

Research Paper: Efficacy of Group Therapy Based on 12-step Approach of Narcotics Anonymous on Self-control and Quality of Life in People With Substance Use Disorder Diagnosis During Recovery



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ABSTRACT

Objective: The substance use disorder is a debilitating and often chronic problem. The present study was conducted to investigate the effectiveness of group therapy based on the 12-step approach of Narcotics Anonymous (NA) on self-control and Quality of Life in people with substance use disorder diagnosis during recovery.

Methods: The design of the study was two-way quasi-experimental (an experimental group and a control group) in the form of a pre-test, post-test, and follow up. A total of 60 subjects were recruited as the prototype among the patients who were referred to the Narcotics Anonymous Fellowship in Isfahan and were divided into experimental and control groups (30 people in each group). To measure the pre-test step, the participants in both groups completed Tangney's self-control scale questionnaire (Tangney, 2004) and the World Health Organization Quality of Life questionnaire (WHO, 1991). Then, the experimental group received 12 sessions of group-therapy intervention based on the 12-step approach of NA (NA step working guides, 2013), and the control group received no intervention. After completing the intervention, the post-test and follow up test (two months later) were implemented in both groups. The obtained data were analyzed with a multivariate analysis of covariance in SPSS V. 22.

Results: The results indicated significant differences between the experimental group and the control group in self-control and Quality of Life domains (physical, social, and psychological domains) scores in the pre-test and follow-up ($P < 0.05$). However, regarding the environment domain of Quality of Life, no significant difference was observed between the experimental and the control group.

Conclusion: The group therapy based on the 12-step approach of NA can be considered an effective treatment to reduce the likelihood of substance re-use and improve the Quality of Life of these people.

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Highlights

- Group therapy based on the 12-step approach of NA increases the self-control of addicted people.
- Group therapy based on the 12-step approach of NA improves the Quality of Life of addicted people.

Plain Language Summary

Substance use disorder is a chronic problem with behavioral consequences. The 12-step approach of NA is a known therapeutic approach based on a series of principles proposed to recover from the addiction. The present research was conducted to examine the effectiveness of this approach on self-control and Quality of Life in people with substance use disorder diagnosis during recovery. The results showed the 12-step approach of NA could be an effective treatment to increase the self-control and most domains of Quality of Life of these people.

1. Introduction

According to the fifth edition of ‘Diagnosis and Statistical Manual of Mental Disorders’ (DSM-5), substance use disorder is characterized by a set of cognitive, behavioral, and physical symptoms leading to a need to repeatedly use a specific substance despite the considerable problems made for the person. These consequences may be shown in the form of frequent returns and an intense passion for taking drugs (American Psychiatric Association, 2013).

Self-control has been defined as a coping strategy or skill protecting people against their internal demands leading to more desirable consequences (Clinton, Conway, Sturges, Hewett, 2020; Hatami, 2011). The self-control helps adolescents and young people to reduce risky behaviors (e.g. drug abuse and smoking) (Ford & Blumenstein, 2013). Chauchard, Levin, Copersino, Heishman, and Gorelick (2013) concluded that self-control is an essential factor in avoiding people after quitting drugs. Fox, Hong, and Sinha (2008) found a significant difference between alcohol users and non-users in the ability to control impulses. Doran, McCharque, and Cohen (2007) showed in their study that people who cannot control their impulses are probably permanent substance users. Taylor, Hiller, and Taylor (2013) showed positive relationships between the likelihood of substance use disorder, low self-control, and high levels of impulsivity. Visser, de Winter, Veenstra, Verhulst, and Reijneveld (2013) reported that alcohol users have lower levels of self-control compared to non-users. Shapiro, Astin, Bishop, and Cordova (2005) explained that strengthening self-control increases a smoker’s readiness to avoid smoking despite external stimuli.

According to WHO definition, the Quality of Life has four domains: physical health (including the ability to perform daily tasks), psychological health (including the satisfaction and imagination of the person of self and his/her appearance), social relationships (including personal relations, social support, and extra activities), and environmental health (including financial resources, freedom, and safety) (Bjelic-Radusic, Cardoso, Cameron, Brain, 2020; Frisch, 2010). The Quality of Life is one of the crucial variables in the treatment or improvement of addiction (Emamipoor, Shams, Sadr-al-Sadat, & Naderi, 2009). Hoseinifar et al. (2011) found that Quality of Life and mental health are lower among addicts. They also found a significant positive relationship between the Quality of Life and mental health in addicts.

