

Research Paper

Effects of Reality Therapy on Drug Cravings and Mental Health of Clients of Therapeutic Community Centers

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disorders**ABSTRACT**

Background: Substance abuse disorders are associated with serious medical and psychiatric problems. Besides the undesirable side effects following drug-assisted treatment in drug abusers, sudden discontinuation of drug use can cause unpleasant symptoms. This study investigated the impact of reality therapy (RT) on drug cravings and mental health among clients of therapeutic community (TC) centers in Ahvaz City, Iran, in 2022.

Methods: This quasi-experimental study adopted a pre-test-post-test design with a control group. The study population consisted of all clients of TC centers of Ahvaz in 2022. Of whom 40 clients were selected as the sample using convenience sampling. In the next step, they were randomly assigned into the experimental and control groups (20 subjects in each group). The data were collected by using the desires for drug questionnaire (DDQ) and the general health questionnaire 28 (GHQ-28). The subjects in the experimental group attended eight 90-minute sessions of RT, whereas those in the control group received no intervention. The obtained data were analyzed using analysis of covariance. The significance level of all tests was considered to be ≤ 0.05 .

Results: RT significantly affected drug cravings and mental health of the clients of TC centers ($P < 0.001$).

Conclusion: Based on the study findings, RT is recommended for reducing drug cravings and improving mental health of people undergoing drug rehabilitation.

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Highlights

- Frequent substance abuse has increased among young adults, some of whom have difficulty quitting.
- Reality therapy positively affects drug cravings in clients of therapeutic community centers.
- Reality therapy improves the mental health of clients of therapeutic community centers.

Plain Language Summary

Today, substance abuse disorders are associated with many medical and psychiatric problems. Not only drug-assisted treatment of substance abusers has adverse side effects, but sudden cessation of drug may also cause unpleasant symptoms. Therefore, developing effective therapeutic interventions to improve mental health and reduce cravings in substance abusers is helpful. This study determined the effects of reality therapy on drug cravings and mental health among clients of therapeutic community centers in Iran. In general, the findings revealed that reality therapy reduces drug cravings and improves clients' mental health in the therapeutic community centers.

1. Introduction

Addiction is a treatable, but chronic medical condition. It is associated with many intricate interactions between brain pathways, genetics, the environment, and personal life experiences. Addicts frequently engage in compulsive behaviors that continue despite their harmful effects (Feizollahi et al., 2022; Simmler et al., 2022; Wise & Robble, 2020). Substance use disorders widely affect health and well-being (Moghadam et al., 2021). Additionally, such disorders result in shorter life expectancy and medical conditions (Pourpashang & Mousavi, 2021).

Addiction-related deaths among drug users have been on the rise over the past few years, so that drug abuse is now considered a significant contributor to getting HIV (White, 2019). Unofficial statistics indicate that the second or third most commonly abused substance in Iran is methamphetamine (Mehrpour, 2012). Addiction or substance dependence, also known as substance-related disorders (based on psychiatric classifications), ranks as the second most prevalent mental disorder (Reus et al., 2019). Almost 90% of individuals with a substance use disorder also develop one or more psychiatric disorders, most commonly mood disorders (Conner et al., 2019).

Advanced stages of addiction or abuse of opioids, particularly stimulants, pose numerous risks to the abusers, their families, and society (Javaeed et al., 2019). Evidence suggests that frequent substance abuse has increased among young adults, some of whom have difficulty quitting (Hsiung et al., 2022). Previous studies

have reported a strong relationship between instantaneous drug craving and subsequent drug abuse behavior among abusers, especially young adults (Badie et al., 2020; van Lier et al., 2022; Wang et al., 2021). Interventions based on associative learning and reinforcement aim to reduce the prevalence of drug abuse by boosting the management skills of drug craving, like mindfulness and subsiding unhelpful emotion regulation strategies such as avoidance or suppression (Enkema et al., 2021).

Mental health is another variable associated with addiction. Studies have shown that addiction can damage the mental health of addicts (Sujarwotoet al., 2023; Ul Haq et al., 2018; Shahbazi et al., 2020). According to the World Health Organization (WHO), mental health is an inseparable component of general health. A variety of socioeconomic, biological, and environmental factors manipulate mental health. WHO has defined "health" as a state of complete physical, mental, and social well-being and not simply the absence of disease and infirmity (WHO, 2022). The critical implication of this definition emphasizes that mental health is more than the absence of mental disorders or disabilities (Galderisi et al., 2015). As defined by WHO, mental health refers to a state of well-being in which individuals can recognize their abilities, cope with normal life stresses, work effectively, and help their society (Cuijpers et al., 2019). Poor mental health can also be a significant reason influencing individuals to begin drug abuse—those suffering from depression, anxiety disorders, or mood disorders are more vulnerable to drug addiction (Galderisi et al., 2015).

