Effectiveness of Cognitive Behavioral Therapy for Quality of Life among Women with HIV

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Abstract

Objective: Women living with HIV (WLWH) experience various psychosocial challenges, which negatively affect their quality of life (QOL). The current study examines the outcomes of women living with HIV (WLWH), who receive cognitive behavioral group therapy (CBGT) for improving quality of life in Tehran, Iran.

Method: The design of the study is a randomized clinical trial (RCT). Sixty women with HIV were randomly assigned into control and intervention groups, with 30 participants for each group. A 10-session cognitive behavioral group therapy was provided only to the intervention group. The control group participated in 3 sessions without special training. To assess the effectiveness of the intervention, quality of life was measured using the Multidimensional Quality of Life Questionnaire for HIV/AIDS (MQoL-HIV) before and one month after intervention delivery. Pre-test and post-tests were compared using t-test analysis.

Results: After 10 weeks of training, the Mean±SD QOL score significantly increased in the intervention group. Based on covariance analysis, the intervention group had a significantly higher QOL score than the control group after the intervention $P<0.05$.

Conclusion: Due to the low quality of life among WLWH, CBGT can be helpful in providing psychological rehabilitation to improve the quality of life of this group.

Keywords: HIV/AIDS, Group therapy, Cognitive Behavioral Therapy, Quality of life, Women.

Introduction

Human Immunodeficiency Virus (HIV) continues to bring a serious public health issue in Iran. According to UNAIDS, in 2016, the Islamic Republic of Iran had 5,000 (1,400 - 13,000) new HIV infections and 4,000 (2,500 – 6,200) AIDS-related deaths. There were 66,000 (37,000 – 120,000) people living with HIV, among whom 50% were between the ages of 24 and 35. Compared to the year 2014, the incidence of women has increased by 41% in Iran (UNAIDS, 2016).

People who live with HIV (PLWH) experience various psychosocial difficulties, including depression, discrimination, stigma, self-blame, job insecurity, housing instability, and social relationship problems (Palwe, Dargar, & Tawri, 2018; Rzeszutek, 2018; Shi et al., 2018), which negatively affect their quality of life (QOL) (Nyamathi et al., 2017; Pinto et al., 2018). The World Health Organization (WHO) defined QOL as "individuals' perceptions of their position in life in the context of the culture and value systems in which they live and concerning their goals, standards, expectations, and concerns" (WHO, 1998). QOL is important for PLWH, in general, and

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women living with HIV (WLWH), in particular. This group is underserved and has been excluded from HIV interventions for many reasons (Loutfy et al., 2013; Nobakht et al., 2017). Therefore, delivering services to this group is crucial for social workers.

Considering the high prevalence of psychosocial problems among WLWH and its devastating effects, many interventions have been developed and implemented for this group, including medication and psychotherapy. Social work practice with PLWH includes training about HIV/AIDS, advocacy for their rights, providing social support, and training on how to live with HIV (Törrönen, Borodkina, Samoylova, & Heino, 2013). In addition, cognitive behavioral therapy (CBT) has been reported effective among PLWH (Blashill et al., 2017; Caballero-Suárez, Candela Iglesias, Rodríguez Estrada, et al., 2019; Gupta, Durham, & Olowoyeye, 2013; Mehdipour, Rafiepoor, & Hajializade, 2019). CBT is a type of therapy that alters an individual's maladaptive thinking and behavior patterns to reduce the maladjustment of moods and behaviors and address psychological problems by increasing PLWH's engagement in the intervention by highlighting clients' strengths, needs, and participation (Constantino, Westra, Antony, & Coyne, 2019; Vujanovic et al., 2017). One of the well-known cognitive-behavioral techniques is the Ellis ABC model, which is also used in the intervention protocol of this study. Albert Alice, an American psychologist in the rational approach and the ABC model, states that it is not external factors or others that upset us but our 'irrational beliefs' that upset us. According to this model, dysfunctional cognitions, emotions, and/or behaviors ultimately stem from our perception of the situation we experience. To be more systematic, according to this theory, an activating event/object (the A in the ABC) will lead to us perceiving that event/object (the B in the ABC) that will determine the internal consequence of the activating event/

object (the C in the ABC) (David, Lynn & Ellis, 2010).