In another study, Muller, Skurtveit, and Clausen (2016) showed that factors associated with poor Quality of Life are also related to social disorder, physical well-being, and psychological distress. Over the past three decades, attention has been paid to the Quality of Life as an essential factor in the assessment of therapeutic outcomes and the effectiveness of treatment in physical and psychological disorders (Karow, Reimer, Schäfer, Krausz, Haasen, & Verthein, 2010). Traditional approaches to the evaluation of treatment outcomes mainly focused on the symptoms of the disease. They paid little attention to the concept of Quality of Life and factors affecting it. However, changes in the severity of symptoms do not necessarily reflect improvement (Palad, Snyder, 2019; Maremmani, Pani, Pacini, & Perugi, 2007).

Narcotics Anonymous (NA) is an international non-profit social organization that is active in 132 countries (Burns & Grove, 2008). Members of NA are recovering addicts who not only want to stop using drugs but also to seek recovery from addiction disease. NA is a pro-

gram of complete abstinence from all drugs. The core and heart of the NA program comprise twelve steps. The twelve steps are based on a series of principles proposed to recovery from the addiction disease (Sanches, John, 2019; Wilson, 2009). The Twelve-Step Groups (TSGs) offer a continuous and easily reached recovery program to support patients with substance use disorders (Humphreys, 2004; Fiorentine, 1999). Addicts in these groups are supposed to improve themselves through personalized techniques (Aliverdina, 2009).

In a study on 128 American NA members, Delucia, Bergman, Formoso, and Weinberg (2015) investigated various correlates of recovery from addiction, such as psychological well-being. The results showed that the duration of abstinence and the continuation of recovery could predict the psychological well-being of NA members. In a study on 322 patients undergoing Methadone Maintenance Treatment (MMT) in North American cities, White, Campbell, Spencer, Hoffman, Crissman, and Dupont (2014) showed that attending the TSG-based interventions can lead to drug abstinence and reduced feelings of helplessness in patients undergoing MMT. Kelly, Greene, and Bergman (2014) examined 1706 people attending Alcoholics Anonymous (AA) meetings by a series of evaluation programs (i.e. 3-, 6-, 9-, 12-, and 15-month follow-ups). The results showed participation in AA meetings was associated with reduced levels of depression and a longer duration of alcohol-abstinence in the examined people.

Studies in Iran on addiction mostly focus on the effectiveness of Cognitive-Behavioral Therapy (CBT), and there are only two published studies on the effects of 12-step based interventions on addicts' attitude (Aliverdina, 2009) and resilience (Khanjani, Amini, Fathi, & Ahmad Saraei, 2014), and no study on the effectiveness of TSG interventions on addicts' self-control and Quality of Life. Accordingly, the present study was conducted to investigate the effectiveness of group therapy based on the 12-step approach on self-control and Quality of Life in people with substance use disorder diagnosis during recovery.

2. Methods

Study participants

The research design was a two-way quasi-experimental method (one experimental group and one control group) with pre-test, post-test, and follow-up. Accordingly, among all patients diagnosed with substance use disorder (opium, heroin, morphine, tramadol, codeine-based drugs,

etc.) by physicians and based on the results of new diagnostic kits (i.e. opiates-heroin-morphine rapid test [strip] and thin-layer chromatography [TLC]), and the patients had already passed the detoxification process successfully and been in the process of recovery. They referred to the fellowship of NA in Isfahan to continue the treatment. Of them, 60 patients who were willing to participate in the present study were selected from April to May 2016 and divided into the experimental and control groups (30 patients in each group). In the control group, 4 participants were excluded at the post-test stage (one passed away, and three did not want to continue), and eight were excluded at the follow-up stage (due to relapse). In the experimental group, 6 participants were excluded at the post-test stage (4 for being absent more than three sessions and 2 for relapse), and 4 were excluded at the follow-up stage (for not completing the questionnaires).

