RESEARCH ARTICLE

Impact of Cognitive-behavioral Counseling on Attitudes of Childless Couples: A Mixed Face-to-Face and Virtual Intervention Trial

Faezeh Soltani[1], Katayon Vakilian[2,*] , Mostafa Nokani[3] and Naimeh Akbari Torkestani[4]

[1]*Department of Midwifery, School of Medicine, Arak University of Medical Sciences, Arak, Iran*
[2]*Department of Midwifery, School of Medicine, Traditional and Complementary Medicine Research Center (TCMRC), Arak University of Medical Sciences, Arak, Iran and Basij Square, Peyambare-Azam campus, Arak University of Medical Sciences, Arak, Iran*
[3]*Department of Psychology, School of Medicine, Arak University of Medical Sciences, Arak, Iran*
[4]*Department of Midwifery, School of Medicine, Arak University of Medical Sciences, Arak, Iran*

Abstract:

Background: Considering the declining trend in population growth in many countries, Iran is no exception. Therefore, effective interventions for couples' desire to have children should be developed and employed in the early years of marriage.

Aim: This study sought to answer the question of whether counseling can change the negative attitude of couples towards having a child.

Objectives: This study aimed to investigate the effect of a combined method of counseling with a cognitive-behavioral approach on the attitude of childless couples.

Methods: The present study is an educational trial conducted with a control group of couples with no child, who were referred to the health centers in Qom, Iran. The intervention group (n=20) received cognitive-behavioral counseling in 60-minute sessions for 6 weeks (twice a week) using a combined face-to-face and virtual method *via* the Eitaa social application. The participants in the control group (n=19) received no intervention program. Attitude was measured in 3 stages using the questionnaire on childbearing attitudes. SPSS 22, independent t-test, Fisher's test, Chi-square test, and repeated measurement were used to analyze the data.

Results: Total attitude in the intervention group increased from 49.25 to 63.85 in the same period, which was within the range of positive attitude (more than 50% of total score) (p=0.01), and it remained within the range of negative attitude (less than 50% of the total score) for the control group. Moreover, the attitudes of the two groups were significantly different (p=0.03).

Conclusion: Since the participants' attitude towards childbearing before the intervention was negative and changed to a positive attitude after the intervention, healthcare providers and midwives are suggested to use this method in the clinical setting.

Keywords: Reproductive health, childbirth, education, birth counseling.

*Address correspondence to this author at the Department of Midwifery, School of Medicine, Traditional and Complementary Medicine Research Center(TCMRC), Arak University of Medical Sciences, Arak, Iran and Basij Square, Peyambare-Azam campus, Arak University of Medical Sciences, Arak, Iran; Tel: 09123249840; E-mail: dr.kvakilian@arakmu.ac.ir

1. INTRODUCTION

Childbearing is one of the most important phases of a woman's life. Fertility is an important demographic aspect, which can change the traditional structure of a society [1]. The causes for having children are not always voluntary but are mostly influenced by conditions [1]. Having children in the early years of marriage is considered a threat for some couples. Loss of freedom, leisure time, and travel opportunities lead them to delay fertility. Over time, such an attitude may change, and they may feel they would like to have children [2]. Researchers argued about different factors influencing the delay in childbearing. Economic development, industrialization, urbanization, and changes in personal and social values and norms have also been identified as factors influencing the decline in fertility [3, 4].

One of the most important factors influencing childbearing is attitude. Attitude, which refers to a person's overall evaluation of a concept, is considered an important mechanism that affects the timing of parenting in many theories on childbearing behavior. It seems that changes in couples' childbearing behaviors may be due to major changes in their attitude toward having children [5]. Experiential studies have indicated that individualism in couples' relations is negatively associated with the desire to have children [6]. A study in Iran reported that having the first child is more influenced by the attitude towards childbearing and the normative pressure of reference groups than the access to economic resources and support required for having children [7].

