reduces interpersonal issues (33). This enhancement can be attributed to CAT's emphasis on altering maladaptive relational attitudes formed by early life experiences. Individuals with ASPD frequently show impaired communication patterns. By defining these chains and recognizing initial reciprocal role patterns (e.g., Abuser/Abused), the Therapy enhanced participants' understanding of their interpersonal dynamics. This knowledge enabled the reorganization of disrupted interpersonal frameworks, fostering more efficient communication and stronger social relationships.

Despite these positive outcomes, it is essential to recognize that the extensive research on ASPD treatment frequently yields inconclusive findings. A significant Cochrane review by Gibbon et al. revealed insufficient data supporting the effectiveness of psychological interventions for Antisocial Personality Disorder (ASPD) (34). At the same time, Black observed that traditional treatments frequently fail due to patient resistance (34). The effectiveness of the current research, in contrast to previous unfavorable findings, may be attributed to CAT's collaborative and non-confrontational approach, which avoids the resistance commonly observed in forensic contexts by

validating the client's experience while addressing maladaptive behaviors.

A significant finding was the reduction in ego strength and communication abilities within the control group. This decrease aligns with the "prisonization" phenomenon articulated by Sykes and Haney, wherein the adversarial and punishing atmosphere of imprisonment reduces psychological resources and reinforces maladaptive defenses(35, 36). It indicates that, in the absence of therapeutic intervention, the jail environment could worsen the psychological functioning of individuals with ASPD. The study's limitations include the exclusive concentration on male prisoners, purposive sampling, and dependence on self-report instruments. The following studies should employ mixed-methods approaches and extended follow-up periods. This study indicates that CAT is a successful treatment for ASPD, enhancing psychological stability and communication while mitigating the psychological decline associated with incarceration.

## 6. Conclusion

The findings of this study indicate that cognitive-analytic Therapy is effective in improving communication skills and emotional functioning in individuals with antisocial personality disorder. By modifying maladaptive attitudes toward the self and others and enhancing insight into cognitive and emotional processes, this therapeutic approach promotes psychological flexibility, emotional regulation, and more adaptive interpersonal communication. These improvements may contribute to better social adjustment and reduced antisocial behavior. Consistent with previous research, the present findings support the clinical value of cognitive-analytic Therapy as a specialized intervention for personality disorders. The results further suggest that integrating this therapeutic approach into correctional and rehabilitation settings may

enhance treatment outcomes and better address the complex needs of individuals with antisocial personality disorder.

**Acknowledgements:** No funding or financial support was received for this study.

**Availability of data and materials:** Data are available from the corresponding author upon reasonable request.

**Conflicts of interests:** The authors declare that there are no conflicts of interest.

**Consent for publication:** Not applicable.

**Ethics approval and consent to participate:** The study was approved by the Research Ethics Committee of Shahid Beheshti University (Approval ID: IR.SBU.REC.1402.160). All study procedures were executed in compliance with the Declaration of Helsinki. Participants provided informed written consent after receiving a comprehensive briefing on the study's objectives and confidentiality measures.

**Financial disclosure:** This research received no specific grant from any funding agency, commercial, or not-for-profit sectors.

**Author contributions:** M. H. was responsible for the conceptualization and overall supervision of the study, as well as manuscript preparation, editing, and revision. MA. N. conducted the therapeutic intervention and contributed to data collection and results analysis. M. N. served as the academic advisor.

## References

1. Edwards ER, Epshteyn G, Diehl CK, Ruiz D, Coolidge B, Weiss NH, et al. Prison or treatment? Gender, racial, and ethnic inequities in mental health care utilization and criminal justice history among incarcerated persons with borderline and antisocial