Along with offering care in inpatient and outpatient settings, current treatment options include drug therapy, cognitive behavioral therapy, and motivational interviews. Despite a proven track record of success, these treatments have a low recovery rate, and the drugs have undesirable complications (Heilig et al., 2021). On the other hand, the symptoms of suddenly quitting substance abuse can be annoying and, in some cases, fatal for individuals who have developed a physical dependence on a substance (Pourpashang & Mousavi, 2021). Reality therapy (RT) underscores developmental needs and helps form a healthy identity. It has also been very effective in preventing harm and behavioral abnormalities. Individuals do not behave randomly but rather to satisfy one or more basic needs (survival, love, power, independence, and fun), presenting in all people at varying levels (Livheim et al., 2020). The foundation theory of RT is based on Glasser's choice theory (1999), underscoring the internal locus of control psychology. Glasser (1999) believed that the labels given to psychopathic people are simply a reason for them to imagine their troubles go beyond their control, fostering aversion to responsibility. RT treatment methods differ from the psychiatry and psychoanalysis methods and the rules taught in psychotherapeutic medical academies. Instead of paying attention to mental illnesses, RT focus on the three axes: reality, responsibility, and right and wrong. The theory and method of RT underscores the fact that humans behaviors are choices to satisfy their needs. People are not in a good mood, because they have not made the right choices. They should change their actions and thoughts and choose another way. The primary goal of RT is to help individuals meet all of their needs by making more effective and responsible choices. As a training approach, RT involves a broader range of issues, including the need for freedom and the right to choose. It can also help individuals develop an internal locus of control instead of an external one, accept the consequences of their behavior, and overcome denial of reality (Safari et al., 2021). RT emphasizes the right to choose and successful identity as essential factors in an individual's mental health. Taking responsibility, living in the moment, making conscious and correct choices, controlling issues, and being aware of real needs distinguish healthy individuals from unhealthy ones (Nadaf et al., 2020; Ramezani & Ehteshami, 2015). RT can be defined as a method based on common sense and emotional conflicts, underscoring reality, acceptance of responsibility, and the ability to distinguish right from wrong and their relation to daily life. Previous studies have shown that RT can effectively improve identity crisis and mental health in adolescents, affecting emotion regulation, mental health, and life sat-

isfaction (Asli Azad et al., 2021; Behmanesh et al., 2020; Karimyar Jahromi & Mosallanejad, 2014; Khalidass et al., 2021; Ramezani & Ehteshami, 2015).

Accordingly, this study aimed to investigate the effects of RT on drug cravings and mental health among clients of therapeutic community (TC) centers. The findings of this study can serve as a guide for drug addiction researchers and therapists.

2. Materials and Methods

Design, setting, and sample

This quasi-experimental study adopted a pre-test-post-test design and a control group. The study population comprised all methamphetamine addicts referred to the community treatment centers of Ahvaz City, Iran to recover addiction in 2022. The sample size was estimated as 40 using G*Power software, version 3.1 with a test power of 0.90, effect size of 0.95, and α of 0.05. The subjects were then randomly assigned into experimental ($n=20$) and control ($n=20$) groups by a simple random method. The randomly generated treatment allocations were placed in sealed opaque envelopes and used to conceal the random allocation sequence. Once a patient consented to enter the trial, an envelope was opened, and the patient was then offered the allocated treatment regimen (Figure 1).

The inclusion criteria were informed consent, age 20-55 years, history of substance abuse for more than one year, not receiving treatment or other intervention during the study, ability to read and write, and having verbal communication skills. The exclusion criteria included having a psychiatric illness requiring drug treatment during the investigation and not attending more than 2 intervention sessions.

