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RESEARCH ARTICLE **OPEN ACCESS**

Predicting Commitment of Married Women based on Emotional Intimacy, Cognitive Flexibility, and Irrational Beliefs of Infertile Couples in Arak City in the 2021:A Cross-sectional Study

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Abstract:

Aim: The present study aims to predict the commitment of infertile married women based on some cognitive and emotional variables.

Background: Marriage is the most important contract in every person's life. A marriage consists of several elements, such as commitment, marital satisfaction, and communication. In infertile couples, the values of their marriage and how much they want to maintain may be at risk.

Objectives: The present study wants to predict the commitment of infertile women based on emotional intimacy, cognitive flexibility, and irrational beliefs of infertile couples in Arak City in 2021.

Methods: The current research was conducted using a cross-sectional correlation method. Finally, 100 participants filled out the questionnaires. Convenience sampling was performed at Royan Infertility Clinic. The data were analyzed using *t*-test, Pearson and Chi-square tests.

Results: The results of the main outcome showed that higher levels of intimacy between couples lead to higher levels of commitment in married life (r=0.25, p=0.012). There is also an inverse relationship between couples' commitment and irrational beliefs in infertile couples, according to which more irrational beliefs lead to less commitment. However, there was no relationship between the commitment of infertile couples and psychological flexibility.

Conclusion: The marital commitment of infertile couples can be strengthened by increasing their intimacy and reducing their irrational beliefs.

Keywords: Infertility, Reproductive health, Marital satisfaction, Emotional intimacy, Married women, Marriage.

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1. INTRODUCTION

Infertility is a disease of the male or female reproductive system defined by the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse. According to a meta-analysis conducted at a global scale and data collected from 1990 to 2021, roughly one in six people experience infertility at some point in their life, and the prevalence of periodic infertility is estimated at 12.6%. ([CI]:10.7, 14.6% (95) [1]. Helplessness, depression, anger, low self-esteem, lack of sexual self-efficacy, impaired quality of marital life, decreased intimacy, sexual dysfunction, and fear of a broken marital relationship are all adverse consequences often experienced by infertile couples [2]. Infertility and its treatment techniques face some issues, such as insults, social isolation, marital instability, partner violence, divorce, economic deprivation, psychological and emotional distress, stigma, and discrimination by family and community members [3]. Infertility can lead to marital conflict, sexual dysfunction, decreased self-confidence, and lower quality of life [4, 5]. Long-term infertility deteriorates marital relations and reduces marital commitment as a powerful aspect of establishing a long-lasting and stable marital relationship. Marital commitment refers to how much a couple considers the values of their marriage and how much they want to maintain and continue their family life [6]. Johnson believes that marital commitment has three components: personal, moral, and structural commitment. Personal commitment refers to the individual's desire and willingness to stay in the marital relationship. Moral commitment reflects the individual's sense of moral obligation to stay in the relationship. Structural commitment reflects the limitations and barriers of breaking up the relationship and the constraints to stay in it [7]. Couples are more committed to solving their marital problems in their married life and enjoy their long marriage more because of their greater effort to maintain their relationship [8].

Research shows that family continuity, marital satisfaction, and commitment in infertile couples are influenced by various cognitive and emotional factors, communication skills, intimacy, and self-esteem [9]. Marital intimacy includes a set of emotional, intellectual, psychological, sexual, physical, spiritual, and social domains. The lack of intimacy in marital relationships not only leads to stress, psychological incompatibility, depression, and emotional disturbance at the individual level but also affects the continuity and satisfaction of the couple's life significantly [10]. Marital intimacy is a key part of a satisfying marital relationship and the stability of the marriage. As the means of exchange and mutual satisfaction of emotional and psychological needs in an acceptable and anticipatory way, intimate relationships between couples can also strengthen the affective relationship and marital satisfaction [11]. Another structure related to marital conflicts is irrational beliefs. Exaggerated, absolutist, unreasonable beliefs result from unjustifiable and prejudiced expectations, usually expressed with the words "must" and "certainly." Irrational thoughts are inconsistent with reality and are based on suspicion, leading to conflicts and preventing individuals from successfully dealing with life events and requirements [12]. Beliefs are formed under the influence of interpersonal experiences in childhood and are gradually strengthened through information processing. Inefficient beliefs lead to confirmation bias in information processing, where individuals only consider information that supports their beliefs and ignore everything else. Irrational beliefs are negative, subjective, and extremely unrealistic cognitive constructs associated with reflections, such as sadness, depression, anger, immobility, and lack of interest in work [13-15].

