

The effect of cognitive-behavioural therapy on the reproductive health of women with HIV: a randomised controlled trial

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Abstract

Introduction: Acquired immune deficiency syndrome (AIDS) is generally related to reproductive health and is most commonly transmitted through injection addiction, sexual relationship, pregnancy, and breastfeeding. Therefore, the promotion of reproductive health of women with human immunodeficiency virus (HIV) is very important. The aim of this study was to investigate the effect of counselling on cognitive-behavioural therapy (CBT) on reproductive health in women with HIV.

Material and methods: This randomised controlled trial was conducted in 2017. Sixty HIV-infected women who referred to Imam Khomeini Hospital Consultation Centre for clients with risky behaviour in Tehran participated in this study. The sampling method was census, and samples were randomly assigned to two groups: control and intervention. In addition to routine care, the intervention group received seven cognitive-behavioural counselling sessions on reproductive health. The questionnaire used in this study was a reproductive health assessment scale for HIV-positive women.

Results: There was no statistically significant difference between the demographic characteristics in the control and intervention groups. The result of repeated measures test showed that the length of time affects the total score of reproductive health ($p < 0.000$) and there was a significant difference between the two groups ($p < 0.000$).

Conclusions: It is suggested that CBT counselling approaches be included in educational programs for the health of women with HIV. Given the widespread dimensions of reproductive health, counselling with a cognitive therapy approach in each dimension with the number of further sessions is suggested.

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Introduction

About 1.9 million adults are infected with human immunodeficiency virus (HIV) every year, and 10.5% are aged between 15 and 49 years, of which 1.4 million are women. Approximately 220,000 cases of infection occur during pregnancy and breastfeeding [1]. According to registered persons, acquired immune deficiency syndrome (AIDS) in Iran has been reported in 34,949 people as of April 1, 2017, and more than 50% of cases occur at an age when the person is sexually active [2]. With the increase in HIV-positive women and the increased life expectancy associated with the use of antiretroviral drugs, there is a need for more knowledge about the reproductive health of infected women [3]. HIV/AIDS is generally related to reproductive health and is the most commonly transmitted through sexual relationship, pregnancy, and childbirth [4]. Therefore, promoting the reproductive health of HIV-positive women is very important [5]. Women's reproductive decisions are influenced by their culture, especially women living in societies in which the value of women is related to childbearing [3]. Women with HIV also have to be aware of their sexual and reproductive rights, they must have access to medical consultants and services to facilitate informed decision making on reproductive health [6]. With prevention of mother-to-child transmission (PMTCT), the risk of transmission from mother to child is reduced from 15-45% to 2% [7]. New recommendations for safe abortion, HIV disclosure skills, empowerment and self-efficacy interventions, and identification of key research gaps are parts of the World Health Organization (WHO) guidelines process for HIV-positive women [8]. AIDS and reproductive health are the common root causes of such things as poverty, gender inequality, and the social marginalisation of vulnerable populations [9, 10]. Sometimes, due to the disclosure of HIV status, patients are condemned by the family for immoral practices and breaking sexual norms [11]. Stigma and discrimination are key barriers to sexual and reproductive health and are also causes of fear, anxiety, and non-disclosure of HIV status [12].

The need for counselling on reproductive health services is a part of the treatment and care of standard HIV services for people with AIDS [13]. Cognitive-behavioural therapy (CBT) is one of the various approaches to deal with AIDS-related mental health emotions; it helps the patient to identify others, their environment, and the problems that disturbed them, and to create new thoughts in the person that makes it possible to have better manner [14]. Through CBT, it is possible to influence the health, quality of life [15], physical health, substance abuse [16], depression and adherence to treatment [17], immune system, disease progression [18], nausea in antiretroviral therapy (ART) drug use [19], stress disorders, and insomnia in people with HIV [20].

