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# Evaluation of Psychiatric Disorders Axis 1 in Ovum Donor Women

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## ABSTRACT

*Introduction: One fertility method is ovum donation. There is a lot of information on the medical and ethical aspects of ovum donation with little information on the psychiatric disorders of ovum donor women. For this, the purpose of the present study was to investigate frequency of psychiatric disorders in ovum donor women referring to Royan research Institute.*
*Materials and Methods: It was a cross-sectional study using available sampling method comprising 75 volunteers who donated ovum at Royan Research Institute in 2017. The instrument was the standard SCID 1 questionnaire. Data were analyzed using SPSS (version 16) software.*
*Result: In this study, 48.3% of donors reported merely financial motivation and 45% both financial and humanitarian motivations. Result of the SCID 1 interview in the first axis group showed significant differences with the control group in terms of panic disorder, minor depression and free floating anxiety.*
*Conclusion: According to the results, it should be noted that in the process of ovum donation, evaluation of individuals' psychological needs is also necessary. Therefore, authorities should consider measures to evaluate the psychological aspects of women candidates for donation and receiving ovums.*

**Key words:** Psychiatric disorders, Ovum donation, SCID questionnaire, Cross-sectional

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## INTRODUCTION

Infertility is a problem faced by many couples globally. Statistics show that about 15% to 20% of families are faced with this problem [1]. The WHO has identified infertility as a major problem in reproductive health having physical, psychological and social dimensions [2]. After the first successful donation of Gamete in 1984, ovum donation was one of the most common treatment for human reproduction [2,3]. Some women are deprived of fertility due to their age, early menopause or other disorders, despite the fact that fertility organs are healthy. In these people, one method is to receive donated ovum from volunteers [4]. In this method, the donated ovum is fertilized by male sperms, husband of receptor, in a laboratory environment, and the embryo is transferred to the infertile woman womb. Due to the fact that during the Gamete donation process, the genome of the donor is transmitted to the fetus, and this genome contains all physical and psychological characteristics of the donor, it is therefore necessary that physical and mental health standards should be considered for the donors [5,6]. In Iran, there has not been a comprehensive study on the psychiatric disorders of donors and prevalence of these disorders. Considering that, in Iran, the ovum donation process is accompanied by giving money donors and the motives of donors are not specifically investigated, this study was aimed at investigating the frequency of psychiatric disorders among the ovum donors and compare them with the control group which was randomly selected among women of the same age and degree of education with the donor group. If statistically significant information is found, it is possible to provide a solution to the challenges ahead.

## METHOD

This cross-sectional study was conducted during October to March 2017 in the ovum donation unit of Royan Research Institute and Taleghani and Imam Hossein Hospitals in Tehran. Availability sampling method including 75 volunteer donors was used at Royan Research Center. In this research, after obtaining permission from the relevant authorities and obtaining approval of the Ethics Committee from Tehran University of Medical Sciences, individuals were included in the study considering criteria for inclusion including age, not using sedatives and anti-anxiety drugs, no history

of psychological illness, no drug addiction and no history of cancer. The control group, including women was selected from accompaning women with similar age group and education in different parts of Imam Hossein and Taleghani hospitals in Tehran. In order to investigate psychiatric disorders axis 1, the standard SCID 1 questionnaire, which has a Kappa greater than 0.6 in most of the specific and general diagnoses and total Kappa of 0.52 was used [7]. The data were analyzed by SPSS software version 16 and the significance level of $p<0.05$.

## RESULTS

50% of respondents in the control group had a diploma or lower degree, 28.3% were college students, 6.7% were bachelor students and 15% were master students. Of total number of respondents in the experimental group, 93.3% of them had a diploma or lower, 3.3% had a college degree, 1.7% had BA and 1.7% had an MA degree. Also, in terms of marital status, 11 persons (18.33%) were single, 33 were married (55.3%), husband of 8.33% were dead and 18.33% were divorced. Regarding respondents in the experimental group, 16 (26.67%) were single, 19 (31.67%) were married, 16.67% had a dead husband, and 25% of them were divorced and 31 (51.7%) persons were married. Regarding the control group, 25 (41.7%) were without children, 25% had one child, 21.7% had two children and 11.7% had three children and the average number of children was 1.033 and the standard deviation was 1.057. In the experimental group, 9 (15%) were without children, 53.3% had one child, 26.7% had two children, and 5% had three children and the average number of children was 1.21 and the standard deviation was 0.761. The mean age of the control group was 30.80 and the standard deviation was 4.59. The mean age of the experimental group was 28.18 and its standard deviation was 3.48.

Since most of the statistical tests, including Pearson correlation matrix analysis, are based on the normality assumption of the sample, therefore, before using the Kolmogorov-Smirnov test was used to ensure normal distribution of the data [8]. The results of this test for the dependent variables of the research are presented in Table 1.