Study instruments

Desires for drug questionnaire (DDQ) is a 14-item questionnaire developed by Franken et al. (2002) to measure the instant desire for drugs through three factors: Desire and intention (items 1, 2, 12, and 14), negative reinforcement (items 4, 5, 7, 9, and 11), and control (items 3, 6, 8, 10, and 13). The items are scored on a 7-point Likert scale (from 1=totally disagree to 7=totally agree) with higher scores indicate more intense drug cravings. The total scores of this questionnaire ranges between 14 and 98 (Franken et al., 2002). In this study, the total score of the questionnaire was considered. The psychometric properties of the Persian version of the questionnaire

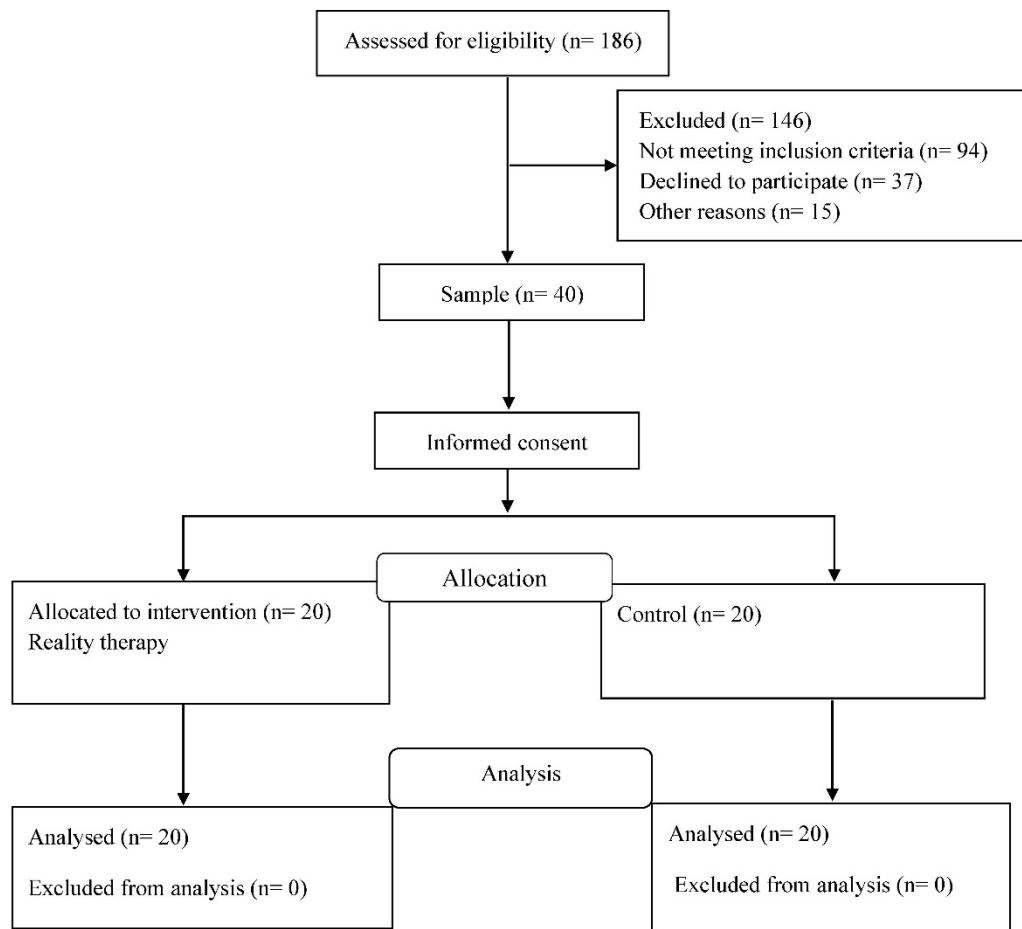


Figure 1. The CONSORT flow chart of the study

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have been confirmed by [Hassani-Abharian et al. \(2016\)](#). After translation by two different groups, an expert team in the English language performed the back translation and retranslation process of the questionnaire. Finally, its validity was evaluated and confirmed. The Cronbach's α coefficient of the questionnaire was reported as 0.80 ([Hassani-Abharian et al., 2016](#)).

General health questionnaire-28 (GHQ-28) is a 28-item questionnaire developed by Goldberg and Hillier in 1979 to measure the mental health status of individuals from 4 aspects: Somatic symptoms, anxiety, social dysfunction, and depression. This tool also has a general index obtained by adding the four components, scoring on a 4-point Likert scale (0=strongly disagree, to 3=strongly agree). The total score of this questionnaire ranges between 0 and 84 with a higher score indicating better mental health ([Goldberg & Hillier, 1979](#)). In this study, the total score of the questionnaire was considered. The validity and reliability of the Persian version of this questionnaire have been confirmed by [Malakouti et al. \(2007\)](#). The Cronbach's α coefficient and inter-item

score relation for the GHQ-28 were reported as 0.94 and 0.35, respectively. Moreover, according to [Malakouti et al. \(2007\)](#), the questionnaire's Kaiser-Meyer-Olkin (KMO) coefficient was 0.89, and Bartlett's analysis yielded a satisfactory result.

