

# The Effectiveness of Rational Emotive Behavior Therapy on Reducing Proactive and Reactive Criminal Thinking among Male Adult Offenders in Iran

Mehdi Shomali-Ahmadabadi<sup>1</sup> (MSc), Yaser Rezapour-Mirsaleh<sup>2</sup> (PhD), Zahra Yousefi<sup>1</sup> (PhD)

1. Department of Psychology, Isfahan (Khorasgan) Branch, Islamic Azad University, Isfahan
2. Department of Psychology, Faculty of Education and Psychology, Ardakan University

**Submitted:** 15 March 2024

**Accepted:** 19 April 2024

Int J Behav Sci. 2024; 18(1): 22-28

## Corresponding Author:

Yaser Rezapour-Mirsaleh,  
Department of Psychology,  
Faculty of Education and Psychology,  
Ardakan University  
E-mail: y.rezapour@ardakan.ac.ir

## Abstract

**Introduction:** Cognitive factors, including error patterns in thinking, significantly contribute to the propensity for criminal and antisocial behavior. This study aimed to determine the effectiveness of the rational emotive behavior therapy on reducing proactive and reactive criminal thinking of male adult offenders in Iran.

**Method:** A quasi-experimental design utilizing pretest, post-test and follow-up test and waiting-list control group was conducted. The study's statistical population included male Prisoners in Ardakan in 2023. Thirty male prisoners were selected by convenience sampling and randomized into experimental (n=15) and waiting list control groups (n=15). Participants of the experimental group received 12 sessions of Rational-Emotive Behavior Therapy (REBT) intervention; and all participants answered the criminal thinking styles-short form (Mitchell et al., 2017)

**Results:** Findings revealed that proactive and reactive criminal thinking of male adult convict offenders in experimental group, as compared to control, at post-test phase significantly decreased ( $p < .05$ ). In addition, an improvement of the dependent variables in the follow-up phase has also been continued ( $p < .05$ ).

**Conclusion:** According to the findings of the present study, in order to reduce proactive and reactive criminal thinking, REBT psychotherapy approach can be used.

**Keywords:** Proactive and Reactive Criminal Thinking, REBT, Offenders

## Introduction

Researchers attribute the underlying causes of criminal and antisocial behaviors to factors such as personality [1], mental disorders [2], genetic vulnerability [3], parenting [4], cognitive factors [5], and social influences [6]. Previous studies indicate that men are more susceptible to engaging in criminal and antisocial behaviors compared to women [7, 8]. In addition, criminal and antisocial behaviors often emerge during adolescence and persists into adulthood [9].

Among the factors influencing the propensity for criminal and antisocial behavior, cognitive factors, including error patterns in thinking, have been implicated as significant contributors [5]. One concept that has emerged in this context is criminal thinking, which involves a distinct pattern of thought employed by offenders to manage or alleviate negative emotions related to their illegal actions, thereby enabling them to continue engaging in criminal behavior without psychological distress [10]. Criminal thinking encompasses various cognitive defensive mechanisms, such as the justification and rationalization of criminal conduct, defiance or resistance towards authorities, and the denial of harmful intent, effectively disengaging morality [11]. This construct also incorporates mechanisms

and techniques that emphasize denial and absolution of responsibility and draws upon moral disengagement [12] and neutralization techniques [13] as enabling processes to alleviate guilt associated with criminal behavior [10]. Criminal thinking can be characterized by two dimensions: the content of criminal thinking (the thoughts of the offender) and the process of criminal thinking (the cognitive process employed by the offender) [14]. Walters, within the framework of the criminal lifestyle theory, highlights the significance of the process of criminal thinking, dividing it into proactive (planned, calculated) and reactive (impulsive, irresponsible) criminal thinking dimensions [15]. Whereas the proactive dimension reflects the callous, calculated, planned, and rationalizing aspects of criminal thinking, the reactive dimension represents the impulsive, reckless, stimulation seeking, and irresponsible aspects of criminal thinking [16]. Substantial empirical evidence suggests that both proactive and reactive criminal thinking are pivotal in understanding the persistence of criminal behavior in criminology and correctional contexts [15, 17-19]. Neglecting these dimensions may contribute to increased prevalence and recidivism rates, entailing significant costs. While prior research in the field of criminal behavior has predominantly focused on criminological risk factors, more recent studies have shifted their attention towards psychological interventions [20]. Rational Emotive Behavior Therapy (REBT) has emerged as one of the most effective approaches in addressing cognitive factors and is considered one of the oldest cognitive-behavioral methods [3]. The primary aim of this therapy is to modify and rectify irrational thoughts that contribute to maladaptive behaviors and emotional responses [21]. According to REBT, humans have a biological inclination to engage in both destructive and irrational thinking patterns, despite them appearing rational and healthy [22]. These unrealistic, pessimistic, and irrational thoughts can impede the ability to engage in efficient behaviors [23]. Consequently, the primary objective of REBT is to correct irrational thinking, thereby reducing dysfunctional behaviors, negative emotions, and associated physical manifestations [3]. Ellis, in his rational-emotional approach, posits that irrational thinking leads to intensified emotions, resulting in disorganization, failure to achieve goals, and decreased satisfaction. In essence, this perspective suggests that behavioral, mental, and emotional disorders stem from flawed thinking patterns and erroneous behaviors [24]. Hence, REBT also addresses antisocial behaviors influenced by faulty habits and thoughts. Additionally, a study, supports the notion that cognitive biases contribute to individuals' inclination towards criminal and antisocial behavior [5].