Previous studies have shown that CBT can be effective in improving unhealthy behavior, depression, stress, fatigue, mental health, and anxiety and promoting quality of life (Ayoubi, Bigdeli, & Mashhadi, 2020; Caballero-Suárez et al., 2019; Getu et al., 2021; Han, Hu, Zhu, & Wu, 2020; Li et al., 2022; Pu, Hernandez, Sadeghi, & Cervia, 2020; Safren et al., 2012; Xiao et al., 2020). Nevertheless, a few studies have focused on the effectiveness of CBT on QOL among WLWH, especially in developing countries (Nyamathi et al., 2017; Palwe et al., 2018).

Some studies conducted in Iran show that these people have little support. The lack of information and research on the quality of life and support for people with HIV has been fueled by a lack of knowledge from policymakers in this area. Carrying out research on these issues and addressing the problems and concerns of these patients can be a step forward and a beginning to change the attitude towards AIDS and attention to those suffering from it.

In this study, the researchers developed a cognitive behavioral group therapy (CBGT) intervention and implemented it among a group of WLWH in Tehran to improve their QOL. The current study examined this intervention's effectiveness in terms of QOL.

Participants and Procedure

The present research is an experimental study with a pre-test-post-test design and a control group. Participants filled out the quality of life questionnaire once before the implementation of the intervention and later one month after its termination.

Participants were all WLWH, recruited from the Society for the Revival of Values in Tehran, Iran. It is a non-governmental organization founded in Tehran in 1999. The goal of this association is to achieve new ways of preventing

and intervening in times of crisis and managing social issues. Common services of the association include holding seminars on HIV prevention and information, empowerment and vocational training of women heads of households living with HIV, free telephone counseling, and social work services and counseling.

Recruitment happened from May to September 2020. The researcher was a master's level student in social work and had received the necessary training for implementing the intervention. After obtaining the required permission from the Society for the Revival of Values, each participant was called by phone. After explaining the objectives and obtaining oral consent, the person was invited to complete a multidimensional QOL questionnaire. Hundred-twenty-one clients of the center who live with HIV/AIDS volunteered to complete the questionnaire. Sixty of them with the lowest score were selected for the study. Other inclusion criteria were being married, being able to read and write at least, and having passed at least three months since HIV diagnosis. Those with advanced stages of the disease and who were absent for more than

Table1. Intervention – CBGT protocol

| Module no.	No. of sessions	Topic	Content
1	one	Adherence training	Creating a positive and supportive relationship with the peers and the social worker Introducing the rules and objectives of the protocol
2	two	Cognitive restructuring	Learning about irrational beliefs and cognitive errors including: ·Mind reading ·Personalization ·Magnification ·Black & white thinking ·Baseless inferences
3	three	Cognitive coping	Practicing positive self-talk technique when faced with problems Enhancing communication skills through utilizing messages and empathic listening
4	two	Behavioral activation	Courage training, through role-playing and assignment Interviewing participantsabout daily routine Improving communication skills Teaching safe lovemaking and intimacy in marital relationships through practice of healthy interactions, empathy, clarification of intimacy defects
5	one	Problem solving	Identifying and defining problem Brainstorming to create potential solutions Evaluating the potential solutions Decision making Implementing the chosen solution
6	one	Relaxation training	Stress reduction training, and practicing self-relaxation techniques through ·Progressive muscle relaxation ·Diaphragmatic breathing

two sessions were exclusion criteria of the study. Out of 121 people who completed the quality of life questionnaire, 60 who received lower scores were selected and randomly divided into two groups (experimental and control). Before the implementation of the intervention, written consent was obtained from each person.

Ethical statement

According to this protocol, participation in this study was completely voluntary. Further, they were informed that all collected data would be confidential, without any identifying information, and the gathered data would be kept in locked drivers so only researchers have access. Informed consent forms were also provided for participants, and their signatures were obtained before participation. Finally, to ensure ethical consideration, the control group received the same intervention after the end of this study.