Study procedure

After assigning the subjects to the experimental and control groups, a pre-test was conducted for both groups. Then, the subjects in the experimental group attended eight 90-minute sessions of RT, whereas those in the control group received no intervention. The RT intervention was designed based on Glasser's choice theory and the RT training package. The intervention program was carried out by the first author (a PhD student in psychology who had completed specialized courses in RT) in two sessions per week at Ahvaz TC Center. The training of the members of the intervention group was done interactively and in groups. [Table 1](#) presents a summary of the intervention sessions. To comply with the ethical principles, a brief version of the intervention sessions was performed

Table 1. A summary of the reality therapy sessions

Session	Objective	Description	Task
1	Getting members to know each other, getting to know the rules and process of the group	The group members and the therapist were introduced to each other, and the number of sessions was informed. Group members were assured in writing that their information would be kept confidential to create a safe and reliable environment for them to feel comfortable. The group members were informed about the rules of the group, and the research objectives were explained to them.	Participants were asked to write about their traits and characteristics.
2	Familiarizing the members with human needs	The group members were briefed about the similarities and differences between humans, and the basic human needs were introduced to them (i.e. subsistence, protection/security, affection, understanding, participation, leisure, creation, identity/meaning, and freedom (Guillen-Royo, 2014).	Each participant was asked to write down their five needs.
3	Acquaintance of members with responsibility, value, and feelings of love	Acceptance of responsibility and the sense of sufficiency and worthiness were defined for the participants, and it was attempted to create a sense of commitment among them to feel worthy and truly loved.	Participants were asked to write down the choices and actions they felt responsible for and the behaviors they valued.
4	Familiarizing the members with general behavior (four components: Acting, thinking, feeling, and physiological)	General behavior and how to control and change their behaviors were explained and taught to the participants, emphasizing the four main components of behavior, i.e. acting, thinking, feeling, and physiology (Glasser, 1999).	Participants were asked to record their general behaviors and choices throughout the day.
5	Familiarizing the participants with the concept of external and internal control	The participants were asked whether they felt their behaviors were controlled internally or externally, and how to control behavior was explained. The counselor helped the client to find out how much control he/she has over his/her life and affairs. Therapists know a high correlation between the perception of external control and ineffective behaviors.	The participants were asked to record the behaviors they had external or internal control over.
6	Familiarization of the members with problems, ways of solving them, taking responsibility, and their choices.	They were asked to explain how they reacted to problems, what problems they faced, how they felt, and what they liked to happen. The available solutions, the consequences of each, and the selection of the best solution were then explained to them.	The participants were asked to write down their last problem and how to solve it and consider the available options.
7	Acquaintance of the participants with the quality world and value judgment towards their behavior	The participants were trained to become aware of their capabilities and have a realistic view of the world around them. They were asked in which direction they wanted to lead their lives. If they didn't know, the inquiry was continued with a focus on what they are doing now to make sure they have chosen the path of their current life. They were taught the concept of a "quality world" and were asked about their value judgment of their current behaviors (Glasser defined the quality world as a "personal picture album" of all the people, things, ideas, and ideals that describe what we have discovered to increase the quality of our lives. While basic human needs are the general motivation for all human behavior, the quality world is the specific motivation).	Participants were asked to write down their quality world and value judgments.
8	Summary and implementation of the post-test	The participants were asked to express their opinions about their groups and whether they achieved their desired goals in these groups. Finally, they were asked to participate in the post-test.	-

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for the control group when the intervention sessions were completed, and a post-test was carried out.

Data analysis

The SPSS software, version 26 used for statistical analysis. Pre-test and post-test data were analyzed using de-

scriptive statistics (Mean±SD) and inferential statistics (analysis of covariance). The paired t-test and chi-square were used to compare the demographic characteristics of the groups. The Kolmogorov-Smirnov test was used to check the normality of the data, and Levene's test was used to test the homogeneity of variances. A significance level was considered to be ≤ 0.05 .