Study instruments

Tangney's Self-control Scale

The Tangney's Self-control Scale (SCS) is a 36-item scale examining self-control. Higher SCS scores indicate higher levels of self-control. This scale has been used in many studies, and its psychometric properties have been satisfactory. For example, Spenser (2005) and Piquero, Gibson, and Tibbetts (2002) respectively reported the Cronbach alpha values of 0.92 and 0.84 for this scale. The Persian version of the SCS was used by Allahverdipour, Hidarnia, Shafii, Kazemnegad, AzadFallah, and Emami, (2006) in a study on male high school students in Tehran. They reported a Cronbach alpha value of 0.80 for the Persian version of SCS.

The World Health Organization Quality of Life Questionnaire (36-item form)

This questionnaire assesses people's perceptions of their personal goals, standards, and concerns, along with the existing value systems in their social environments. The 36-item form of the WHOQOL results from the integration of some domains and the elimination of some items. Several scholars in different countries simultaneously worked to develop this scale; this scale has been translated into more than 15 languages (Momeni, Eshtad, Gowhari, Faraji, & Mahmoudi Gharaei, 2008). This tool examines four domains of physical health, psychological health, social relationships, and environmental health.

Each item is scored on a 5-point Likert-type scale ranging from 1 (not at all) to 5 (absolutely). Higher scores on

this scale indicate higher Quality of Life. Studies conducted to examine the psychometric properties of WHOQOL indicated that this scale has an acceptable reliability range. For example, [Skevington, Loffy, & Connell, WHOQOL Group \(2004\)](#) reported the Cronbach alpha values of 0.80 for the physical domain, 0.76 for the psychological domain, 0.66 for the social domain, and 0.80 for the environment domain of the WHOQOL. [Nasiri \(2006\)](#) examined the reliability of the Persian version of the WHOQOL and reported test-retest reliability of 0.67, internal consistency of 0.87, and the Cronbach alpha of 0.84 for the scale.

Study procedure

Sixty people were selected from people who had been diagnosed with substance use disorder and voluntarily referred to the Fellowship of NA in Isfahan to continue the treatment. Based on their volunteering, 30 people participated in the experimental group, and 30 persons were in the control group. Tangney SCS and WHOQOL questionnaires were prepared in a checklist and conducted in the pre-test, post-test, and follow-up stages. The intervention group received group therapy based on the 12-step approach of the NA for 12 90-min sessions for

three months, but the control group did not receive any intervention. After completing the sessions, the post-test stage was performed in both experimental and control groups. Meanwhile, to control the intra-group interactions and determine the effect of specific factors in the intervention, four educational, psychological sessions were presented for the control group, and only articles about the etiology of addiction but not therapeutic techniques were presented to them. [Table 1](#) presents a summary of the actions taken in the experimental group.

Data analysis

The obtained data were analyzed in SPSSV. 22. The collected data were described by mean and standard deviation, and the mean scores of the two groups were compared by multivariate analysis of covariance.

3. Results

[Tables 2 and 3](#) presents the demographic characteristics of the research samples, and [Table 4](#) presents the descriptive indexes. To evaluate differences in the mean scores at the three stages of pre-test, post-test, and follow-up, MANCOVA was used (after validating and approving

Table 1. Summary structure of the therapeutic manual

Sessions	Contents
First	Admitting one's powerlessness over addiction and inability to manage life, accepting addiction as a disease, denial, end of the road, feelings of despair, isolation, and helplessness, Excuses, and excuses, surrender, spiritual principles and moving forward.
Second	The process of coming to believe, higher power, admitting one's lack of wisdom, hope, restore to sanity, spiritual principles and moving forward.
Third	Making decisions, personal will, God as we understood Him, spiritual principles and moving forward
Forth	Motivations, searching and fearless, moral inventory, resentments, feelings, guilt and shame, fears, relationships, sexual relations, abuses, possessions, secrets, spiritual principles and moving forward.
Fifth	Facing fears, admit to God, to ourselves and another human, examining errors accurately, spiritual principles and moving forward.
Sixth	What are you prepared for, God removed defects of character, personality defects, spiritual principles, and moving forward.
Seventh	Readiness for applying the seventh step, asking help to remove shortcomings, go away from God's way God, spiritual principles and moving forward.
Eighth	Providing a list of all persons we had harmed and became willing to make amends to them all, tendencies, spiritual principles and moving forward.
Ninth	Compensation, fears and expectations, direct vs. indirect compensation, forgiveness, spiritual principles and moving forward.
Tenth	Feelings vs. actions, right vs. wrong, admit, spiritual principles and moving forward.
Eleventh	The spiritual path, prayer and meditation, conscious relationship, God's will, power of the will of God, spiritual principles and moving forward.
Twelfth	Spiritual awakening, serving, observing spiritual principles in all aspects of life, spiritual principles.