Another component potentially affecting the couple's commitment is psychological flexibility, which is defined as the ability to adapt to changing environmental stimuli. Some researchers have defined psychological flexibility as the ability to be fully in contact with the present moment as a conscious human being, fully aware of the ability to change or move in a pattern of behavior in the service of chosen values [16]. Psychological flexibility is the main concept and the primary goal of acceptance and commitment therapy (ACT), which results from six core processes, *i.e.*, acceptance, cognitive defusion, present moment, committed action, self as context, and values [17]. Research has confirmed the relationship between psychological flexibility and a wide range of psychological problems, general health, and quality of life [18, 19]. Psychological acceptance is negatively linked with the severity of mental health problems and leads to better health outcomes among those with psychosis, anxiety, depression, and substance abuse [20]. When couples cannot obtain the main goal of their life, their marital relationship is questioned, while intimacy and close emotions, which are the only things valued and needed more than ever, are lost, resulting in marital stress, failure, anger, and burnout [21]. Thus, the present study aimed to predict the commitment of married women based on emotional intimacy, cognitive flexibility, and irrational beliefs of infertile couples in Arak City in 2022.

2. MATERIALS AND METHODS

The current research was conducted using a cross-sectional correlation method. Those who met the inclusion criteria entered the study after completing the written consent form. Convenience sampling was performed at Royan Infertility Clinic. This clinic is a governmental clinic related to Jahad University.

The sample size was 140 according to the following formula, with the values.

$$r = 0.27$$
$$\alpha = 0.05 \Rightarrow z_{1-\alpha/2} = 1.96.$$
$$\beta = 0.10 \Rightarrow z_{1-\beta} = 1.28$$

$$n \geq \left[\frac{\left(z_{1-\alpha/2} + z_{1-\beta}\right)}{0.5 \times \ln\left[\left(1+r\right)/\left(1-r\right)\right]} \right]^2 + 3$$

Sampling was conducted at the Royan Academic Center for Education, Culture, and Research (ACECR) after obtaining written consent. Contacts were made with the registered list of patients (n=200), leading to the completion of 140 written informed consent forms, of which only 100 completed the research questionnaire.

Research tools included the following standard questionnaires:

2.1. Adams and Jones Dimensions of Commitment Inventory (DCI)

This questionnaire measures commitment to spouse and marriage and its dimensions. The DCI was developed by Adams and Jones (1997) and included three sub-scales, namely personal, ethical, and structural commitment. Personal commitment reflects the commitment to the spouse based on partner attractiveness, while ethical commitment is based on sanctity and respect in marital relationships. Structural commitment toward a partner and marriage is based on a sense of compulsion and marriage stability or fear of divorce consequences. The items are scored on a five-point Likert scale ranging from 5 (completely agree) to 1 (completely disagree), and higher scores indicate a higher level of marital commitment [22]. In a study by Mohammadi *et al*., Cronbach's alpha values were 0.88, 0.78, 0.79, and 0.85 for personal, ethical, and structural commitments and the entire questionnaire, respectively [8].

2.2. Acceptance and Action Questionnaire-II (AAQ-II)

AAQ-II consists of 12 questions and was developed by Hayes (2000). The questionnaire is based on the Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with higher scores indicating greater psychological flexibility. For analysis, the obtained scores are collected, the lower, average, and upper limits of which are 12, 36, and 60, respectively. A score between 36 and 60 indicates good flexibility [23].

Higher total scores on the AAQ-II indicate higher psychological inflexibility, experiential avoidance, and more potential psychological distress. Lower total scores mean more psychological flexibility. Bond *et al*. reported an internal consistency of 0.78 to 0.88 and retest coefficients of 0.79 and 0.81 for three- and twelve-month intervals, respectively [24]. Imani reported reliability values of 0.71 and 0.86 using retest and Cronbach's alpha methods, respectively [25].