3. Results

The Mean±SD age of the experimental and control group subjects were 27.62±3.64 and 29.57±4.60 years, respectively. Table 2 presents the participants' demographics, and Table 3 provides the research variables' pre-test and post-test Mean±SD.

According to the Kolmogorov-Smirnov test, the study data (i.e. mental health [$Z=0.156$, $P=0.200$] and cravings for drugs [$Z=0.147$, $P=0.200$]) followed a normal distribution pattern. In addition, Levene's test was employed to test the homogeneity of variances (the equality of variances between the

experimental and control groups). Considering the results of Levene's test for mental health variables ($F=2.232$; $P=0.206$) and drug cravings ($F=1.687$ and $P=0.365$), analysis of covariance (ANCOVA) could be performed.

The multivariate analysis of covariance (MANCOVA) was used to compare the experimental and control groups in terms of the post-test scores of mental health and cravings for drugs, after controlling for the effects of the pre-test, to measure the effects of the RT intervention on these two variables. As shown in Table 4, the MANCOVA indicated a significant difference between the experimental and control groups in at least one of the dependent variables ($P<0.001$).

Table 2. Comparing demographic characteristics of the subjects in the experimental and control groups

Variables	Mean±SD/No. (%)		P
	Experimental	Control	
Age (y)	27.62±3.64	29.57±4.60	0.145
Education	Middle school	9(45)	8(40)
	High school	5(25)	8(40)
	College education	6(30)	4(20)
Gender	Male	12(60)	13(65)
	Female	8(40)	7(35)

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Table 3. Mean±SD of drug cravings and mental health in the experimental and control groups

Variables	Phase	Mean±SD	
		Experimental	Control
Drug cravings	Pre-test	68.70±3.02	69.50±3.56
	Post-test	48.40±13.32	69.95±7.00
Mental health	Pre-test	29.85±4.18	32.01±3.84
	Post-test	48.90±12.35	31.55±6.63

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Table 4. The results of MANCOVA on the post-test scores of drug cravings and mental health in the experimental and control groups

Variables	Value	df	Error df	F	P	η^2
Pillai's trace	0.54	2	35	20.56	0.001	0.54
Wilks lambda	0.46	2	35	20.56	0.001	0.54
Hotelling's trace	1.18	2	35	20.56	0.001	0.54
Roy's largest root	1.18	2	35	20.56	0.001	0.54

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Table 5. The results of univariate analysis of covariance on drug cravings and mental health in the experimental and control groups

Variables	SS	df	MS	F	P	η^2	Power
Drug cravings	4311.80	1	4311.80	39.67	0.001	0.52	1.00
Mental health	3270.29	1	3270.29	33.90	0.001	0.49	1.00

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Table 5 presents the univariate analysis of covariance for the post-test scores of the dependent variables. The “F ratio” of the univariate analysis of covariance for the variables of mental health and drug cravings revealed a significant difference between the two groups ($P < 0.001$). In other words, the RT effectively reduced drug cravings and improved mental health in the experimental group.

4. Discussion

This study determined the effects of RT on drug cravings and mental health among clients of TC centers. The findings suggested the effectiveness of RT in reducing drug cravings among the clients. Similarly, another study reports that RT effectively reduces cognitive disorders and relapse anxiety in drug addicts (Namjoo Aboosaeidi et al., 2022). The similar results can be attributed to RT principles that help individuals adopt the choice theory or internal locus of control psychology instead of external locus to accept that only they can do something for themselves and no one else can do it without their permission (Namjoo Aboosaeidi et al., 2022). During the RT sessions, the clients learn that they are important to others, their opinions are taken into account, and they experience the joy of thinking and listening to others and expressing their views without fear of rejection. This new insight allows them to enjoy fulfilling their basic needs, which will increase their life satisfaction and decrease their cognitive disturbance and its symptoms, such as a sense of loneliness and negative emotional reactions (Ebadi et al., 2020). During RT sessions, the therapist attempts to teach patients how to satisfy their basic needs and restore their lost self-esteem properly. This treatment emphasizes the present moment and suggests clients to select the actions that meet their basic needs. If they failed to do so, they would not be the only ones experiencing pain and worry, but so would other people. Failure to meet basic needs causes people to deviate from the norm (Khalidass et al., 2021). RT believes that individuals should accept responsibility for their behavior. As the focus on responsibility is the main core of psychotherapy in RT, it helps individuals choose responsible behaviors and reduce their drug cravings, thereby preventing the resumption of drug abuse (Karimyar Jahromi & Mosallanejad, 2014).