The effectiveness of REBT in addressing cognitive and behavioral issues has been extensively demonstrated in various studies [3, 25, 26]. These studies provide evidence of the efficacy of this cognitive-behavioral intervention. Similarly, the conducted studies indicate that cognitive-behavioral therapies, in general, are effective interventions for improving criminal thinking [27-30]. Although these studies were conducted within non-

criminal populations and utilized methods and tools inconsistent with the objectives of the current study, their results still establish the effectiveness of cognitive and behavioral treatments in addressing criminal thinking. Considering the aforementioned, criminal thinking plays a significant role in the manifestation of antisocial behaviors and associated factors. Despite its effectiveness, REBT has been underutilized within the criminal community, and previous studies have been less suited to the offender population in terms of methodology, tools, research community, and educational content. Through a thorough background review, no study was identified that specifically addressed these objectives. Consequently, the current research aims to determine the effectiveness of REBT psychotherapy approach in reducing proactive and reactive criminal thinking among adult male convicts in Iran.

## Method

In this quasi-experimental study, a pretest-posttest follow-up experimental design with a control group was employed. The study included a total of 30 male prisoners from Ardakan prison in Iran in 2023. Convenience sampling was used to select participants, who were then randomly assigned to either the experimental or the waiting-list group. The sample size of 15 participants per group may be considered small for a quasi-experimental study, which could potentially limit the generalizability of the findings and effect size [31]. Therefore, limiting the group size to 15 participants in each group was deemed necessary to maintain the therapy quality and intergroup dynamics. Additionally, participants in the REBT group expressed dissatisfaction with increasing the number of group members, further justifying the chosen group size. The inclusion criteria for this study were as follows: 1) willingness to participate in the research, 2) at least one year since imprisonment, 3) previous history of criminal behaviors, and 4) age range of 25-50 years old, 5) MMPI-2 scores below  $t=70$  indicating absence of specific mental disorder and psychiatrist approval 6) high criminal thinking scores among participants ( $m>88$ ). The exclusion criteria for this study were as follows: 1) no compliance with the treatment protocol and being absent for more than two sessions 2) involvement in new criminal activities during the course of the study 3) withdrawal and lack of desire, and 4) diagnosis of a specific mental disorder during the study. Prior to the intervention, the study objectives were explained to the participants, and they provided informed consent. Ethical approval was obtained from the research committee of Islamic Azad University of Isfahan (Ethics code: IR.IAU.KHUISF.REC.1401.355), and the study was registered in the Iranian Registry of Clinical Trials (IRCT code: IRCT20230218057442N1).

Following the research announcement, a total of 57 incarcerated individuals volunteered as study participants. They were informed that if they did not receive the intervention during the study, comparable interventions would be administered to them upon the study's completion. Taking into account the established inclusion and exclusion criteria, the study retained 30 participants.

The participants were assured that their responses to questionnaires would remain entirely confidential and were encouraged to provide truthful answers and actively engage in group discussions. The experimental participants underwent a 12-week intervention utilizing REBT as described by Ellis and Jaffe, (Table 2) [32]. The therapy sessions, lasting 90 minutes each, were administered twice a week by the lead author who possessed a Primary Certificate in REBT training. The lead author received supervision from the second author, who had advanced training in REBT (Advanced Practicum). It may appear that the REBT utilized in the intervention

included concepts such as self-control and impulsivity. However, this is a misconception. Self-control, impulsivity, emotions, and problem-solving are indeed important aspects of participants' tasks within Ellis' rational emotional intervention. Therefore, the inclusion of self-control and impulsivity discussions during the intervention sessions should not be misconstrued as indicating that these concepts are inherent components of Ellis' rational emotional intervention. Instead, these topics were addressed to facilitate the generalization of efficient and rational thoughts and behaviors into the prisoners' daily activities.