Table 2. Demographic characteristics of the participants

Variables	Groups	No.	Mean±SD	Min.	Max.
Age (y)	Experimental	24	32.92±5.17	25	41
	Control	26	31.54±5.54	23	43
Number of households	Experimental	24	6.75±2	3	11
	Control	26	5.1±1.26	2	7
General health	Experimental	24	23.62±8.59	10	48
	Control	26	25.92±16.28	12	62
Length of drug abuse (y)	Experimental	24	14.17±3.74	6	20
	Control	26	12.5±4.67	5	23
Number of quit attempts	Experimental	24	10.6±5.70	3	20
	Control	26	9.76±4.97	0	20

Table 3. Demographic characteristics of the participants

Variables	No. (%)			
	Experimental	Control	Total	
Education	Illiterate	0 (0)	1 (3.8)	1 (2)
	Elementary school	4 (16.7)	5 (19.2)	9 (18)
	Guidance school	10 (41.7)	10 (38.5)	20 (40)
	High school	7 (29.2)	9 (34.6)	16 (32)
	Associate degree	1 (4.2)	0 (0)	1 (2)
	BA/BS or above	2 (8.3)	1 (3.8)	3 (6)
Marital status	Single	7 (29.2)	7 (26.9)	14 (28)
	Married	17 (70.8)	18 (69.2)	35 (70)
	Divorced	0 (0)	1 (3.8)	1 (2)
Employment	Unemployed	3 (12.5)	10 (38.5)	13 (26)
	Student	3 (12.5)	0 (0)	3 (6)
	Self-employed	16 (66.7)	15 (57.7)	31 (62)
	Employed by public sector	1 (4.2)	1 (3.8)	2 (4)
	Employed by private sector	1 (4.2)	0 (0)	1 (2)
Economic status	Low	14 (58.3)	23 (88.5)	37 (74)
	Moderate	8 (33.3)	3 (11.5)	11 (22)
	High	2 (8.3)	0 (0)	2 (4)

Table 4. Results of Mean±SD in the two groups

Variables	Groups	Mean±SD			
		Pre-test	Post-test	Follow-up	
Self-control	Experimental	47.95±4.44	64.83±6.6	58.8±4.36	
	Control	43.15±3.87	46.27±4.79	47.05±4.42	
Domains of Quality of Life	Physical	Experimental	12.75±1.15	15.04±1.23	14.2±1.5
		Control	12.53±1.2	12.84±1.12	12.66±1.32
	Psychological	Experimental	11.5±1.21	12.87±1.39	12.15±1.03
		Control	10.73±1	11.23±1.03	11.38±1.03
	Social	Experimental	4.45±0.72	6±0.83	5.45±0.68
		Control	4.38±0.64	4.57±0.75	4.44±0.78
	Environment	Experimental	15.7±0.95	15.67±0.92	15.5±0.94
		Control	15.92±0.89	15.96±0.96	15.77±0.94

Table 5. Results of MANCOVA

Index	Stages	Sum of Squares	df	Mean of Squares	F	Sig.
Self-control	Post-test	2284.77	1	2284.77	86.45	0.000*
	Follow-up	759.23	1	759.23	54.12	0.000*
Physical domain	Post-test	42.82	1	42.82	31.16	0.000*
	Follow-up	20.26	1	20.26	14.62	0.000*
Psychological domain	Post-test	8.05	1	8.05	7.14	0.011*
	Follow-up	3.27	1	3.27	2.95	0.044*
Social domain	Post-test	12.45	1	12.45	38.96	0.000*
	Follow-up	7.06	1	7.06	30.36	0.000*
Environment domain	Post-test	0.003	1	0.003	0.004	0.949
	Follow-up	0.311	1	0.311	0.483	0.492

*P<0.05

the assumption of normal distribution and equality of variances) to control pre-test scores.

As indicated in Table 5, significant differences were observed regarding the scores of self-control and subscales of Quality of Life (except for the environment domain) at the three stages of the study.