A better understanding of influential factors of childbearing behaviors can help counselors provide couples with more appropriate and effective suggestions and measures. Therefore, examining the attitude of youth at the beginning of marital life can contribute to predicting their behavior in the future. Negative opinions about childbearing can be appropriately corrected by using timely interventions [5]. More studies have been focused on identifying different factors of failure in childbearing as well as the number and gender of children [8-10]; however, only a few studies have investigated the attitudes of people toward childbearing [11].

An effective method that changes attitudes is the cognitive-behavioral approach. Cognitive development and the study of cognition and thinking have significant effects on changing people's attitudes [12]. Indeed, cognitive-behavioral therapy is based on the idea that one's thinking, thought patterns, perception of the surroundings, oneself, and personal understanding of life events stimulate behaviors and feelings. Cognitive group counseling can cause great changes in one's beliefs, feelings, and behaviors. On the other hand, people in groups with the same problems feel safer and more comfortable, tend to discuss their personal and family problems, and use others' experiences in a more reliable environment [13].

Cognitive behavioral therapy can help people create positive changes in their feelings and behaviors [14]. The Iranian society has experienced considerable economic and social changes, causing changes in fertility behaviors and attitudes. Moreover, different lifestyles have led to a decline in childbearing [15].

Since there has been no similar study on the effectiveness of cognitive behavioral therapy in attitudes of couples, the present study aimed to determine the effect of cognitive-behavioral counseling in changing childbearing attitudes in childless couples.

2. METHODS

2.1. Research Type

The present study is an educational trial conducted on childless couples who were referred to comprehensive health centers in the city of Qom, Iran, in 2023. The city is divided into three parts: north, center, and south, and 2 centers were randomly selected from each part.

2.2. Population

The population of the present study consisted of 40 couples referring to the comprehensive health centers. The inclusion criteria were negative attitudes of couples (less than 50% of the total score), females the age range between 18 and 35 years old, Iranian nationality and living in Qom Province, literacy to use virtual space, absence of physical and mental disabilities, marital life for more than 6 months, absence of any history to have children, using modern contraceptive methods, absence of acute and chronic diseases, absence of drug abuse and high-risk sexual behaviors in couples, and stability in family life.

The exclusion criteria were unwillingness to continue the study (absenteeism for more than 60 minutes in the course) and unwanted pregnancy for any reason.

2.3. Sample Size

According to a study by Khodakarami *et al.* [16] and considering the effect of group counseling on attitude towards childbearing as a basic element of life, the mean and standard deviation, and power and type 1 error ($\alpha=0.05$, $\beta=0.20$, $\mu_1=28.76$, $\mu_2=24.48$, $SD_1=4.11$, and $SD_2=4.69$), the sample size was calculated to be 20 in each group of intervention and control by using the following formula:

$$n_1 = \frac{\left(z_{1-\frac{?\pm}{2}}+z_{1-?^2}\right)^2 (SD_1{}^2+SD_2{}^2)}{(?\frac{1}{4}_1-?\frac{1}{4}_2)^2} \tag{1}$$

2.4. Implementation

Using a convenient sampling method, the participants were selected from the SIB system and were included in the study after obtaining the written informed consent form. For sampling, the participants were called using the phone numbers registered in the system, and if they signed the written informed consent forms to participate in the study, the demographic questionnaire and the Persian version of the childbearing attitude questionnaire were loaded on the virtual space (Eitaa) and the couples

were asked to complete them. The couples with an attitude score lower than 50% of the total score were invited to attend face-to-face meetings. One hundred couples who met some of the inclusion criteria were called and asked to complete the childbearing attitude questionnaire. They were included in the study if their attitude score was low.

2.5. Randomization

The people with the inclusion criteria were randomly divided into two groups using randomized blocks: intervention and control. Randomization codes were generated using the computer software Randomizer, and randomized block sizes were 4 and 6 with 1:1 allocation. In total, 40 couples were included in the study (20 couples in each group).

2.6. Data Collection Method

All participants took the pretest, and the scores were recorded. The data were collected using the study tools, *i.e.*, demographic information and childbearing attitude questionnaire. The childbearing attitude questionnaire had 23 items and 4 subscales: children as the basic elements of life (8 items), children as barriers (6 items), postponing parenthood to advanced age (5 items), and fertility needs requirements (4 items). It was scored using a 5-point Likert scale (totally agree (5), agree (4), no idea (3), disagree (2), and disagree (1)) [5].