Intervention

The intervention was ten weekly sessions of counseling with a CBT approach – based on the ABC model- in a group setting with an emphasis on QOL. The intervention lasted ten sessions for 2.5 months. A 90-minute session was held each week. The contents of the sessions were verified by faculty members from different disciplines, including Social work, Psychiatry, and Clinical Psychology at Allameh Tabataba'i University. Details of the protocol are summarized in Table 1.

The questionnaire in this study had two parts: the first part included socio-demographic characteristics, including age, educational level, employment status, and cause of infection. The second part was the Iranian version of the Multidimensional Quality of Life Questionnaire for HIV/AIDS (MQoL-HIV) (Kemmler et al., 2003; Smith, Avis, Mayer, & Swislow, 1997). MQoL-HIV is a 31-item self-report questionnaire with five dimensions of mental health, physical functioning,
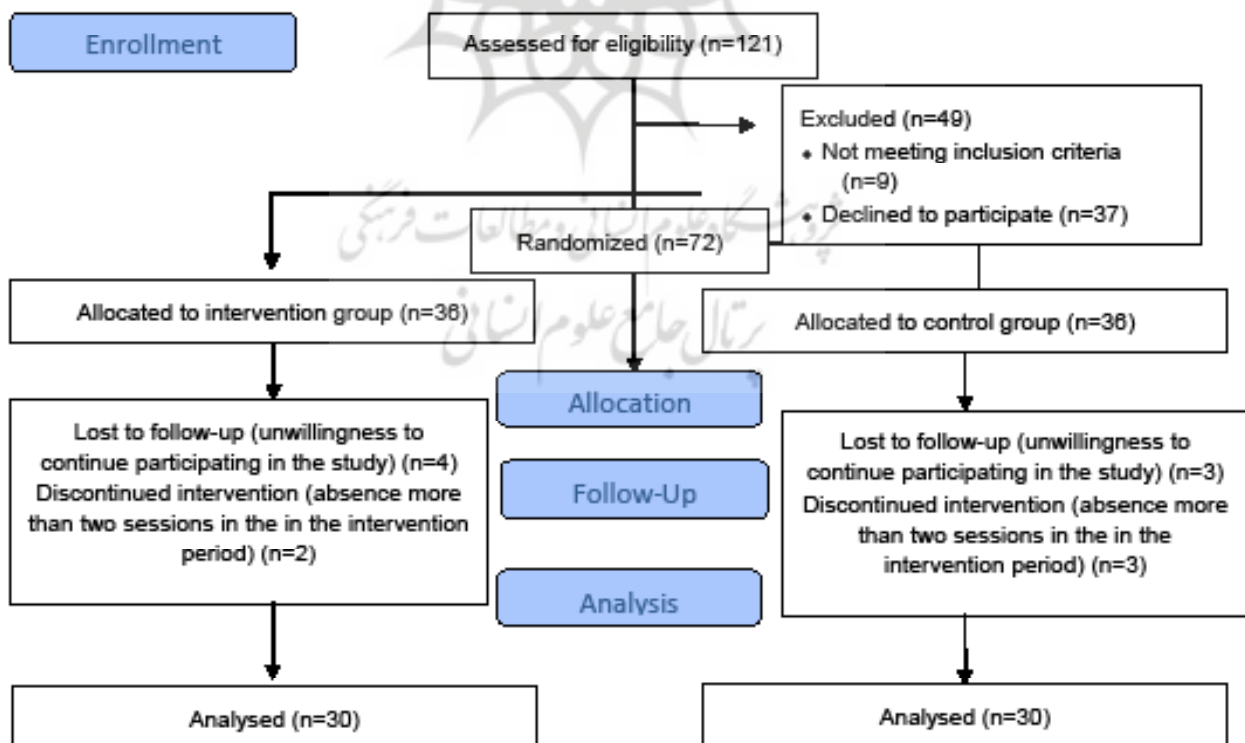
Figure1. Consolidated Standards of Reporting Trials (CONSORT) flow diagram of study

interpersonal relationships, cognitive functioning, and relationship with spouse. The validity of the questionnaire was approved through face validity, and its reliability was verified through internal consistency. The internal reliability coefficient of the subscales (using Cronbach's alpha coefficient) was 0/88, the highest value of which is related to

and post-test as well as intervention and control groups. In all tests, a P-value of ≤0.05 was reported significant.