Providing a framework for planning through better protection, support, and realisation of the sexual and reproductive rights of women with HIV can be helpful [21]. In a study to assess the reproductive health needs of people

with HIV, the results of the study showed the requirement for counselling and support on reproductive and sexual health [22]. In another study that looked at the fertility intentions of women with HIV, it was shown that these tendencies are affected by the health care system, previous pregnancy experiences, and support for health care providers and relatives [23]. Such interventions are designed to increase women's sexual and reproductive decision making and related health outcomes. However, although some interventions have been evaluated, the effectiveness of CBT has not been assessed.

Material and methods

This study was a randomised controlled trial study. Participants in this study were all women with HIV, who referred to counselling centres for high-risk behaviours in Imam Khomeini Hospital in Tehran. This centre is the referral counselling centre, and people come to the centre from different parts of the province and even the country. Three hundred women with HIV have registered in this centre. After consulting with health providers in this centre, it was revealed that there were 66 participants in the centre, who had inclusion criteria for participation in the study, and some people only receive medication and refer to this centre to hide their disease in their cities and do not have enough time to participate in counselling session. Hence, the sample size in this study was 66 women by census method. Inclusion criteria for study were: being Iranian, being in the reproductive age of 15-45 years old, having the ability to read and write, and being sexually active. And the criteria of exclusion were: severe addiction such that they had no ability to respond to the questions, having a history of psychiatric disorders confirmed by a doctor, having advanced stages of the disease, and not attending more than three sessions of training classes. One woman who did not want to participant in study and five women who did not participant in more than three sessions of counselling were excluded from the study (Fig. 1). Thirty women participated in the control group and 30 women participated in the intervention group. Sampling lasted from April to August 2017. The researcher was a student in MS counselling midwifery and in the skills of CBT, and had received the necessary training. After obtaining necessary permission from the faculty and the university, each participant was called by phone and after explaining the objectives and obtaining oral consent, the samples, according to recorded file, were randomly assigned to two groups by table numbers. After determining the groups, and before the study started, written consent was obtained from each woman, and before the beginning of the intervention, the total scores of reproductive health and factors in the two groups were determined by questionnaire.

The questionnaire in this study had two parts: the first part included the demographic characteristics, and the second part comprised the reproductive health questionnaire of women with HIV. This questionnaire had 36 questions, including six factors (physical and parental concerns, social