Cronbach's alpha coefficient was used to examine the reliability of the scale and the extracted themes. The data analysis of 294 studies showed that Cronbach's alpha coefficients of the factors of children as the basic elements

of life, postponing parenthood to advanced age, fertility needs requirements, and the total scale were 0.855, 0.772, 0.739, and 0.792, respectively, indicating good reliability of the Persian version of the scale and its extracted factors. The questionnaires were completed by the couples.

2.7. Research Conduction

The sessions were periodically held by an MA student of counseling in midwifery (one face-to-face session and one virtual session (a total of 12 sessions)) on Eitaa. The couples were required to attend the sessions. The participants in the intervention group (between 8-12 people) received the cognitive-behavioral therapy in 12 sessions (6 face-to-face group sessions) and 6 virtual sessions (*via* Eitaa) (for every single person). The contents were loaded in the voice form, and the couples discussed them. Furthermore, 60-minute face-to-face group sessions were held for 6 weeks (twice a week) using lectures, group discussion, asking questions to the counselor, and evaluating homework. Table **1** presents the contents of the intervention group. The control group received no intervention, and only the female participants received training by midwives of the centers if they needed and asked. It should be noted that during this study, a couple in the control group was excluded due to migration. The participants in the intervention and control groups took the post-test 1 month and 3 months after the intervention. To observe the ethical considerations, the participants in the control group received 2 face-to-face and virtual sessions of cognitive-behavioral therapy after the intervention and posttest.

Table 1. Content of sessions.

Session	Content
One	Introduction, explaining the purposes of the study, completing the couples' childbearing attitudes as the pretest, determining the number of sessions and rules of the group, providing the group with the information about problems of childlessness and the complications of postponing parenthood, receiving feedback, assigning homework
Two	Reviewing the content of the previous session, checking homework, explaining the cognitive-behavioral therapy model (A-B-C), assigning homework: filling in the table of better/worse situations (this table can help the participants identify their attitude and beliefs through guided discovery)
Three	Reviewing the content of the previous session, checking homework, determining the association between spontaneous thoughts and their effects on emotions and behaviors of childbearing, receiving feedback, assigning homework: completing the form of calling spontaneous thoughts technique
Four	Reviewing the content of the previous session, checking homework, explaining the strategies to identify negative spontaneous thoughts, cognitive distortions, and fundamental beliefs (attitudes), receiving feedback, assigning homework, and completing the spontaneous thought form based on the book by Judith Beck
Five	Reviewing the content of the previous session, checking homework, identifying emotions, receiving feedback, assigning homework: developing a scale for the intensity of emotions and prioritizing them
Six	Reviewing the content of the previous session, checking homework, evaluating negative spontaneous thoughts, receiving feedback, assigning homework: completing the thorough recording sheet and the thought testing worksheet
Seven	Reviewing the content of the previous session, checking homework, strategies of correcting negative spontaneous thoughts, correcting cognitive distortions by cognitive techniques (Socratic questioning, profit and loss, and reviewing evidence), assigning homework: completing the linear diagram of cognitive conceptualization (situation-spontaneous thought, the concept of spontaneous thought, emotion, behavior)
Eight	Reviewing the content of the previous session, checking homework, identifying and correcting fundamental beliefs (attitudes) using the downward arrow cognitive technique, assigning homework: completing the table of developing practical beliefs
Nine	Reviewing the content of the previous session, checking homework, cognitive reconstruction by using other cognitive-behavioral techniques, training the stress coping skills
Ten	Reviewing the content of the previous session, checking homework, training problem-solving skills and their use in everyday life, and training decision-making skill

(Table 1) contd.....