**Table 2. Content of Sessions**

Session	Aims	Content	Homework
1	General introduction and review of Ellis' rational emotive approach	Initial communication, introducing group rules, explaining the general principles of Ellis' rational-emotional therapy, explaining the crime and its consequences in the life of participants, investigating participants' experiences of crime and the results in their individual lives, homework.	Reviewing past behaviors and their results in individual and family life
2	Recognition of emotions	Examination of homework, introducing emotions, investigating emotional experiences of participants and its role in criminal behavior, homework.	Practice identifying emotions
3	Main concepts of Ellis's approach and to present the A-B-C-D model	Examination of homework, expressing the role of thoughts and ideas on choice of behaviors, helping members to be aware of the role of ideas and beliefs in creating problems, introducing the main concepts of Ellis's approach and to present the A-B-C-D model, homework.	Identifying and writing irrational thoughts and conversations (in yourself and others)
4	Disputing irrational thoughts	Examination of homework, helping members to become aware of the role of ideas and beliefs in creating the problem, creating awareness of how criminal behavior is formed, practicing challenging irrational thoughts, homework.	Challenging irrational thoughts and writing them down
5 & 6	Teaching the principles of ABC-DC	Examination of homework, mentioning examples of life events and group discussions on how beliefs affect the criminal behaviors, teaching the principles of ABC-DC, examining the role of irrational do's and don'ts in creating problems, examining the concepts of hot and cold cognition and healthy and unhealthy negative emotions, homework.	Practicing the principles of ABC-DC
7	More focus on criminal thoughts	Examination of homework, examination of participants' experiences of criminal thoughts, examination of criminal thoughts in Ellis's rational-emotional model, homework,	Identifying and challenging criminal thoughts and writing them down
8	Learning how to say "no"	Examination of homework, teaching the skill of saying no, examining participants' experiences of criminal behavior in relation to the skill of saying no, examining the skill of saying no in Ellis's rational-emotional model, homework.	Practice saying no in small steps
9	Exposure to a feared situation	Examination of homework, to teach how to recognize and control frustrating, pessimistic, dysfunctional, and anxious thoughts. Teaching methods of arguing with irrational beliefs through role-playing, homework.	Challenging Disappointing Thoughts
10	Dealing with temptation	Examination of homework, introducing the concept of self-control, discussing the role of self-control in criminal behavior, explaining that self-control is an effective thought, examining self-control in Ellis's rational-emotional model, homework.	Practicing self-control in situations of temptation
11	Decision making	Examination of homework, introducing the concept of impulsivity, discussing the role of impulsivity in criminal behavior, explaining that impulsivity is a dysfunctional thinking, examining impulsivity in Ellis's rational-emotional model, homework.	Review the results of a choice and then make a decision
12	Summarizing and concluding	To present programs to perpetuate the achievements, teaching ways to prevent intellectual and behavioral problems, doing practical exercises in a group and summarizing and concluding by group members, appreciation and thanks.	Repeating the previous exercises on a daily basis

The tools used in this study were as follows:

**Criminal Thinking:** The criminal thinking styles-short form (PICTS-L-SF) is a 35-item self-report measure. This measure, created by Mitchell et al. (2017), assesses general criminal beliefs [33]. Like all versions of the PICTS, the PICTS-L-SF was designed to assess thought patterns that were associated with criminal behavior [32]. The PICTS-L-SF produced two composite scales (proactive and reactive criminal thinking). Response options to items on the PICTS-L-SF are provided using a 4-point Likert Scale (1= disagree, 4 = strongly agree. The minimum score is 35, and the maximum score is 140. Higher scores indicated higher levels of criminal thinking. In the study by Mitchell et al. (2017), the results of the categorical CFAs indicated that the PICTS-L-SF evidenced good fit for a bifactor model. The model fit indices showed good fit with  $\chi^2$  (525, N = 619) = 1,176.71,  $p < .001$ , CFI = .96, TLI = .952, RMSEA = .05 (90% CI = [.04, .05]). Additionally, the concurrent validity of the PICTS-L-SF was assessed by examining the relationship between PCT, RCT, and GCT, and assessments of criminal attitudes and ASPD traits. The results indicated that there was high concurrent validity between the PICTS-L-SF scales and criminal attitudes and ASPD traits. Predictive validity was also assessed by examining the relationship between the PICTS-L-SF PCT, RCT, and general criminal thinking (GCT) scores and frequency of engagement in illegal or risky behaviors after adjusting for gender. The PCT, RCT, and GCT were significantly positively related to the frequency of engagement in illegal and risky behaviors among individuals without a history of CJ involvement. These findings indicate promising psychometric properties for the PICTS-L-SF. Omega ( $\omega$ ) reliability coefficients [34] were calculated using Microsoft Excel for GCT from the one-factor model ( $\omega = .96$ ), and for the PCT and RCT for the two-factor model ( $\omega = .96$ ,  $\omega = .97$ , respectively). For the best fitting