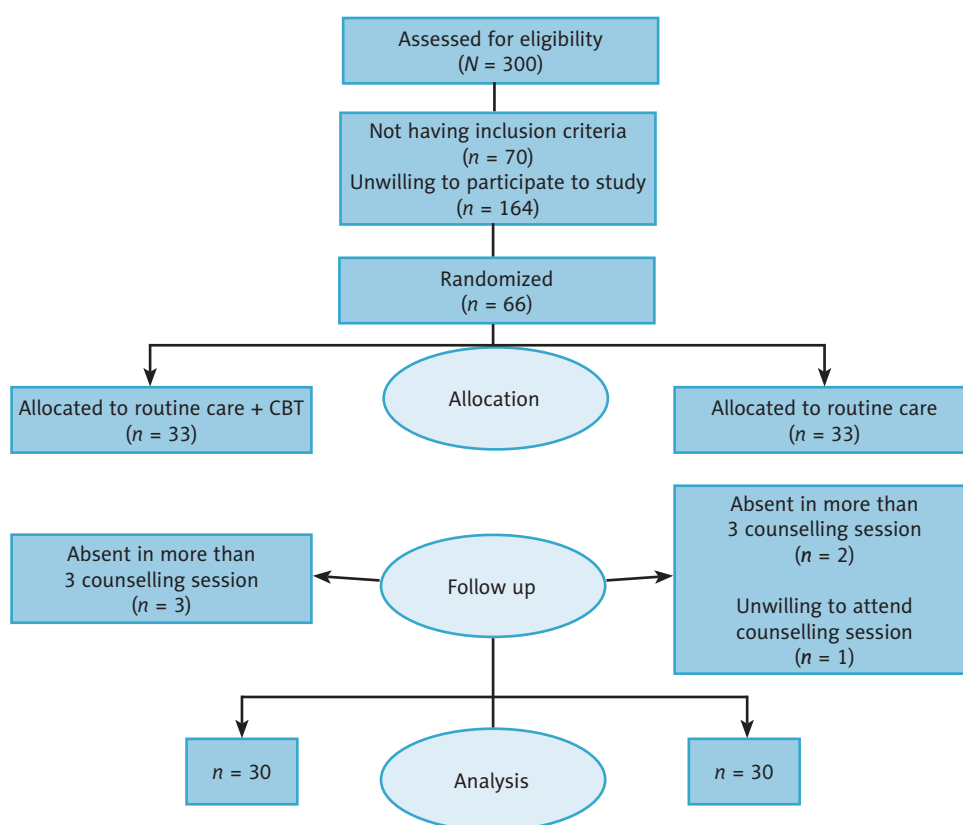


Figure 1. Consort flow diagram of study

problems and disclosure status, life instability and sexual issues, psychological concern, coping with HIV, and responsible sexual behaviour). Cronbach's α coefficient for the reliability of this questionnaire for all dimension was 0.713, and its external reliability as evaluated by the test-retest method and intra-class correlation was 0.952 [5]. Before, after, and one month after the intervention, reproductive health scores were analysed.

The intervention group had seven sessions of counselling with a CBT approach on reproductive health, which lasted for 90 minutes twice a week. The content of the sessions was approved by the faculty members of the Department of Midwifery, Psychiatry, Psychology, and Infectious Diseases of Alborz University and included the following:

- session 1: discussion about the person's attitudes and behaviour in relation to reproductive health and feelings that they have experienced,
- session 2: awareness of the effects of the disease on the individual's body, the ways to cope with it, the changes and discomforts experienced by the patient, and with those problems,
- session 3: explaining about the psychological problems that people have encountered, the person's mindset about the disease, and the feelings that she has experienced with the disease; an explanation of the psychological empowerment strategies of the person,

- session 4: an explanation of the pregnancy and the way of preventing PMTCT, childbearing intentions and thinking about it, experiences with previous pregnancy, and pregnancy morbidity,
- session 5: increasing awareness about sexual relations, brief training of the sexual response circle, the impact of HIV on sexual relationships, strategies for improving sexual relations, attitudes about sex and the problems faced with this, experiences of sexual health, and dealing with sexual problems,
- session 6: expressing issues of self-disclosure to a partner, family members, and others, counselling on ways to prevent transmission to sexual partners and others,
- session 7: understanding the way people think about responsible behaviour, and the problems facing the person, the need to communicate with the family, the reasons for disconnection with the family, and an explanation about finding discrimination and stigma reduction.

In order to observe the ethics in the research, control group participants received a handbook with advice, given after the study.

Results

Table 1 shows the demographic characteristics of the subjects participating in the study. There was no significant dif-

Table 1. Characteristic of HIV positive women

Variable	Intervention	Control	<i>p</i> value
	Frequency (%)	Frequency (%)	
Age			
20-24	0 (0.0)	2 (6.7)	0.8*
25-29	6 (20.0)	2 (6.7)	
30-34	4 (13.3)	4 (13.3)	
35-39	8(26.7)	13 (43.3)	
40-45	12 (40.0)	9(30.0)	
Education			
Primary school	7 (23.3)	5 (16.7)	0/5**
Secondary	8 (26.7)	4 (13.3)	
High school	6 (20.0)	6 (20.0)	
Diploma	7 (23.3)	11 (36.7)	
University	2 (6.7)	4 (13.3)	
Job			
House keeper	19 (63.3)	20 (66.7)	0.5***
Jobless	6 (20.0)	4 (13.3)	
Worker	0 (0.0)	1 (3.3)	
Employer	3 (10.0)	1 (3.3)	
Self-employment	2 (6.7)	4 (13.3)	
Currently living child			
No child	11(36.7)	9(30.0)	0.0****
1	8 (26.7)	8 (26.7)	
2	7 (23.3)	12 (40.0)	
3	3 (10.0)	1 (3.3)	
4 and more	1 (3.3)	0 (0.0)	
Infected child			
Dose not have a child	27 (90.0)	26 (86.7)	0.6**
Have a child	3 (10.0)	4 (13.3)	
Partners status			
Positive	18 (60.0)	16 (53.3)	0.8***
Negative	10 (33.3)	10 (33.3)	
Transmission			
Spouse	22 (73.3)	19 (63.3)	0.2***
Addiction	0 (0.0)	4 (13.3)	
Sex with others	4 (13.3)	3 (10.0)	
Others	4 (13.3)	4 (13.3)	
Marital status			
Single	11 (36.7)	9 (30.0)	0.9***
Married	15 (50.0)	17 (56.7)	
Divorcee	2 (6.7)	3 (10.0)	
Widow	2 (6.7)	1 (3.3)	
Unwanted pregnancy			
Positive	11 (36.7)	13 (43.3)	0.4***
Negative	19 (63.3)	17 (56.7)	