2.3. Walker and Thompson Marital Intimacy Scale

The Walker-Thompson intimacy scale has 17 questions and is designed to measure the level of affection and intimacy of married couples. Walker and Thompson confirmed the scale validity through content and face validity and reported the reliability of this test as 0.91-0.97 using Cronbach's alpha [26]. This questionnaire is scored from 1 to 7 on a Likert scale, indicating the respondents' answers about their loved ones using the following scoring: never=1, rarely=2, sometimes=3, often=4, mostly=5, almost always=6, and always=7. Finally, the obtained scores are added, and the higher scores represent the greater intimacy between the respondents and their loved ones. The intimacy scale has an excellent internal consistency with an alpha coefficient of 91% to 97% [10].

2.4. Irrational Beliefs Questionnaire

Jones (1986) developed this 100-item questionnaire to measure irrational beliefs. Each statement is scored on a 5-point Likert scale ranging from strongly disagree to agree strongly. A higher score on the test indicates irrational beliefs. The subscales consist of expecting approval from others, excessive expectations from oneself, self- and other-blaming, reacting to helplessness with failure, emotional irresponsibility, anxious attention, problem avoidance, dependency, helplessness against change, and perfectionism. Many researchers have confirmed the validity of the coefficient of this test [27].

2.5. Implementation

Respondents were invited to visit the center and fill out the questionnaires in one of the rooms in the center. Sampling continued from June to August 2021. At first, researchers prepared the list of couples from the Royan Center. Contacts were made with the registered list of patients (n=200), leading to the completion of 140 written informed consent forms, of which only 100 completed the research questionnaire. Participants were invited to the infertility center of Royan. They were asked to fill out the research questionnaires within one hour. During the reception, they were requested to fill out the questionnaires carefully. The data were analyzed using t-test, Pearson and Chi-square tests.

3. RESULTS

According to Table **1**, the majority of the statistical sample belonged to the age group 30-34 years old (49.0%), followed by the age groups >35 years old (27.0%) and 25-29 years old (24.0%), and the age group 20-24 years did not assign a percentage to itself. Concerning education, the majority of the statistical sample had associate and bachelor degrees (56.0%), followed by diploma and below (23.0%) and master science and above (21.0%) in the following ranks. Regarding the infertility duration, the majority of the statistical sample belonged to 1-3 years (49.0%), followed by 4-6 years (32.0%) and >7 years (19.0%). Other results are provided in Table **1**.

Table 1. Demographic and obstetric variables in infertile couples.

-	-	Frequency	Percentage
Age	20-24	0	0
	25-29	24	24.0
	30-34	49	49.0
	>35	27	27.0
Education	Diploma and below	23	23
	Associate & Bachelor	56	56
	Master sciences and above	21	21
Infertility period	1-3 years	49	49
	4-6 years	32	32
	>7 years	19	19
Occupation	Housewife	43	43
	Employee	39	39
	Self-employed	18	18
Have you used assisted reproductive methods?	Yes	80	80
	No	20	20
Type of the assisted reproductive method	Only medicine	38	38
	IVF	21	21
	IUI	22	22
	A combination of the above	13	13
	Other	6	6
The infertile person	Me	60	60
	My spouse	22	22
	Both	18	18

Table 2. Relationship between couple's commitment with psychological flexibility, irrational beliefs, and emotional intimacy.

-	r	p-value
Psychological flexibility	-0.121	0.229
Irrational beliefs	-0.250	0.012
Emotional intimacy	0.175	0.045

Table **2** shows the relationship between couple commitment and emotional intimacy in infertile couples using Pearson's correlation coefficient (r=0.175, p=0.045), highlighting the relationship between the commitment of infertile couples and their emotional intimacy. In other words, higher levels of intimacy between couples lead to higher levels of commitment in married life (r=0.25, p=0.012). There is also an inverse relationship between couples' commitment and irrational beliefs in infertile couples, according to which more irrational beliefs lead to less commitment. However, there was no relationship between the commitment of infertile couples and psychological flexibility.