The study results also showed the effectiveness of RT in improving mental health among the clients of TC centers. Likewise, (Behmanesh et al., 2020) reported that RT was effective in improving students’ mental health. To explain this finding, it can be stated that RT is a common therapeutic intervention in cognitive psychology that aims to describe human beings, determine behavioral rules, and teach people how to achieve satisfaction, happiness, and success. In RT, the emphasis is on confronting reality, accepting responsibility, recognizing basic needs, making moral judgments about the right or wrong, focusing on the here and now, internal locus of control, and hence acquiring a successful identity (Behmanesh et al., 2020).

Group therapies allow individuals to talk about their problems, express their feelings, and receive feedback. Consequently, group therapy can help individuals strengthen their social skills and have better relationships with others. Group therapy allows participants to form social networks with other members and use it as a foundation for changing the environment (Asli Azad et al., 2021). Group therapists can use group interaction to help participants understand and accept values and goals and learn or abandon certain behaviors and attitudes. By enhancing group cohesion, group therapy strengthens a communication network in which a person experiences hope, philanthropy, and peace (Karimyar Jahromi, & Mosallanejad, 2014). The study findings demonstrated that teaching the choice theory to and using RT on those undergoing addiction treatment increased their acceptance of responsibility, strengthened their sense of control over different aspects of life, and improved their mental health.

This study did not control for the subjects’ educational attainment and socioeconomic status. Since the study population consisted of clients of TC centers in Khuzestan Province, Ahvaz, the results should be cautiously generalized to other regions. Future studies can add to the accuracy and generalizability of the findings in this research by addressing these limitations.

5. Conclusion

RT reduces drug cravings and improves mental health in clients of TC centers. Cognitive approaches generally posit that individuals' good or bad mood is determined by their thoughts and interpretations of others and events, and disruptive thinking leads to mental disorders. RT teaches those undergoing addiction treatment how to control their thoughts, behaviors, and feelings. This insight not only helps them experience a greater sense of responsibility and corrects their cognitive processes but also reduces their drug cravings and negative thoughts and improves their mental health. Future studies are recommended to compare male and female participants concerning the effects of RT on the research variables. It is suggested that future studies include a follow-up period to assess the long-term stability of the results. Overall, it is suggested that therapists in addiction treatment and counseling centers use RT to treat comorbid disorders with addiction.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the [Ahvaz Branch, Islamic Azad University](#) (Code: IR.IAU.AHVAZ.REC.1401.028).

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Authors' contributions

Conceptualization, methodology, investigation, writing the initial draft and editing: Parvin Sadat Hosseini and Zahra Eftekhar Saadi; Data curation, funding acquisition, and resources: Parvin Sadat Hosseini; Data analysis: Reza Johari Fard; Project administrator: Zahra Eftekhar Saadi; Supervision: Zahra Eftekhar Saadi and Reza Johari Fard; Final approval: All authors.

Conflict of interest

The authors declared no conflict of interest.