Table 1. Cont.

Duration of HIV			
Under 1 year	0 (0.0)	2 (6.7)	0/1***
2-5 years	22 (73.3)	15 (50.0)	
6-10	4 (13.3)	10 (30.0)	
10 years and more	4 (13.3)	3 (10.0)	
Addiction			
Yes	3 (10.0)	4 (13.3)	0.1***
No	27 (90.0)	26 (86.7)	
Treatment status			
On antiretroviral treatment	26 (86.7)	28 (93.3)	1.0 **
Not on antiretroviral treatment	4 (13.3)	2 (6.7)	
Use of contraception			
Positive	22 (73.3)	22 (73.3)	1.0***
Negative	8 (26.7)	8 (26.7)	
Type of contraceptive			
Tubectomy	0 (0.0)	2 (6.7)	0.1
Injectable	1 (3.3)	0 (0.0)	0.4
Male condom	17 (56.7)	20 (66.7)	0.6
Withdraw	2 (6.7)	2 (6.7)	1.0
Pill	3 (10.0)	0 (0.0)	0.2
None of them	8 (26.7)	8 (26.7)	-
Dual peventionation			
Yes	1 (3.3)	2 (6.7)	0.7***
No	29 (96.7)	28 (93.3)	
Number of sex partner			
One person	14 (46.6)	13 (43.3)	0.2***
More of one person	16 (53.4)	17 (56.7)	

*Independent samples test, **Fisher test, ***Pearson χ^2 test, ****Mann-Whitney U test

ference between the demographic characteristics in the control and intervention groups.

The result of the repeated measures ANOVA showed that the score of parental and physical concerns did not change over time ($p < 0.217$), but there was a significant difference between the two groups ($p < 0.000$). The result of repeated measures test showed that time length affected the scores of social problems and the disclosure of the disease ($p < 0.000$), and there was a significant difference between the two groups ($p < 0.000$). The result of the repeated measures test revealed that time length influenced the psychological concern ($p < 0.02$), and there was a significant difference between the two groups ($p < 0.000$). The result of the repeated measures showed that the responsible behaviour score was not changeable during the time ($p < 0.21$), and there was no significant difference between the two groups ($p < 0.13$). The result of repeated measures test showed that the length of time influenced the score of psychological concern, and there was no significant difference

between the two groups in terms of life instability and sexual issues ($p < 0.14$ vs. $p < 0.001$). The result of the repeated measures test showed that the length of time influenced the score of coping with HIV ($p < 0.000$) and there was a significant difference between the two groups ($p < 0.000$). The result of repeated measures test showed that the length of time affected the total score of reproductive health ($p < 0.000$), and there was a significant difference between the two groups ($p < 0.000$) (Table 2).

Discussion

The results of the present study show the impact of counselling on the reproductive health of women with HIV, apart from the dimension of responsible behaviour.

In this study, one of the factors of reproductive health was parenting and physical concerns in HIV-infected women. Consultation with CBT had a positive effect on this dimension ($p < 0.000$).