- personality disorders. *Law and Human Behavior*. 2024;48(2):104. <https://doi.org/10.1037/lhb0000557> PMID:38602804
2. Sawaya RT, Zalzale H, Ghossoub E. Epidemiology of antisocial personality disorder, psychopathy and other related constructs in Arab countries: A scoping review. *Forensic Science International: Mind and Law*. 2024;5:100126. <https://doi.org/10.1016/j.fsimpl.2023.100126>
  3. Esposito CM, Ceresa A, Auxilia AM, Zanelli Quarantini F, Caldiroli A, Capuzzi E, et al. Which Clinical and Demographic Factors are Related to Incarceration in Male Patients With Antisocial Personality Disorder? *International Journal of Offender Therapy and Comparative Criminology*. 2023;67(16):1630-41. <https://doi.org/10.1177/0306624X221139073> PMID:36495101
  4. Wei T. The impact on antisocial personality disorder: From the perspective of the causes, the effects and the treatments. *Addressing Global Challenges-Exploring Socio-Cultural Dynamics and Sustainable Solutions in a Changing World*: Routledge; 2024. p. 908-14. <https://doi.org/10.1201/9781032676043-127>
  5. Markstrom CA, Sabino VM, Turner BJ, Berman RC. The Psychosocial Inventory of Ego Strengths: Development and Validation of a New Eriksonian Measure. *Journal of Youth and Adolescence*. 1997;26(6):705-32. <https://doi.org/10.1023/A:1022348709532>
  6. einy s, narimani m, atadokht a, basharpoor s, Sadeghi Movahhed f. EFFECTIVENESS OF COGNITIVE-ANALYTICAL THERAPY ON EGO-STRENGTH AND OBJECT RELATIONS OF PERSONS WITH BORDERLINE PERSONALITY DISORDER. *Studies in Medical Sciences*. 2018;29(1):1-11.
  7. Yun S, Jo SH, Jeon HJ, Kim HG, Cheon EJ, Koo BH. The Complexity of Borderline Personality Disorder: Network Analysis of Personality Factors and Defense Styles in the Context of Borderline Personality Organization. *Psychiatry Investig*. 2024;21(6):672-9. <https://doi.org/10.30773/pi.2024.0085> PMID:38960445 PMCID:PMC11222081
  8. Karakaya Çataldaş S, Kutlu FY, Eren N. The effects of online art therapy on ego functions, emotion regulation, and interpersonal relationship styles in neurotic personality organization. *Archives of Psychiatric Nursing*. 2024;48:74-84. <https://doi.org/10.1016/j.apnu.2023.12.003> PMID:38453286
  9. Stulcbauer LB, Chen W, Gross JJ, Krueger RF, Preece DA. Mapping Emotion Regulation Patterns Within the Alternative Model of Personality Disorders Personality Traits. *Journal of Personality Disorders*. 2024;38(4):311-29. <https://doi.org/10.1521/pedi.2024.38.4.311> PMID:39093633
  10. Demirkan AK, Gerdan G, Yazıcı M. Personality Organization in Anxiety Disorders: Comparison of Generalized Anxiety Disorder and Panic Disorder. *Psikiyatride Güncel Yaklaşımlar*. 2023;15(Supplement 1):321-31. <https://doi.org/10.18863/pgy.1320916>
  11. Iveren Atser C, Onyi Ker B, Apeon Tor-Anyiin S. Emotional Disposition as Correlate of Antisocial Personality Disorders Among Incarcerated Youths in Benue and Nasarawa States Nigeria. *IFE Psychologia: An International Journal*. 2024;32(1):40-9
  12. Costa PT, McCrae RR. The Five-Factor Model of Personality and Its Relevance to Personality Disorders. *Journal of Personality Disorders*. 1992;6(4):343-59. <https://doi.org/10.1521/pedi.1992.6.4.343>
  13. D'Aurizio G, Di Stefano R, Soggi V, Rossi A, Barlattani T, Pacitti F, et al. The role of emotional instability in borderline personality disorder: a systematic review. *Annals of General Psychiatry*. 2023;22(1):9. <https://doi.org/10.1186/s12991-023-00439-0> PMID:36918920 PMCID:PMC10011773
  14. Leichsenring F, Fonagy P, Heim N, Kernberg OF, Leweke F, Luyten P, et al. Borderline personality disorder: a comprehensive review of diagnosis and clinical presentation, etiology, treatment, and current controversies. *World Psychiatry*. 2024;23(1):4-25. <https://doi.org/10.1002/wps.21156> PMID:38214629 PMCID:PMC10786009
  15. Daneshzadeh F, Asadzadeh H, Mehrinejad SA, Sotodehasl N. The Mediating Role of Communication Skills in the Relationship between Personality Traits and High-Risk Use of the Internet in Semnan Farhangian