bifactor model, GCT, PCT, and RCT evidenced excellent reliability ( $\omega = .97$ ,  $\omega = .94$ ,  $\omega = .96$ , respectively) [33]. In the conducted study, the face validity of the questionnaire was confirmed by the experts and Cronbach's alpha coefficient on PCT, RCT, and GCT was 0.843, 0.869, and 0.828, respectively.

Finally, the data were analyzed using repeated measures analysis of variance and SPSS-26 software.

## Results

The mean ages of the participants were approximately similar in both groups ( $35.33 \pm 7.92$  in experimental and  $37.40 \pm 8.04$  in waiting-list control group respectively). T tests showed there was no significant difference between groups regarding their age [ $t = -0.709$ ,  $p > .05$ ]. Frequencies of marital status, education, number of prior convictions and length of the conviction in participant are presented in Table 2.

As it can be seen in Table 2, in both the experiment and control groups, the majority of participants were married and had elementary education. Furthermore, the frequency of criminal offenses in both groups was less than five times, and the duration of imprisonment ranged from 1 to 10 years. The use of chi-square test demonstrated no statistically significant difference between the two groups in terms of marital status, education, number of prior convictions and length of the conviction. Normality of scores distribution for experimental group by Shapiro-Wilk test were assumed, in proactive criminal thinking (Statistic=.949<sub>REBT</sub>, .937<sub>Control</sub>,  $p > .05$ ) and in reactive criminal thinking (Statistic=.906<sub>REBT</sub>, .932<sub>Control</sub>,  $p > .05$ ). Levene's test for equality of variances was not significant ( $p > .05$ ) that is show assumption of equality of variances for all variables verified. There were no differences between two groups regard pre-tests ( $p > .05$ ). The use of t-test demonstrated there were no differences between two groups regarding in Pre-test ( $p > .05$ ). Proactive and reactive criminal thinking mean in the three measurements of pre-test, post-test and follow-up are presented in Table 3.

**Table 2.** Frequencies of Marital Status, Education, Number of Prior Convictions and Length of the Conviction in Participants

	Experimental	Control
Marital status		
Single	5(33.3%)	3(20.0%)
Married	9(60.0%)	8(53.3%)
Divorced	1(6.7%)	4(26.7%)
Education		
School education	10(66.7%)	9(60.0%)
Graduate education	6(33.3%)	6(40.0%)
Number of prior convictions		
No prior convictions	0	0
Less than 5	10(66.7%)	11(70.0%)
Between 5 and 10	3(20.0%)	3(20.0%)
Between 11 and 15	0(0.0%)	1(6.7%)
16 and above	2(13.3%)	0(0.0%)
Length of the conviction		
1-10 years	12(80.0%)	9(60.0%)
11-20 years	2(13.3%)	2(13.3%)
21 and above	1(6.7%)	4(26.7%)

As it can be seen in Table 3, criminal thinking, proactive and reactive criminal thinking defects in the pre-test, post-test and follow-up in the experimental group are different. Repeated measures analysis of variance to compare criminal thinking among the three groups in the three measurements have been presented in Table 4.

The repeated measures analysis of variance has revealed significant effects of group, time, and the interaction between time and group on variables related to proactive and reactive criminal thinking ( $p < 0.05$ ). These results substantiate the efficacy of REBT intervention. Bonferroni post-hoc comparisons between groups at pre-test, post-test, and follow-up are presented in Table 5.