4. Discussion

This study aimed to determine the effectiveness of group therapy based on the 12-step approach of Narcotics Anonymous on self-control and the Quality of Life in people with substance use disorder diagnosis during recovery. The findings are discussed below:

The results of the present study indicated a significant difference in the post-test self-control scores between the two groups. People with low levels of self-control tend to experience the excitement without considering its long-term consequences. However, problems and deviations may follow excitements. Self-control skills can be learned, and many experiences prove the effectiveness of self-control training in reducing behaviors such as smoking and substance abuse in adolescents (Klein, 2004).

Self-control can be defined as the skill of observing the behaviors and modifying them through techniques such as self-empowerment, self-punishment, controlling the triggering conditions, and deploying irregular responses. It seems that self-control reinforcement is closely associated with the tenth step focusing on emotions, thoughts, actions, identification of mistakes, acceptance, and modification. The outcomes of the tenth step are to learn self-consciousness and self-control skills, living in the present by practicing spiritual principles of personal discipline, honesty, and integrity. At the tenth step, people learn to observe their emotions, desires, and actions and continuously take care of themselves. Thus, they learn to avoid repeating those actions that make them feel bad. They learn to live at present and forsake their past histories. They no longer need to prove or justify themselves. The tenth step of the 12-step recovery program helps people be themselves and strengthen their self-control skills.

The results of this study showed that the intervention of the group therapy based on the 12-step approach of NA could be effective on the psychological, social, and physical domains of the Quality of Life of the experimental group compared with the control group in the post-test stage. The results of this study agree with the results of DeLucia et al. (2015). To explain that, it can be stated that Quality of Life is a complex, general, and multi-faceted concept that depends on the individual's mental and social contexts. Therefore, to improve it, long-term and multi-dimensional interventions are needed to focus not only on the mental dimension of the patient but also on the physical, social, and environmental dimensions. The mental experience of positive psychological functions is probably one of the essential and valuable results of self-help support.

Participation in self-help groups of the NA will result in potential outcomes such as positive affection, spirituality, hope, Quality of Life satisfaction, and other favorable psychological structures. Besides, the feeling of belonging, satisfying and meeting needs, and sharing emotional communication provides a positive psychological sense of community. Most participants in the 12-step program

have linked these structures with positive outcomes (such as increasing well-being and Quality of Life) and their change processes (DeLucia et al., 2015).

It seems that the 12-step therapy of NA has significant capacities in using positive psychological constructs and can improve the Quality of Life as one of the most critical variables in psychology in all aspects of physical, psychological, social, and environment. Many positive changes that have been acknowledged by the participants in the 12-step program seem to be a way to remedy the damages sustained in both personal and interpersonal areas (for example, advancing in the path to life or profession, and the improvement and strengthening of relationships).

The 12-step approach may offer a series of durable and well-developed paths to compensate for some negatively growing outcomes that have been created and become problematic as a result of substance use (DeLucia et al., 2015). All of these results will be effective in improving the Quality of Life. The results also showed that the treatment group based on the 12-step approach of NA could be effective on the physical aspect of Quality of Life in the post-test phase. Individual cognition, beliefs, and thoughts play a decisive role in assessing a person's physical condition.

The results indicate that the treatment group based on the 12-step approach of NA has affected the cognitive assessment of the individuals. To explain these findings, it can be noted that group therapy sessions focus primarily on cognitive and psychological violence to improve environmental conditions. These interventions should be performed because changes in dimensions such as location and transportation facilities are not performed in the interventions of psychotherapy.

5. Conclusion

The 12-step approach of NA seems to be an effective intervention in improving most indicators of Quality of Life and reducing the likelihood of drug use. However, more research is needed in this regard. About the limitations of this study, sampling was of the convenience type, and it is better to be careful in the generalization of the results to non-volunteers. Also, the sample group comprised only men, and generalization of the results to addicted women must be made with caution.

It is suggested that interventional group therapy based on the 12-step approach of NA be compared with other common interventions (especially drug therapy, cogni-

tive-behavioral therapy, and treatment-based treatment). It is also suggested that variables such as the overall mental health status and the duration of use that can affect the outcomes, be controlled in subsequent studies.

Ethical Considerations

Compliance with ethical guidelines

The participants were fully aware of the study's objectives and willing to participate and free to leave the project at any time.

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Authors' contributions

All authors contributed equally in preparing all parts of the research.

Conflict of interest

The authors declared no conflict of interest.

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