**Table 1: Results of Kolmogorov-Smirnov test for main variables**

| Variables | Z in K-S | Sig | Results |
|---|---|---|---|
| Novelty | 1.046 | 0.224 | Normal |
| Reward | 1.18 | 0.119 | Normal |
| Cooperation | 1.61 | 0.11 | Normal |
| Vulnerability | 1.49 | 0.54 | Normal |
| Perseverance | 1.92 | 0.12 | Normal |
| Self-Transcendation | 1.25 | 0.085 | Normal |
| Self-directed | 0.934 | 0.347 | Normal |

According to Table 1, it was shown that the Kolmogorov-Smirnov test for all major variables was normal (in this study, 5%). Therefore, the zero assumption (H_0) which is based on the normal distribution of variables at the 5% error level was confirmed. In the K-S test, the hypothesis zero (H_0) states that there is no significant difference between the observed distribution (distribution of data) and the expected distribution (here, the normal distribution).

In the control group, 29 (48.3%) had a history of disease, and 51.7% had no history of disease based on SCID I. In the experimental group, 18 (30%) had a history of disease, and 70% had no history of disease based on SCID I (Table 2).

**Table 2: Frequency diagnosis based on SCID I**

| Experimental | | Control | | Response |
|---|---|---|---|---|
| % | Frequency | % | Frequency | |
| 30 | 18 | 48.3 | 29 | Yes |
| 70 | 42 | 51.7 | 31 | No |
| 0 | 0 | 0 | 0 | Without response |
| 100 | 60 | 100 | 60 | Total |

In the control group, 44.83% had obsessive-compulsive disorder, 6.90% had anxiety adaptive disorder, and 3.45% had free floating anxiety. In the experimental group, 27.78% had obsessive-compulsive disorder, 22.22% had specific phobia disorder, 16.67% had anxiety adaptive disorder and 5.56% had panic disorder (Table 3).

**Table 3: Frequency distribution of respondents by definition based on SCID I**

| Disorder | Control | Control | Experimental | Experimental |
|---|---|---|---|---|
| | F | % | F | % |
| Obsessive-compulsive disorder | 13 | 44.83 | 5 | 27.78 |
| Social phobia | 7 | 24.14 | 5 | 27.78 |
| specific phobia | 4 | 13.79 | 4 | 22.22 |
| Anxiety adaptive disorder | 2 | 6.9 | 3 | 16.67 |
| Minor Depression | 1 | 3.45 | 1 | 5.56 |
| Panic disorder | 1 | 3.45 | 0 | 0 |
| Generalized Anxiety Disorder | 1 | 3.45 | 1 | 5.56 |
| Total | 29 | 100 | 18 | 100 |

According to Table 4, there was no significant difference between the psychiatric disorders axis 1 in the control group and the experimental group in terms of educational level, and this difference was rejected at 95% confidence level. Also, according to Table 5, there was no significant difference between the psychiatric disorders axis 1 in the control group and the experimental regarding the marital status, and this difference was rejected at 95% confidence level.

**Table 4: Difference between psychiatric disorders axis 1 in terms of educational level**

| Group | Disorder | Chi-square | Degree of freedom | Sig |
|---|---|---|---|---|
| Control | Psychiatric disorders axis 1 | 4.57 | 3 | 0.205 |
| Experimental | Psychiatric disorders axis 1 | 3.19 | 3 | 0.959 |

**Table 5: Difference between psychiatric disorders axis 1 based on marital status**

| Group | Disorder | Chi-square | Degree of freedom | Sig |
|---|---|---|---|---|
| Control | Psychiatric disorders axis 1 | 1.05 | 1 | 0.311 |
| Experimental | Psychiatric disorders axis 1 | 0.537 | 1 | 0.464 |

Also, there was no significant difference between psychiatric disorders axis 1 in the control group and experimental group considering the number of children, and this was rejected at 95% confidence level (Table 6).

**Table 6: Difference of psychiatric disorders axis 1 based on the number of children**

| Group | Disorder | Chi-square | Degree of freedom | Sig |
|---|---|---|---|---|
| Control | Psychiatric disorders axis 1 | 4.03 | 3 | 0.258 |
| Experimental | Psychiatric disorders axis 1 | 1.81 | 3 | 0.612 |

There was no significant difference between psychiatric disorders axis 1 in the control and experimental groups regarding the history of abortion and this difference was rejected at 95% confidence level (Table 7).

**Table 7: Difference in psychiatric disorders axis 1 based on the abortion history**

| Group | Disorder | Chi-square | Degree of freedom | Sig |
|---|---|---|---|---|
| Control | Psychiatric disorders axis 1 | 2.14 | 2 | 0.342 |
| Experimental | Psychiatric disorders axis 1 | 1.43 | 2 | 0.489 |

There was a significant difference between psychiatric disorders axis 1 in control and experimental groups based on the history of psychiatric drug treatment and this difference was confirmed at 95% confidence level (Table 8).