- University Students. *Rooyesh-e-Ravanshenasi Journal(RRJ)*. 2022;11(10):61-72.
16. Flaaten E, Langfeldt M, Morken KT. Antisocial personality disorder and therapeutic pessimism-how can mentalization-based treatment contribute to an increased therapeutic optimism among health professionals? *Front Psychol*. 2024;15:1320405. <https://doi.org/10.3389/fpsyg.2024.1320405> PMID:38449745 PMCID:PMC10915228
  17. Ohse L, Zimmermann J, Kerber A, Kampe L, Mohr J, Schierz R, et al. Impairments in Cognitive and Emotional Empathy as Markers of General versus Specific Personality Pathology. *Psychopathology*. 2023;57(2):136-48. <https://doi.org/10.1159/000533861> PMID:37906996
  18. Craven-Staines S, Finch J. *A Beginner's Guide to Cognitive Analytic Therapy: Practitioner and Service User Perspectives*: Taylor & Francis; 2024. <https://doi.org/10.4324/9781003308256> PMID:39436389 PMCID:PMC12239542
  19. Brummer L, Cavieres M, Tan R. Overview to the Oxford Handbook of Cognitive Analytic Therapy. *The Oxford Handbook of Cognitive Analytic Therapy*. 2024:1. <https://doi.org/10.1093/oxfordhb/9780198866572.001.0001>
  20. Barnes N. A cognitive analytic approach for working alongside young people. *The Oxford Handbook of Cognitive Analytic Therapy*. 2024:345. <https://doi.org/10.1093/oxfordhb/9780198866572.013.21>
  21. Janse PD, Vercauteren S, Weggemans R, Tiemens BG. Early Change as a Predictor of Treatment Outcome in Patients with a Personality Disorder. *Administration and Policy in Mental Health and Mental Health Services Research*. 2024;51(5):780-91. <https://doi.org/10.1007/s10488-024-01401-2> PMID:39110303 PMCID:PMC11379748
  22. Ronningstam E, Weinberg I. Narcissistic Personality Disorder: Patterns, Processes, and Indicators of Change in Long-Term Psychotherapy. *Journal of Personality Disorders*. 2023;37(3):337-57. <https://doi.org/10.1521/pepi.2023.37.3.337> PMID:37367820
  23. Landenberger NA, Lipsey MW. The positive effects of cognitive-behavioral programs for offenders: A meta-analysis of factors associated with effective treatment. *Journal of Experimental Criminology*. 2005;1(4):451-76. <https://doi.org/10.1007/s11292-005-3541-7>
  24. Cohen J. *A power primer*. 2016.
  25. Sellbom M, Jay F, Jonathan G, Rowena R, Robert T, and Grossman S. The Millon Clinical Multiaxial Inventory-IV (MCMI-IV) and Millon Adolescent Clinical Inventory-II (MACI-II) in Legal Settings. *Journal of Personality Assessment*. 2022;104(2):203-20. <https://doi.org/10.1080/00223891.2021.2013248> PMID:35061554
  26. Sharifi V, Asadi SM, Mohammadi MR, Amini H, Kaviani H, Semnani Y, et al. Reliability and Feasibility of The Persian Version of The Structured Diagnostic Interview for DSM-IV (SCID). *Advances in Cognitive Sciences*. 2004;6(1):10-22.
  27. Salimi J, Mohammadi S, MohammadianSharif K. Study of the relationship between student's social intelligence and academic help seeking with academic burnout: Explaining of extraversion character as mediator variable. *Biquarterly Journal of Cognitive Strategies in Learning*. 2021;9(17):33-52
  28. Debashi L, Najafi M, Rahimian Boogar S. The Effectiveness of Cognitive Analytic Group Therapy (CAT) in the Personality Structure in Borderline Personality Disorder Patients. *Journal of Modern Psychological Researches*. 2019;14(55):71-98.
  29. Pour Mohammad Ghouchani K. The effectiveness of cognitive-analytical therapy on improving uncertainty tolerance and reducing anxiety and avoiding experiences of patients with obsessive-compulsive disorder. *Journal of Clinical Psychology*. 2022;13(4):65-76.
  30. Azita Y, Rahimian-Boogar I, Rezaei AM. The Effectiveness of Cognitive Analytic Therapy on Mental Health of Patients with Obsessive-Compulsive Disorder. *Journal of Clinical Psychology*. 2013;5(3):1-12.
  31. Taylor PJ, Adeyemi I, Marlow K, Cottam S, Airnes Z, Hartley S, et al. The Relational Approach to Treating Self-Harm (RELATE): study protocol for a feasibility randomised controlled trial study of cognitive analytic

- therapy for adults who self-harm versus treatment at usual. Pilot and Feasibility Studies. 2024;10(1):101. <https://doi.org/10.1186/s40814-024-01526-z> PMID:39026281 PMCID:PMC11256374
32. Hallam C, Simmonds-Buckley M, Kellett S, Greenhill B, Jones A. The acceptability, effectiveness, and durability of cognitive analytic therapy: Systematic review and meta-analysis. *Psychology and Psychotherapy: Theory, Research and Practice*. 2021;94(S1):8-35. <https://doi.org/10.1111/papt.12286> PMID:32543107
33. Hadizadeh MH, Navabinezhad S, Nooranipour R-o-a, Farzad V-o-a. The Effectiveness of Cognitive Analytic Therapy on the Self-efficacy and Interpersonal Problems of Women with Dependent Personality Disorder. *Journal of counseling research*. 2019;18(69):208-29. <https://doi.org/10.29252/jcr.18.69.208>
34. Black DW. The Treatment of Antisocial Personality Disorder. *Current Treatment Options in Psychiatry*. 2017;4(4):295-302. <https://doi.org/10.1007/s40501-017-0123-z>
35. Sykes G. 1958 *The Society of Captives*. Princeton, NJ: Princeton University Press. 1958.
36. Haney C. Prison Effects in the Era of Mass Incarceration. *The Prison Journal*. 2012:0032885512448604. <https://doi.org/10.1177/0032885512448604>