**Table 3.** Proactive and Reactive Criminal Thinking Mean in the Three Measurements of Pre-test, Post-test and Follow-up

Dependent variable	Group	Pre-test		Post-test		Follow-up	
		Mean	S.D	Mean	S.D	Mean	S.D
Proactive criminal thinking	Experimental	43.60	6.70	37.67	4.48	37.47	4.30
	Control	43.73	8.18	43.07	5.54	43.73	4.96
	P			P=-0.049	t=.96		
Reactive criminal thinking	Experimental	62.80	8.12	54.07	4.18	53.13	3.77
	Control	61.33	8.16	59.60	5.86	59.73	5.81
	P			P=0.493	t=.62		

**Table 4.** Repeated Measures Analysis of Variance to Compare Criminal Thinking among the Three Groups in the Three Measurements

Source	Dependent variable	Measure	SS	df	MS	F	P	Partial Eta Squared
Time	Proactive criminal thinking	Sphericity Assumed	203.48	2	101.74	14.76	.0001	.34
		Greenhouse-Geisser	203.48	1.07	189.72	14.76	.0001	.34
	Reactive criminal thinking	Sphericity Assumed	592.82	2	296.41	31.52	.0001	.53
		Greenhouse-Geisser	592.82	1.06	558.16	31.52	.0001	.53
Time * Group	Proactive criminal thinking	Sphericity Assumed	165.26	2	82.63	11.99	.0001	.30
		Greenhouse-Geisser	165.26	1.07	154.09	11.99	.001	.30
	Reactive criminal thinking	Sphericity Assumed	288.02	2	144.01	15.31	.0001	.35
		Greenhouse-Geisser	288.02	1.06	271.18	15.31	.0001	.35
Error(time)	Proactive criminal thinking	Sphericity Assumed	385.91	56	6.89			
		Greenhouse-Geisser	385.91	30.03	12.85			
	Reactive criminal thinking	Sphericity Assumed	526.48	56	9.40			
		Greenhouse-Geisser	526.48	29.73	17.70			

**Table 5.** Bonferroni Post-hoc to Compare Groups in Pre-test, Post-test and Follow-up

Measure	Group	(I) time	(J) time	Mean Difference (I-J)	SE	P
Proactive criminal thinking	Experimental	Pre-test	Follow-up	6.13*	1.21	.0001
		Post-test	Follow-up	.20	0.28	1.000
	Control	Pre-test	Post-test	.66	1.09	1.000
		Follow-up	Post-test	.0001	1.21	1.000
	Experimental	Pre-test	Post-test	8.73*	1.31	.0001
		Follow-up	Post-test	9.66*	1.39	.0001
Reactive criminal thinking	Experimental	Pre-test	Follow-up	.93*	.28	.009
		Post-test	Follow-up	.93*	.28	.009
	Control	Pre-test	Post-test	1.73	1.31	.594
		Follow-up	Post-test	1.60	1.39	.785
	Experimental	Pre-test	Follow-up	-1.13	.28	1.000
		Post-test	Follow-up	-1.13	.28	1.000

The Bonferroni Post-Hoc test revealed that there was a statistically significant decrease in mean proactive and reactive criminal thinking scores ( $p < 0.05$ ) following the REBT intervention. Additionally, the durability of the improvement for participants in the experimental group was found to be statistically significant in both dependent variables ( $p < 0.05$ ).

**Discussion**

The current study was done with the aim of the effectiveness of REBT psychotherapy approach on reducing proactive and reactive criminal thinking among male adult convicts offenders in Iran. The results revealed that REBT was effective on proactive and reactive criminal

thinking in male adult convicts offenders and the durability of the improvement created for the members of the experimental group was statistically significant. The results of the test of the first research hypothesis revealed that after REBT the average scores of proactive criminal thinking in the participants of the experimental group decreased significantly compared to the control group, and the persistence created during the follow-up period was statistically significant. The result in this part is consistent with the results obtained from preceding research [28, 30]. To explain this part of the research findings, it can be supposed that using educational packages that facilitate the cognitive, behavioral, and emotional skills of prisoners (as what was used in this

research) can lead to the adjustment of proactive criminal thinking in offenders. Based on the REBT theory, this therapeutic approach focuses on identifying and challenging irrational beliefs and distorted thinking patterns that contribute to maladaptive behaviors, such as engaging in criminal thinking. By targeting these cognitive distortions, REBT aims to promote rational thinking and adaptive coping strategies. This finding suggests that by addressing and challenging irrational beliefs, REBT may help individuals develop more rational and adaptive ways of thinking, leading to a decrease in proactively engaging in criminal thoughts. According to the ABC-DC model, A (Activating Event) triggers B (Beliefs), which in turn lead to C (Consequences). In the case of proactive criminal thinking, certain activating events might occur that trigger irrational beliefs, such as beliefs that criminal behavior will lead to personal gain or a sense of power. These beliefs, in turn, can lead to criminal behaviors and undesirable consequences. REBT helped offenders identify and challenge their irrational beliefs through the process of cognitive restructuring. By working with a trained therapist, criminals undergoing REBT sessions may examine their underlying beliefs related to criminal behavior, such as distorted views of personal gain or power, and replace them with more rational and constructive beliefs. Through this process, individuals develop healthier thought patterns and engage in more adaptive behavior.