**Table 8: Difference between psychiatric disorders axis 1 based on the history of drug treatment in psychiatry**

| Group | Disorder | Chi-square | Degree of freedom | Sig |
|---|---|---|---|---|
| Control | Psychiatric disorders axis 1 | 27.488 | 2 | 0 |
| Experimental | Psychiatric disorders axis 1 | 9.03 | 1 | 0.003 |

There was a significant difference between psychiatric disorders axis 1 in control and experimental groups regarding the history of psychiatric hospitalization and all differences were confirmed at 95% confidence level (Table 9).

**Table 9: Difference of psychiatric disorders axis 1 according to the history of psychiatric hospitalization**

| Group | Disorder | Chi-square | Degree of freedom | Sig |
|---|---|---|---|---|
| Control | Psychiatric disorders axis 1 | 7.12 | 2 | 0.028 |
| Experimental | Psychiatric disorders axis 1 | 7.36 | 1 | 0.007 |

## DISCUSSION

Developments in medical technology have paved the ways for pregnancy and possibility of having a child. One of the common methods nowadays is the ovum donation. This method is used for women with diseases such as premature ovarian failure, ovarian quality disorders, ovarian loss, dysgenesis of ovaries, or high age and postmenopausal pregnancy demand. The ovum donation leads to the birth of a neonate that is not genetically related to the receptor [9]. A lot is known about the medical aspects of this method, but there is insufficient information on the aspects of female gamete donor psychiatry.

Various studies have investigated volunteers to donate gametes motivations. Paulson et al. study titled "Demographic characteristics of women participating in the ovum donation process", showed that the initial motivation was humanitarian. Most of the participants in this study were married and middle class women [10].

Kenny et al., examined motivations and experiences of donors retrospectively. It was found that, in countries such as Canada and Finland, where receiving money for donation is forbidden or very limited, most people who are volunteers have humanitarian purposes. In Ukraine, which has banned receiving money directly, it was possible to receive rewards indirectly. Both financial and humanitarian motivations were reported and ultimately, it was stated that only financial motives cannot be a factor to enter the process of donating a gamete [11].

Also, Purewal et al. conducted a systemetic review in the department of post-chiropathy at the University of Middlesex on the motivations and feelings of donors. The results showed that although there are different motivations to donate gamet, the most important one was humanitarian [12].

However, in the present study, 48.3% of donors reported merely financial motivation and 45% of financial and humanitarian motivations which is different from the study by Kenney et al. [11]. Considering that in Iran,

receiving money in exchange for a donation process is not prohibited, it seems that it is an important factor in the decision making process for ovum donors.

Furthuremore, in the present study, the average age of donors was 28.18 years. Also, the number of donations was 1.25 times on average. In the history of these individuals, 86.7% had no history of abortion. In these individuals, psychiatric counseling history was 8.3% and 5% had a history of psychiatric admissions. The history of drug treatment was 10%. 56% of donors had diploma and lower degrees, 26.67% were single and 25% were divorced, while in Paulson et al. study, out of 50 ovum donors, most of them had university education and were mothers and had a job [10].

In a study conducted in 2014 among donors from 11 European countries, 1423 people participated. The average age was 27.4 years. 55.4% of these people were their first donation, most of them had partners and children, and their motivation was to help others [13].

In the present study, the results of SCID 1 interview, there were significant differences at the axis 1 of donors in terms of panic disorder, minor depression and Generalized Anxiety Disorder between the experimental and control groups. None of the donors reported psychiatric disorders and psychiatric disorders caused by alcohol or other substances. In previous studies, there was no report of psychiatric and bipolar disorders among subjects and it seems that our results are in line with the results of previous studies.

Klock et al. study on 150 ovum donors showed that 10% had a history of receiving psychiatric treatment and 34% had a history of psychiatric counseling [14]. Also, 64% had a history of mild anxiety or depression, and most of them were white single women without children with high school education. The results of our study seem to be in line with the results of Klick et al. and regarding the ovum donors, in our study, there were significant differences regarding panic disorder and generalized anxiety disorder and minor depression with the control group.

In some previous studies, including in a study by Schover et al., the personality characteristics and motivation of men and women sperm donors were compared. it was found that 35% of men have heavy alcohol consumption, and 47% have a history of anxiety and depression [15].

As there was no finding about the use of alcohol or other substances in our study, our study results may not be very reliable in this regard. This may be due to the concern of donors to be prevented from donation by reporting substance and alcohol issues.CONCLUSION

In this study, the researchers concluded that the donators had significant differences regarding the history of referral to psychiatrist and receiving drug treatment and receiving psychiatric counseling compared to the control group. It seems that the main motivation for donation is financial and most psychiatric disorders were generalized anxiety disorder, panic disorder, social phobia, specific phobia and minor depression. Therefore, it is argued that in the ovum donation process, physical evaluation alone is not enough and attention to the psychological needs of individuals is also necessary.

## CONFLICT OF INTEREST

All authors declare that there is no conflict of interest.

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