Results

The average age of participants in the intervention group was 40.01 ± 5.71 years, and the control group

Table2. Demographic characteristics in both intervention and control groups

Groups	Control n=30 (%)	Intervention n=30 (%)	Chi Square test Value (p-value)
Age (year)			6.20 (0.29)
20-30	5	6	
30-40	13	12	
≥40	12	12	
Educational level			4 (0.55)
Primary school	12	9	
Secondary school	7	7	
High school	11	14	
Employment status			1.33 (0.72)
Employee	12	16	
Unemployed	18	14	
Cause of infection			6 (0.11)
Sexual contact	21	18	
Shared syringe	9	12	

the interpersonal relationship sub-scale with 93% and the lowest of which is to the cognitive function subscale with 71% (Orzolla & Moradi, 2006; Rasafiani et al., 2020; Sanagouye Moharer, Raisi, & Sultan Ahmadi Moghaddam, 2018). The scoring is based on a 5-point Likert scale with options from low (code 1) to high QOL (code=5).
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Data analysis

Descriptive statistics, including mean, standard deviation (SD), and frequency, were provided for all variables. ANCOVA was used to compare pre

was 38.59 ± 5.82. Regarding employment status, 55% of the intervention group and 40% of the control group were employed. All women had part-time jobs such as packaging and cleaning services. The women under study have been covered by the association for six months to 5 years. Also, the range of participants' responses about the duration of the disease was between 9 months to 7 years. There were no significant differences between the two groups concerning age, educational level, employment status, and cause of infection.

There is a difference between the two groups in terms of QOL after the intervention (Table 3). After the intervention, QOL in the intervention group

(M=103.95) is higher than in the control group (M=50.45).

Table 3. QOL scores in the intervention and the control group

Groups	Stages	Mean	SD
Intervention	Pre-test	56.41	12.91
	Post-test	103.95	12.78
Control	Pre-test	53.50	11.98
	Post-test	50.45	10.16

To check the statistical significance of this difference, ANCOVA was employed. Assumptions were checked. The result of the Kolmogorov-Smirnov test was not significant (P > 0.05), which shows the data is distributed normally. The results of Leven's analysis were not meaningful (F (1) = 2.34, P>0.05). Then homogeneity of variance is confirmed. Also, the assumption of homogeneity of regression slopes was confirmed for relationships

between QOL and pre-test (F (1) = 4.15, P>0.05). Based on covariance analysis, the intervention group had a significantly higher QOL score than the control group after the intervention (F (1) = 4.75, P<0.05) (Table 4). S0, the hypothesis was confirmed with a 39% effect size, demonstrating that 39% of score changes in the QOL are related to CBT intervention.

Discussion and conclusion

WLWH are among the most vulnerable social groups who need the social work profession's service and advocacy. This group faces many problems and obstacles in their individual, family, and social life affecting their well-being, self-efficacy, mental health, and quality of life (Törrönen et al., 2013). Therefore, improving their quality of life through social services is imperative for social workers.

The findings indicated a significant difference

Table 4. Comparison QOL and its subscales in both intervention and control groups