The results of the second of the first research hypothesis revealed that after REBT the average scores of reactive criminal thinking in the participants of the experimental group decreased significantly compared to the control group, and the persistence created during the follow-up period was statistically significant. The result in this part is consistent with the results obtained from preceding research [27, 29]. The results of these studies also indicate that improving cognitive and behavioral skills is effective in reducing criminal thinking. To explain this part of the research findings, it can be supposed that using educational packages that facilitate the cognitive, behavioral, and emotional skills of prisoners (as what was used in this research) can lead to the adjustment of reactive criminal thinking in offenders. According to the ABC-DC model in Ellis' theory of REBT, the A refers to the external situation or trigger that elicits thoughts and emotions. In this case, the activating event could be experiences or stimuli related to criminal behaviors. The B (s) are the cognitive evaluations and interpretations individuals make about the activating event. Criminals may have certain irrational beliefs, such as justifying their criminal actions or feeling entitled to engage in criminal behaviors. The C stands for emotional and behavioral consequences resulting from these beliefs, which in the case of reactive criminal thinking can lead to impulsive or antisocial actions. In REBT sessions, individuals guided to identify and challenge these irrational beliefs, replacing them with more rational and adaptive beliefs. This process helped individuals develop healthier coping strategies and reduce the likelihood of engaging in reactive criminal thinking. The training provides cognitive restructuring

techniques, promotes self-reflection, and encourages the adoption of more pro-social attitudes and behaviors. Generally, the sessions focused on challenging irrational beliefs and promoting rational thinking patterns. By identifying and disputing distorted thinking related to criminal behavior, participants in the experimental group were able to reevaluate their thoughts and replace them with more rational and constructive alternatives. This cognitive restructuring process may have contributed to a significant decrease in average scores of reactive criminal thinking compared to the control group.

## Conclusion

Based on the findings of this study, it can be concluded that REBT effectively reduces proactive and reactive criminal thinking in individuals. The experimental group, which received REBT intervention, showed a significant decrease in average scores compared to the control group. Additionally, the persistence of these positive results during the follow-up period was also found to be statistically significant. These results provide evidence for the effectiveness of REBT in targeting and addressing criminal thinking patterns, emphasizing its potential as a valuable therapeutic approach in the criminal justice system.

This study faced some limitations that should be taken into account in the generalization of the findings. Convenience sampling and a small sample size may affect the generalizability of the findings. Other limitations of the present research comprise the impossibility of controlling disturbing variables, the limitation of the research population to male prisoners, and the use of a questionnaire as the lone research evaluation tool, which shows the need for caution in generalizing the results. We supposed, as it was concluded from the literature review, that a decrease in criminal thinking may lead to a decrease in criminal behaviors and consequently prevent re-entry in prisoners; but because the length of imprisonment was different for the participants and we were unable to track their future after imprisonment, the impact of the intervention on returning to prison was not investigated. In the present study, duration of the imprisonment, the level of education and the age of the participants were controlled, however, it is suggested that future studies compare the effectiveness of REBT on the basis of these demographic variables.

## Conflict of Interest

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## Ethical Approval

All ethics were considered in this study.

## Acknowledgement

The authors would like to thank all the prisoners who participated in the study.