4. DISCUSSION

The results showed that Marital commitment has a positive relationship with intimacy and it has a negative relationship with irrational beliefs in infertile women. A similar semi-experimental study was conducted on 30 infertile couples using a pretest-posttest design with a control group in Iran. The results of multivariate covariance analysis showed that emotionally focused therapy (EFT) for couples significantly increased the mean post-test scores of marital commitment and its subscales (*i.e.*, personal, ethical, and structural commitment) in the experimental group (p=0.05) [21]. Another study in the qualitative phenomenological method showed that some couples found opportunities in infertility to strengthen their relationships. The interviews highlighted five types of benefits, including engagement in a shared hardship, feeling closer to one another, feeling reassured in the relationship, developing satisfying communication and support behaviors, and having faith in the couple's capacity to face adversity. Therefore, these feelings should be strengthened in these couples as much as possible to increase their commitment while directing them toward assisted reproductive methods and childbearing [28].

A systematic study conducted on 88 articles confirmed the possibility of increasing marital commitment and compatibility with emotional interventions, reducing marital boredom and conflicts significantly through emotion-focused counseling [29]. McNulty *et al*. showed the effect of attitudes formed through exposure to passive information and suggested new avenues for relationship interventions. In this study, married couples (N = 144) were asked to view a short stream of images every 3 days for 6 weeks. In this process, images of spouses were prepared, which were paired with positive or neutral stimuli based on the random assignment of couples to the experimental group. Spouses who viewed their partners with

positive stimuli displayed more positive self-attitudes than control spouses, and these attitudes predicted increases in self-reported marital satisfaction over time [30]. Irrational beliefs are one of the reasons for marital conflicts, as such thoughts do not correspond to reality and are based on suspicion. Irrational beliefs and attitudes may have arisen due to wrong information or wrong conclusions, even if the initial information is correct.

In some cases, both the assumption and the conclusion are wrong, leading to confusion and inappropriate emotions that minimize constructive and self-help behaviors and prevent partners from achieving their goals. Irrational beliefs of infertile couples include selective experiences, overgeneralization, negative labeling, personalization, jumping to conclusions, and black-and-white thinking [14]. Research has also shown that couples with irrational beliefs about the importance of communication, effective conflict resolution methods, the importance of family, and gender roles experience more disruption in marital relationships than those who do not have such beliefs.

Irrational beliefs with negative cognitive, emotional, and behavioral consequences can jeopardize mental health [31]. A study conducted by Choobforoush *et al*. on 24 infertile women in Yazd used stress management through the cognitive-behavioral method, indicating positive effects of this method on stress management and increasing marital satisfaction of women in the experimental compared to the control group [32]. It seems that infertile women need interventions that increase their psychological flexibility to cope with the infertility crisis and gain the required abilities to think in different ways and organize and plan the next steps for problem-solving. Although the present study found no relationship between commitment and psychological flexibility, many studies conducted on couples with marital conflicts show that counseling and educational interventions on this component can be effective in continuing their married life. Psychological flexibility helps couples not to allow their thoughts to limit their choices. Besides, the clarification of the values of life enables couples to realize that their thoughts, rather than the issue of infertility, have separated them from the meaning of life [33, 34].

CONCLUSION

The results of this study show that the marital commitment of infertile couples can be strengthened by increasing their intimacy and reducing their irrational beliefs. Thus, in addition to medical support during infertility treatment, health service providers should also pay attention to couples' communication issues and provide them with suitable mental health to continue treatment. The limitations of the study were low sample because we considered 140 samples but participated in 100, and we didn't consider male or female reasons for infertility. We propose other studies considering the other variables in marital commitment in infertile couples.

ABBREVIATION

AAQ-II = Acceptance and Action Questionnaire-II

ETHICALS APPROVAL AND CONSENT TO PARTICIPATE

The present article is part of my thesis for a Master's degree in Midwifery Counseling approved by the Arak University of Medical Sciences. Also, the ethical code IR.ARAKMU.The Ethics Committee of Arak University of Medical Sciences obtained REC.1399.199.

HUMAN AND ANIMAL RIGHTS

No animals were used in this research. All procedures performed in studies involving human participants were in accordance with the ethical standards of institutional and/or research committees and with the 1975 Declaration of Helsinki, as revised in 2013.

CONSENT FOR PUBLICATION

Written informed consent was obtained from all participants.

STANDARDS OF REPORTING

STROBE guidelines were followed.

AVAILABILITY OF DATA AND MATERIALS

The data supporting the findings of this study are available in Arak University of Medical Sciences but are not publicly available due to privacy/ethical restrictions. Data are, however, available from the authors upon reasonable request and with permission of Arak University of Medical Sciences.

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CONFLICT OF INTEREST

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

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