QOL	Groups	Before intervention Mean ± SD	After 1 month of intervention Mean ± SD	After 3 months of intervention Mean ± SD	P value (between before and 1 month)	P value (between one and 3 month)
Mental health	Intervention	8.20 ± 3.15	11.90 ± 2.55	12.81 ± 2.16	p < 0.001**	0.01**
	Control	7.15 ± 1.81	6.60 ± 1.88	6.99 ± 1.87	0.18**	0.48**
	-	*p = 0.34	*p = 0.02	*p = 0.03	-	-
Physical function	Intervention	13.10 ± 5.81	24.90 ± 4.53	22.82 ± 4.56	0.01**	0.02**
	Control	13.05 ± 4.22	11.65 ± 2.48	12.05 ± 1.54	0.78**	0.22**
	-	*p = 0.54	*p < 0.001	*p < 0.001	-	-
Interpersonal relationships	Intervention	12.70 ± 5.32	25.15 ± 2.83	24.85 ± 2.77	p < 0.001**	p < 0.001**
	Control	12.35 ± 2.75	11.95 ± 2.67	13.55 ± 2.31	0.89**	0.20**
	-	*p = 0.67	*p < 0.001	*p < 0.001	-	-
Cognitive function	Intervention	7.00 ± 1.95	14.30 ± 2.34	15.40 ± 2.74	p < 0.001**	0.01**
	Control	7.75 ± 3.16	6.90 ± 2.29	7.35 ± 2.48	0.44**	0.23**
	-	*p = 0.88	*p < 0.001	*p = 0.00	-	-
Relationship with spouse	Intervention	14.65 ± 5.74	27.70 ± 3.42	26.45 ± 4.72	0.02**	0.04**
	Control	13.95 ± 4.65	13.35 ± 4.56	13.20 ± 3.51	0.62**	0.14**
	-	*p = 0.59	*p = 0.02	*p = 0.02	-	-
Total score of QOL	Intervention	56.41± 20.91	103.95± 12.78	102.30± 11.15	p < 0.001**	p < 0.001**
	Control	53.50± 11.98	50.45± 10.16	53.10±7.73	0.59**	0.17**
	-	0.67	*p < 0.001	*p < 0.001	-	-

*Independent-samples t-test, ** Paired-samples t-test

Table 5. Covariance analysis

Variable	Source	Sum of squares	df	Mean square	F	P	Partial Eta Squared
	Pretest	1129.96	1	1129.96	5.73	0.022	0.47
Quality of life	Group	936.73	1	936.73	4.75	0.036	0.39
	Error	312.24	38	8.21			
	Total	2378.93	41				

between the control and intervention groups in QOL after the CBGT intervention; therefore, the main hypothesis of the study is confirmed. CBGT was found to be an effective intervention in improving self-motivation, mental health, coping with mental conflicts, personal and social capacity, and social participation among WLWH.

The findings of this study are consistent with several studies (Gupta et al., 2013; Kahrazei, Danesh, & Azadfallah, 2011). They found that CBT intervention improves the QOL among chronic patients. For example, Kahrazei et al. (2011) showed that CBT intervention could promote the quality of life of cancer patients. The results of other studies also showed that this intervention improves the participants' physical activity (Cosio, Jin, Siddique, & Mohr, 2011; Tsiros et al., 2008).

In line with Ellis's cognitive theory, emotional reactions and lifestyles are related to basic beliefs. CBT helps people enhance their QOL by identifying and challenging irrational ideas and practicing rational beliefs (Cary & McMillen, 2012). It also can help individuals develop problem-solving skills and achieve insight and capacity to change their lifestyles. In addition, it causes WLWH to get the knowledge and skills necessary for better interpersonal relationships, mental status, physical functioning, and spousal relationships. All this ultimately leads to better QOL.

All in all, according to the results of these findings, it can be said that women living with HIV face many problems: cognitive problems, social exclusion, and lack of understanding by others, as well as social and cultural problems. In addition to these issues, also due to this particular disease,

psychological and social pressure is added to their physical disorders, and in general, it can be said that they are apprehensive about those who report HIV to those around them. This, in turn, distances them from others and relatives and, as a result, reduces their social support. One of the significant factors in these women is paying attention to the quality of life and its life characteristics. In the present study, group intervention with a cognitive-behavioral approach has been used to improve it.

Recommendations of this study to social workers include:

- Providing individual and group counseling and CBT sessions to help PLWH accept the disease, encourage them to engage in the treatment, and create hope for them.

- Delivering trainings around life skills (e.g., problem solving skills and coping strategies) to PLWH.

This study was limited to WLWH in Tehran, and hence its generalizability to other PLWHs, including men or women in other cities of Iran, is not possible. For future studies, it is recommended to examine other groups of PLWH in this country. In addition, the data in this study were self-reported, which might cause social desirability bias. To minimize biases, the researchers explained the intervention plan, its goals, benefits, and drawbacks to participants once they became involved in the study. In addition, due to time constraints, the follow-up stage was performed one month after the intervention.

Conclusions

According to the results of this study, cognitive

behavioral group therapy (CBGT) enhanced the QOL of WLWH in Tehran, which should be considered a necessary intervention by social workers when working with WLWH.

Conflict of interest

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

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