Session	Content
Eleven	Reviewing the content of the previous session, checking homework, training problem-solving skills and their use in everyday life, and training decision-making skills (emotion management skills)
Twelve	Providing a summary of the contents, a general review of the trained skills, advantages of having children and the benefits of filing a case before pregnancy, expressing feelings and receiving feedback, finishing the sessions (taking posttest 1 month and 3 months after the intervention)

2.8. Data Analysis

Software for Windows (SPSS Inc., Chicago, IL, USA) version 22 was used to analyze the data. The data were reported using descriptive statistics of number, percentage, mean, and standard deviation. The normality of quantitative data was examined by the Kolmogorov-Smirnov test. The data were analyzed using distribution tests of chi-square, t-test, Fisher's exact test, and repeated measurement. The p-value lower than 0.05 was considered to be significant.

3. RESULTS

This study was conducted on 39 couples (20 couples in the intervention group and 19 couples in the control group). The mean age of the participants in the intervention group and the control group was 28.15±3.97 and 27.89±4.22, respectively. The comparison of the two groups showed that there was no significant difference between the two groups in terms of women's age (p=0.847). The average duration of marriage in the intervention group was 3.05±2.40, and in the control group, 3.06±2.34 years, indicating no significant difference between the two groups (p=0.984). Table 2 presents that most of the participants in both groups had a degree higher than a diploma, and there was no significant difference between the two groups (p=0.188). The majority of the participants in both groups were employed, and there was no significant difference between the two groups in terms of occupation (p=0.096). Table 3 shows no significant difference between the scores obtained from the two groups before the intervention (p>0.05) except for the factor of postponing parenthood to advanced age, which was significantly lower in the intervention group (P=0.000). In the control group, the total attitude reached 49.47 to 57.42 in 3 months, which was a little higher than the negative range. However, it increased from 49.25 to 63.85 in three months in the intervention group, reaching the range of positive attitude (more than 50% of the total score) (p=0.001) and remained within the range of negative attitude (less than 50% of the total score) for the control group. Also, the attitudes were not significantly different between the two groups (p=0.03).

Table 2. Demographic characteristics in intervention and control groups.

		Intervention Group	Control Group	P-value
		No. (percentage)	No. (percentage)	
Education	Below diploma	0 (0%)	2 (10.5%)	0.188
	Diploma	3 (15%)	5 (26.3%)	
	Above diploma	17 (85%)	12 (63.2%)	
Employment	Unemployed	4 (20%)	9 (47.4%)	
	Employed	16 (80%)	10 (52.6%)	
Income	Less than 4 million	1 (5%)	5 (26.3%)	
	4-10 million	13 (65%)	9 (47.4%)	
	More than 10 million	6 (30%)	5 (26.3%)	

Table 3. Comparative mean of attitude to childbirth and subgroups in intervention and control groups.

	Group	Mean	Std. Deviation	P-value between Group	P-value within Intervention Group	P-value within Control Group
Total attitude pre intervention	Intervention	49.25	6.90	0.03	0.001	0.39
	Control	49.47	8.87			
Total attitude one month	Intervention	65.70	14.76			
	Control	52.31	9.55			
Total attitude 3 months	Intervention	63.85	12.06			
	Control	57.42	12.01			

(Table 3) contd.....

	Group	Mean	Std. Deviation	P-value between Group	P-value within Intervention Group	P-value within Control Group
Children as the basic elements of life pre intervention	Intervention	19.20	5.87			
	Control	18.21	5.13			
Children as the basic elements of life one month	Intervention	23.50	6.43	0.23	0.02	0.04
	Control	19.94	6.19			
Children as the basic elements of life 3 months	Intervention	22.55	4.91			
	Control	21.31	7.21			
Children as barriers pre-intervention	Intervention	11.35	3.26			
	Control	11.52	2.98			
Children as barriers one month	Intervention	16.70	5.13	0.002	0.001	0.08
	Control	11.21	3.34			
Children as barriers 3 months	Intervention	16.90	4.85			
	Control	13.053	3.67			
Postponing parenthood to advanced age pre-intervention	Intervention	10.20	2.14			
	Control	16.63	3.84			
Postponing parenthood to advanced age one month	intervention	14.00	3.40	0.006	0.005	0.08
	Control	12.42	2.79			
Postponing parenthood to advanced age	Intervention	12.75	3.85			
	Control	14.52	3.18			
Fertility needs requirements pre intervention	Intervention	8.50	2.87			
	Control	8.26	2.99			
Fertility needs requirements one month	Intervention	11.50	3.74	0.01	0.01	0.87
	Control	8.52	3.42			
Fertility needs requirements 3 months	Intervention	11.65	4.33			
	Control	8.36	2.56			