Table 2. Results of repeated measures in measuring three times of the reproductive health and factors score

Variable	Group	Mean \pm SD Before	Mean \pm SD After	Mean \pm SD One month after	Repeated measure	
					Within group	Between group
Physical and parental concerns	Intervention	12.3 \pm 5.3	15.2 \pm 4.8	15.4 \pm 5.1	F = 1.5 <i>p</i> = 0.217	F = 21.7 <i>p</i> = 0.000
	Control	11.7 \pm 4.1	10.3 \pm 3.7	8.9 \pm 2.7		
Social problems and HIV disclosure	Intervention	12.2 \pm 4.9	14.5 \pm 4.9	19.4 \pm 5.4	F = 45.3 <i>p</i> = 0.000	F = 16.0 <i>p</i> = 0.000
	Control	12.1 \pm 4.2	10.3 \pm 4.0	13.5 \pm 3.5		
Psychological concern	Intervention	23.4 \pm 6.5	27.7 \pm 7.4	27.0 \pm 7.6	F = 4.1 <i>p</i> = 0.02	F = 11.1 <i>p</i> = 0.000
	Control	22.2 \pm 6.1	21.7 \pm 5.9	19.6 \pm 6.1		
Responsible Behavior	Intervention	25.8 \pm 11.3	27.5 \pm 3.3	27.6 \pm 5.1	F = 1.5 <i>p</i> = 0.21	F = 2.1 <i>p</i> = 0.13
	Control	23.1 \pm 5.4	24.4 \pm 4.9	20.9 \pm 4.2		
Instability of life and sexual issues	Intervention	8.9 \pm 2.6	10.2 \pm 2.9	10.7 \pm 3.0	F = 1.9 <i>p</i> = 0.14	F = 1.7 <i>p</i> = 0.001
	Control	9.4 \pm 2.4	9.4 \pm 2.2	8.5 \pm 2.2		
Coping with disease	Intervention	25.3 \pm 6.1	33.0 \pm 4.7	32.1 \pm 5.5	F = 23.1 <i>p</i> = 0.000	F = 16.1 <i>p</i> = 0.000
	Control	24.0 \pm 6.2	24.3 \pm 7.6	25.2 \pm 5.9		
Total score of reproductive health	Intervention	115.3 \pm 24.2	122.0 \pm 20.5	132.1 \pm 21.9	F = 10.9 <i>p</i> = 0.000	F = 24.4 <i>p</i> = 0.000
	Control	103.5 \pm 18.2	100.5 \pm 17.3	96.5 \pm 18.5		

Today, HIV-positive women have controversies in receiving information on fertility. One such problem is that antiretroviral drugs reduce the risk of a vertical transmission of the virus from mother to foetus, and as a result, women hope for pregnancy and having a healthy child. In contrast, the stigma of HIV has a negative effect [24]. Additionally, the physical problems of infected people who are exposed to recurrent infections due to immunosuppression have an impact on their ability to work, and this affects the economic status of individuals and their reproductive tendencies and poses the possibility of high-risk sexual behaviours for their livelihood [23]. A study showed the positive effect of intervention with a cognitive-behavioural approach to stress management along with supportive therapies on people with HIV in health behaviours such as nutrition, physical activity, sexual relations, and tobacco use compared to pre-intervention [25]. One of the other factors of reproductive health was social problems, and the disclosure of disease in HIV-positive women while counselling on the cognitive-behavioural therapy approach had a positive effect on this dimension ($p = 0.000$). AIDS is a social and political issue [26]. Stigma, discrimination, lack of information, and lack of access to health services lead to non-testing of HIV/AIDS [27]. A study that was conducted through mobile phones to reduce the stigma, focusing on increased self-esteem and coping with AIDS, showed increased self-esteem in exposure to the stigma and coping with HIV [28]. Another study showed the positive effect of counselling in AIDS patients regarding disclosure of their HIV status and use of contraception [29].