## References

1. Mansoor M, Butt SR, Satnarine T, Ratna P, Sarker A, Ramesh AS, et al. The Association between Borderline Personality Disorder and Criminal Activity and Self-harm, Including

- Suicidal Behavior: A Systematic Review. 2022;3(4):08-19. Doi: [10.32996/jmhs.2022.3.4.2](https://doi.org/10.32996/jmhs.2022.3.4.2)
2. Ruwan IIF, Fadare GO, Garba MY, Jose C, Ogechukwu OPIKJoH. Assessment of Mental Disorder as a Predictor of Criminal Behaviours in Nigeria. 2021;6(2):143-52. ISSN 2522-2821
  3. Liu L, Chui WH, Hu YJJoSS. In the name of love: A narrative analysis of a Chinese single mother's rational and emotional pathways into and out of crime. 2022;50(4):276-83. Doi: [10.1016/j.ajss.2022.04.003](https://doi.org/10.1016/j.ajss.2022.04.003)
  4. Sana F, Rafiq M, Iqbal MNJJoNS. Criminal thinking styles and criminal social identity among juvenile delinquents: moderating role of parenting styles. 2021;16(2):4-11.
  5. Meterko V, Cooper GJJoP, Psychology C. Cognitive biases in criminal case evaluation: a review of the research. 2022;37(1):101-22. Doi: [10.1007/s11896-020-09425-8](https://doi.org/10.1007/s11896-020-09425-8)
  6. Smith S, Gomez Auyong ZE, Ferguson CJDB. Social learning, social disorganization, and psychological risk factors for criminal gangs in a British youth context. 2019;40(6):722-31. Doi: [10.1080/01639625.2018.1438059](https://doi.org/10.1080/01639625.2018.1438059)
  7. Gottschalk PJJGS. Stage model for female criminals: business school students' perceptions of white-collar offenders. 2019;28(6):720-9. Doi: [10.1080/09589236.2019.1617115](https://doi.org/10.1080/09589236.2019.1617115)
  8. Benson ML, Harbinson EJCSJ. Gender and criminal thinking among individuals convicted of white-collar crimes. 2020;33(1):46-60. Doi: [10.1080/1478601X.2020.1709953](https://doi.org/10.1080/1478601X.2020.1709953)
  9. Carlsson C, Sivertsson FJJoD, Criminology L-C. Age, gender, and crime in a Stockholm birth cohort to age 64. 2021;7(3):359-84. Doi: [10.1007/s40865-021-00172-w](https://doi.org/10.1007/s40865-021-00172-w)
  10. Walters GDJJoAB. Explaining the drug-crime connection with peers, proactive criminal thinking, and victimization: Systemic, cognitive social learning, and person proximity mechanisms. 2021;35(3):366. Doi: [10.1037/adb0000606](https://doi.org/10.1037/adb0000606)
  11. Cornish DB, Clarke RVJCIbtptff. Crime as a rational choice. 2002:77-96.
  12. Bandura A. Social cognitive theory of moral thought and action. Handbook of moral behavior and development: Psychology press; 2014. p. 69-128.
  13. Sykes GM, Matza D. Techniques of neutralization: A theory of delinquency. Delinquency and Drift Revisited, Volume 21: Routledge; 2017. p. 33-41.
  14. Morgan RD, Flora DB, Kroner DG, Mills JF, Varghese F, Steffan JSJL, et al. Treating offenders with mental illness: a research synthesis. 2012;36(1):37. Doi: [10.1037/h0093964](https://doi.org/10.1037/h0093964)
  15. Walters GDJJoCJ. Proactive and reactive criminal thinking, psychological inertia, and the crime continuity conundrum. 2016;46:45-51. Doi: [10.1016/j.jcrimjus.2016.03.003](https://doi.org/10.1016/j.jcrimjus.2016.03.003)
  16. Walters GDJJoIV. Measuring proactive and reactive criminal thinking with the PICTS: Correlations with outcome expectancies and hostile attribution biases. 2007;22(4):371-85. Doi: [10.1177/0886260506296988](https://doi.org/10.1177/0886260506296988)
  17. Walters GDJDB. Psychological inertia revisited: Replicating and extending the differential effect of proactive and reactive criminal thinking on crime continuity. 2019;40(2):156-70. Doi: [10.1080/01639625.2017.1419684](https://doi.org/10.1080/01639625.2017.1419684)
  18. Butt A, Abdi SK, Hamid A, Dogar FA, Fatima JJJoFJMU. Criminal thinking, moral disengagement and psychological wellbeing in prisoners. 2019;13(2):51-4.
  19. Megreya AM, Bindemann M, Brown AJL, Psychology C. Criminal thinking in a Middle Eastern prison sample of thieves, drug dealers, and murderers. 2015;20(2):324-42. Doi: [10.1111/icrp.12029](https://doi.org/10.1111/icrp.12029)