4. DISCUSSION

In three months, the total attitude reached 49.25 to 63.85 in the intervention group, while it reached 49.47 to 57.42 in the control group in the same period. Therefore, although the attitude score increased in both groups, it reached the range of positive attitude in the intervention group (more than 50% of the total score) and remained within the range of negative attitude (less than 50% of the total score) for the control group. Sang *et al.* examined the factors affecting the low rate of birth in 3482 married women in the age range of 19-39 years old. The factors affecting the first childbirth were understanding the value of marriage and children and parents' education. The results of this study also reported that women should gain a positive understanding of marriage and children to increase the birth rate. Moreover, financial and political support for maternal and child concerns and the use of social media to promote more positive attitudes toward childbearing may increase the birthrate in the future [17]. Wood *et al.* also reported that a positive understanding of marriage and children is the most fundamental factor in deciding about the family and delivery [18]. Khodakarami *et al.* studied the effect of group counseling on the attitude of "children as the basic elements of life" and suggested holding counseling sessions about the position of children in life at different ranges of age, education, and at all levels of society [16]. In an interventional study, Shiekh Ghanbar *et al.* investigated the effect of cognitive group counseling on women's motivation to have children and showed that after the intervention, the average positive motivation of childbearing in the intervention group was significantly higher than the control group and the average negative motivation of childbearing was significantly lower than the control group (p<0.05) [19]. Miller believed that the motivations to have children include positive and negative motives. The positive motives include personal reasons, including the joy of pregnancy, birth, and childhood, the traditional view, satisfaction with parenting, the feeling of need and survival, and the use of children as tools. The negative motives include fear of parenting, parental stresses, and challenges to take care of children. The results of a study by Miller in the US showed that positive motives to have children are associated with the desire to have more children, more children with desirable traits, and shorter intervals between children's births [6]. It seems that the cognitive-behavioral counseling approach teaches people new ways of thinking and behavior to change their negative attitudes toward themselves, the world, and the future [20]. In this research, the identification of automatic negative thoughts and the replacement of positive thoughts by reviewing situations with and without children were used to strengthen positive motivations in these women. These women realized that by knowing their beliefs and categorizing them in logical and irrational ways, they would find the source of their worries, and these thoughts led them to not have children. Therefore, mothers learned to identify cognitive errors and manage them. Indeed, this approach provides effective health care due to its education-oriented nature in the health system

[21]. This method helps people to identify their distorted cognitive patterns and insufficient behaviors in different life situations [22], have effective coping responses in facing negative emotions, and adopt desired behavior by correcting such patterns through practice [23]. The specific geographical location for sampling remains a limitation of this study, although sample participants were included from all areas of the city (south, west, east, and north).

CONCLUSION

Since the attitude of participants towards childbearing before the intervention was negative and changed to a positive attitude after the intervention, healthcare providers and midwives are suggested to use this method in clinical settings.

AUTHORS' CONTRIBUTION

It is hereby acknowledged that all authors have accepted responsibility for the manuscript's content and consented to itssubmission. They have meticulously reviewed all results and unanimously approved the final version of the manuscript.

ETHICS APPROVAL AND CONSENT TO PARTICIPATE

This research was approved by the Arak University of Medical Sciences. The ethics code is IR.ARAKMU.REC.1401.234.

HUMAN AND ANIMAL RIGHTS

All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committee and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

A written informed consent form was obtained from all participants of this study.

AVAILABILITY OF DATA AND MATERIALS

The data and supportive information are available within the article.

STANDARDS OF REPORTING

STROBE guidelines were followed.

FUNDING

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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