Another factor of women's reproductive health was psychological concerns, which included the psychological state of individuals and their lives. Consultation with a cognitive-behavioural therapeutic approach had a positive effect on

the mental health issues of HIV-positive women ($p < 0.000$). Women with HIV are more likely to be exposed to more problems than men due to more gender-related mental health problems. In a study conducted in 2015, the rate of depression and anxiety in HIV-positive women was reported to be higher than in men, and levels of depression among single, divorced, and widowed women were higher than in married women [30]. A study in Uganda showed that psychosocial counselling had no effect on the symptoms of depression in infected people but was associated with decreased anxiety in young people [31]. The results of a study in Zimbabwe showed the positive impact of psychosocial counselling on increasing self-acceptance in people with HIV [32]. The results of another study also showed that educational intervention increased problem-solving skills, decision-making power, and hope for the future in people with HIV, as well as improving mental health [33]. Other factors affecting the reproductive health dimensions of HIV-positive women were the instability of life and sexual issues, which included the quality and satisfaction of sexual relations and marital satisfaction. Consultation with cognitive-behavioural therapy had a positive effect on this factor ($p < 0.001$). Sexual satisfaction is directly related to the quality of life and the quality of sexual relationships [34]. A study on HIV-infected people has reported that nearly 75% of participants in the research over the past 12 months were sexually active [13]. Other studies showed that many HIV-positive people had a reduced sexual desire as a result of fatigue, physical weakness, and depression associated with the disease [35]. Also, sexual desire may be reduced by the fear of contamination with other types of virus [36]. A study found that HIV-infected people need counselling about sex action and sexual satisfaction [37].

Another factor of reproductive health in HIV-positive women was coping with the disease. In this study, the support of the spouse, relatives, other patients, physicians and health care providers, spiritual health and relationship with God lead to acceptance of HIV. Cognitive-behavioural counselling increased the ability to cope with HIV ($p < 0.000$). The results of this study showed the effect of interventions on negative coping strategies, such as alcohol and drug usage, and the positive effect in coping strategies, such as the acceptance of the disease, reducing risky behaviours, and increasing the role of women in the sexual decision-making process [38].

Another factor of reproductive health of HIV-positive women was responsible behaviour. The results of the study showed that counselling with a cognitive-behavioural therapy approach did not affect this dimension ($p < 0.13$). In various studies, it has also been shown that one quarter to three quarters of HIV-positive women do not consistently use condoms in their sexual relationships [39]. The use of condoms, in addition to preventing unwanted pregnancy, prevents the transmission of the virus to the partner, which prevents the spread of disease and increases their reproductive rights [40].

In a study, counselling for people with HIV reduce was seen to the number of sexual partners and increase the consistency of condom use [41]. Also, many studies have shown the impact of counselling on increasing the use of condoms in people with HIV [42-44]. The results of these studies are not consistent with the present study. Also, a study showed that counselling interventions do not have an impact on the consistent use of dual contraceptive methods [33]. The results of this study were consistent with the present study. Because the health of people with HIV is very different from that of non-infected people, people with HIV face many challenges that are affected by the community and the stigma of the disease. Responsible behaviour of infected people is affected by communities and existing policies [45]. Therefore, training in this factor for both patients and health care providers as well as for the entire community is necessary. The results of the study showed that counselling with a cognitive-behavioural therapy approach had a positive effect on the total reproductive health score of HIV-positive women ($p < 0.000$).

The results of interventional studies have been shown to have a positive cognitive-behavioural therapy approach on reproductive and sexual health [46]. The results of the study showed that the total reproductive health score increased more one month after the intervention than immediately after the intervention, which was one of the research limitations, i.e. in the post-intervention follow-up, the researcher was not able to control the contribution of HIV-infected women in the training sessions by other researchers at the centre of high-risk behaviours of the Imam Hospital.

Conclusions

The results of this study show that counselling with a cognitive-behavioural therapy approach has a positive effect on reproductive health. Therefore, it is recommend-

ed that, given the multidimensional aspect of reproductive health of infected women, counselling with a cognitive behavioural therapy approach in each dimension should be conducted with a greater number of sessions. Also, intervention programs are designed for stigma and discrimination reduction in women with HIV, because these factors effect the reproductive health of HIV-positive women.

Conflict of interest

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

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