  20. Woldgabreal Y, Day A, Ward TJA, Behavior V. The community-based supervision of offenders from a positive psychology perspective. 2014;19(1):32-41. Doi: [10.1016/j.avb.2013.12.001](https://doi.org/10.1016/j.avb.2013.12.001)
  21. Neamtu GM, David OAJJoE-BP. Coaching emotional abilities in fostered adolescents through Rational Emotive and Cognitive-Behavioral education: efficacy and mechanisms of change of using therapeutic stories. 2016;16(1):33.
  22. Şahin E, Güleç Keskin S, Terzi MJPiPC. The effect of a psychoeducation program based on the rational emotional behavioral approach in individuals with multiple sclerosis diagnosis: A randomized controlled trial. 2022;58(4):1449-59. Doi: [10.1111/ppc.12949](https://doi.org/10.1111/ppc.12949)
  23. Almomani A, Monreal C, Sieira J, Graña J, Sánchez EJES. Rational, emotional, and attentional models for recommender systems. 2021;38(4):e12594. Doi: [10.1111/exsy.12594](https://doi.org/10.1111/exsy.12594)
  24. El-Nahhas ASAJJoHR. The effectiveness of a rational, emotional, behavioral program in modifying the irrational thoughts related to the pressures of life for forced retirees. 2020;2(2):106-25. Doi: <http://ijhalal.org/index.php/hr/oai>
  25. Kazem AMJAJFH, Sciences S. The Effect of the Rational Emotional Visualization Method on Reducing Inappropriate Anger Reactions. 2022;61(1). Doi: <https://doi.org/10.36473/ujhss.v6i1i.1914>
  26. Nafisi FJJoA, Studies YP. The effectiveness of group counseling with rational, emotive and behavior therapy (REBT) on self-concept and social adjustment of male adolescents. 2020;1(1):26-9. Doi: [20.1001.1.2783347.1399.1.1.11.0](https://doi.org/10.1001.1.2783347.1399.1.1.11.0)
  27. Nyazmand H, Barzegar M, Bagholi H, Sohrabi Shegefti NJR-e-RJ. The Effectiveness of Acceptance and Commitment Therapy on prisoners' psychological capital and criminal thinking in Bushehr city. 2022;10(12):239-50. Doi: [20.1001.1.2383353.1400.10.12.18.0](https://doi.org/10.1001.1.2383353.1400.10.12.18.0)
  28. Rezapour-Mirsaleh Y, Shafizadeh R, Shomali M, Sedaghat RJJoot, criminology c. Effectiveness of self-compassion intervention on criminal thinking in male prisoners. 2021;65(1):100-16. Doi: [10.1177/0306624X20936192](https://doi.org/10.1177/0306624X20936192)
  29. Lindblom S, Eriksson L, Hiltunen AJJoSSiC, Prevention C. Criminality, thinking patterns and treatment effects—evaluation of the Swedish cognitive intervention programme 'new challenges' targeting adult men with a criminal lifestyle. 2018;19(2):204-24. Doi: [10.1080/14043858.2018.1513202](https://doi.org/10.1080/14043858.2018.1513202)
  30. Walters GDJCB, Health M. Effect of a brief cognitive behavioural intervention on criminal thinking and prison misconduct in male inmates: Variable- oriented and person-oriented analyses. 2017;27(5):457-69. Doi: [10.1002/cbm.2028](https://doi.org/10.1002/cbm.2028)
  31. Ziegler A, Mwambi H. How to Design, Analyse and Report Cluster Randomised Trials in Medicine and Health Related Research. MJ Campbell and SJ Walters (2014). Chichester: John Wiley & Sons. Hardback, 264 pages, ISBN- 13: 9781119992028. eBook, 272 pages, ISBN- 13: 9781118763605. Wiley Online Library; 2015. Doi: [10.1002/bimj.201500014](https://doi.org/10.1002/bimj.201500014)
  32. Walters GDJPS. Criminal thinking as a mediator of the mental illness–prison violence relationship: A path analytic study and causal mediation analysis. 2011;8(3):189. Doi: [10.1037/a0024684](https://doi.org/10.1037/a0024684)
  33. Mitchell SM, Bartholomew NR, Morgan RD, Cukrowicz KCJCJ, Behavior. A preliminary investigation of the psychological inventory of criminal thinking styles–layperson edition–short form. 2017;44(5):756-69. Doi: [10.1177/0093854816685](https://doi.org/10.1177/0093854816685)
  34. Rodriguez A, Reise SP, Haviland MGJPM. Evaluating bifactor models: Calculating and interpreting statistical indices. 2016;21(2):137. Doi: [10.1037/met0000045](https://doi.org/10.1037/met0000045)