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References

- Ebadi, Z., et al., 2020. Effectiveness of reality therapy based on choice theory on marital intimacy and satisfaction. *Journal of Midwifery and Reproductive Health*, 8(2), pp. 2230-9. [DOI:10.22038/jmrh.2020.46037.1559]
- Asli Azad, M., Farhadi, T. & Khaki, S., 2021. [Efficiency of online reality therapy on perceived stress and experiential avoidance in the covid 19-improved patients (Persian)]. *Quarterly Journal Of Health Psychology*, 10(38), pp. 141-56. [DOI:10.30473/hpj.2021.55771.4990]
- Badie, A., et al., 2020. Drug cravings and its relationship with family communication patterns and resiliency through the mediatory role of difficulty in cognitive emotion regulation. *Journal of Client-centered Nursing Care*, 6(2), pp. 125-34. [DOI:10.32598/JCCNC.6.2.329.1]
- Behmanesh, Z., Kheramine, S. & Ramazani, K., 2020. [The effectiveness of group training based on choice theory on identity crisis and mental health of high school male students in second grade in Dogonbadan (Persian)]. *Armaghane Danesh Journal*, 25(5), pp. 642-56. [DOI:10.52547/armaghanej.25.5.642]
- Conner, K. R., et al., 2019. Metaanalysis of mood and substance use disorders in proximal risk for suicide deaths. *Suicide & Life-Threatening Behavior*, 49(1), pp. 278-92. [DOI:10.1111/sltb.12422] [PMID]
- Cuijpers, P., et al., 2019. The World Health Organization World Mental Health International College Student initiative: An overview. *International Journal of Methods in Psychiatric Research*, 28(2), pp. e1761 [DOI:10.1002/mpr.1761] [PMID]
- Enkema, M. C., et al., 2021. Craving management: Exploring factors that influence momentary craving-related risk of cannabis use among young adults. *Addictive Behaviors*, 115, pp. 106750. [DOI:10.1016/j.addbeh.2020.106750] [PMID]
- Feizollahi, Z., Asadzadeh, H. & Mousavi, S. R., 2022. Prediction of symptoms of psychosomatic disorders in university students based on perfectionism mediated by smartphone addiction. *Caspian Journal of Health Research*, 7(3), pp. 151-8. [DOI:10.32598/CJHR.7.3.421.1.7]
- Franken, I. H., Hendriksa, V. M. & van den Brink, W., 2002. Initial validation of two opiate craving questionnaires the obsessive-compulsive drug use scale and the desires for drug questionnaire. *Addictive Behaviors*, 27(5), pp. 675-85. [DOI:10.1016/S0306-4603(01)00201-5] [PMID]
- Galderisi, S., et al., 2015. Toward a new definition of mental health. *World Psychiatry*, 14(2), pp. 231-3. [DOI:10.1002/wps.20231] [PMID]
- Glasser, W., 1999. Choice theory: A new psychology of personal freedom. *New York: Harper Perennial*. [Link]
- Goldberg, D. P. & Hillier, V. F., 1979. A scaled version of the General Health Questionnaire. *Psychological Medicine*, 9(1), pp. 139-45. [DOI:10.1017/S0033291700021644] [PMID]
- Guillen-Royo, M., 2014. Human needs. In: A.C. Michalos, (eds) Encyclopedia of quality of life and well-being research. *Dordrecht: Springer*. [DOI:10.1007/978-94-007-0753-5_1345]
- Hassani-Abharian, P., et al., 2016. Validation for Persian versions of "desire for drug questionnaire" and "obsessive compulsive drug use scale" in heroin dependents. *Archives of Iranian Medicine*, 19(9), pp. 659-66. [Link]

- Heilig, M., et al., 2021. Addiction as a brain disease revised: Why it still matters, and the need for consilience. *Neuropsychopharmacology*, 46(10), pp. 1715-23. [DOI:10.1038/s41386-020-00950-y] [PMID]
- Hsiung, H., et al., 2022. Preventing substance abuse in adolescents: A review of high-impact strategies. *Cureus*, 14(7), pp. e27361. [DOI:10.7759/cureus.27361]
- Javaeed, A., et al., 2019. Correlation between Internet addiction, depression, anxiety and stress among undergraduate medical students in Azad Kashmir. *Pakistan Journal of Medical Sciences*, 35(2), pp. 506-9. [DOI:10.12669/pjms.35.2.169]
- Karimyar Jahromi, M. & Mosallanejad, L., 2014. The impact of reality therapy on metacognition, stress and hope in addicts. *Global Journal of Health Science*, 6(6), pp. 281-7. [DOI:10.5539/gjhs.v6n6p281] [PMID]
- Khalidass, T., Chethiyar, A. P. D. S. & Muniandy, V., 2021. The Effect of the intervention of William Glasser's Reality Module (D'RWG) on drug abuse among young residents of the Cure and Care Rehabilitation Clinic (CCRC). *International Journal of Qualitative Research*, 1(2), pp. 98-102. [DOI:10.47540/ijqr.v1i2.341]
- Livheim, F., et al., 2020. A quasi-experimental, multicenter study of acceptance and commitment therapy for antisocial youth in residential care. *Journal of Contextual Behavioral Science*, 16, pp. 119-27. [DOI:https://doi.org/10.1016/j.jcbs.2020.03.008]
- Malakouti, S. K., et al., 2007. Reliability, validity and factor structure of the GHQ-28 used among elderly Iranians. *International Psychogeriatrics*, 19(4), pp. 623-34. [DOI:10.1017/s1041610206004522] [PMID]
- Mehrpour, O., 2012. Methamphetamine abuse a new concern in Iran. *Daru : Journal of Faculty of Pharmacy, Tehran University of Medical Sciences*, 20(1), pp. 73. [DOI:10.1186/2008-2231-20-73] [PMID]
- Moghadam, M., Makvandi, B. & Naderi, F., 2021. The effects of mindfulness training and dialectical behavior therapy on drug craving and emotion self-regulation in clients with substance-dependence. *Journal of Client-Centered Nursing*, 7(2), pp. 131-8. [DOI:10.32598/JCCNC.7.2.329.2]
- Nadaf, S., et al., 2020. [Effectiveness of group reality therapy on the negative automatic thoughts and psychological flexibility of depressed clients at consultation centers (Persian)]. *Medical Journal of Mashhad University of Medical Sciences*, 63(5), pp. 2696-707. [DOI:10.22038/mjms.2020.17174]
- Namjoo Aboosaeidi, M., Askari, M. & Yosefi, E., 2022. [Comparison of the effectiveness of positivist psychotherapy and reality therapy on cognitive disturbance and relapse anxiety in addicts under treatment (Persian)]. *Journal of Research in Behavioural Sciences*, 19(4), pp. 563-74. [DOI:10.52547/rbs.19.4.563]
- Pourpashang, M. & Mousavi, S., 2021. The effects of group schema therapy on psychological well-being and resilience in the clients under substance dependence treatment. *Journal of Client-centered Nursing Care*, 7(2), pp. 159-66. [DOI:10.32598/JCCNC.7.2.366.1]
- Ramezani, K. & Ehteshami, F., 2015. [The effectiveness of group reality therapy on increasing resiliency in M.S. patients (Persian)]. *Achievements of Clinical Psychology*, 1(1), pp. 77-92. [DOI:10.22055/jacp.2015.11507]
- Reus, V. I., et al., 2019. The American Psychiatric Association practice guideline for the pharmacological treatment of patients with alcohol use disorder. *Focus (Am Psychiatr Publ)*, 17(2), pp. 158-62. [DOI:10.1176/appi.focus.17205] [PMID]
- Safari, S., Soleimanian, A. A. & Jajarmi, M., 2021. [The effectiveness of "reality therapy" training on internet addiction and perceptions of social support -family in teenage girls (Persian)]. *Journal of Health Promotion Management*, 10(5), pp. 107-20. [Link]
- Shahbazi, J., et al., 2020. Effects of mindfulness-based self-compassion and attachment-based therapy on self-criticism and mental fatigue of male adolescents with addiction potential. *Journal of Client-centered Nursing Care*, 6(2), pp. 97-108. [DOI:10.32598/JCCNC.6.2.33.9]
- Simmler, L. D., et al., 2022. Dual action of ketamine confines addiction liability. *Nature*, 608(7922), pp. 368-73. [DOI:10.1038/s41586-022-04993-7] [PMID]
- Sujarwoto, Saputri, R. A. M. & Yumarni, T., 2023. Social media addiction and mental health among university students during the COVID-19 Pandemic in Indonesia. *International Journal of Mental Health and Addiction*, 21(1), pp. 96-110. [DOI:10.1007/s11469-021-00582-3] [PMID]
- Ul Haq, M. A., et al., 2018. Psychometric study of depression, anxiety and stress among university students. *Journal of Public Health*, 26(2), pp.211-7. [DOI:10.1007/s10389-017-0856-6]
- van Lier, H. G., et al., 2022. An ideographic study into physiology, alcohol craving and lapses during one hundred days of daily life monitoring. *Addictive Behaviors Reports*, 16, pp. 100443. [DOI:10.1016/j.abrep.2022.100443] [PMID]
- Wang, P. W., et al., 2021. Craving for ketamine and its relationship with clinical outcome indicators in males with ketamine use disorder. *Frontiers in Psychiatry*, 12, pp. 476205. [DOI:10.3389/fpsy.2021.476205] [PMID]
- White, R., 2019. Transnational environmental crime. In: M. Nata- rajan (ed.), *International and transnational crime and justice* (pp. 103-108). Cambridge: Cambridge University Press. [DOI:DOI: 10.1017/9781108597296.017]
- Wise, R. A. & Robble, M. A., 2020. Dopamine and addiction. *Annual Review of Psychology*, 71, pp. 79-106. [DOI:10.1146/annurev-psych-010418-103337] [PMID]
- World Health Organization., 2022. *World mental health report: Transforming mental health for all*. Geneva: World Health Organization. [Link]

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