Shahid Sadoughi University of Medical Sciences School of Public Health

Journal of Social Behavior and Community Health

Journal of Social Behavior & Community Health | Social Determinants of Health Research Center

Anxiety and Coping Style between Successful Pregnancy and Non-Successful Pregnancy Regarding Recurrent Abortion

Behzad Ghorbani [a], **Saeedeh Oliyaee** [b], **Zahra Sehat** [b]*

[a] Nanbiotechnology Research Center Avicenna Research Institute, Academic Center for Education, Culture and Research, Tehran, Iran.

[b] Avicenna Infertility Clinic, Avicenna Research Institute, Academic Center for Education, Culture and Research, Tehran, Iran.

ARTICLEINFO

ORIGINAL ARTICLE

Article History:
Received: 24 Oct 2022
Revised: 07 Feb 2023
Accepted: 02 Apr 2023

***Corresponding Author:**
Zahra Sehat

Email:
zahra.sehat@yahoo.com

Tel: +98 9132636817

Citation:
Ghorbani B, Oliyaee S, Sehat Z. Anxiety and Coping Style between Successful Pregnancy and Non-Successful Pregnancy regarding recurrent abortion. Journal of Social Behavior and Community Health (JSBCH). 2023; 7(1): 990-999.

ABSTRACT

Background: Abortion is a problem with which all societies are dealing all over the world, having psycho-social consequences. The aim of the present study is to investigate the anxiety and coping style between successful pregnancy and non-successful pregnancy regarding recurrent abortion

Methods: 50 women of 20-45, into 5 to 20 weeks of pregnancy, with at least 2 recurrent abortions were surveyed at Avicenna infertility center in Tehran, Iran. Kattel Anxiety and Lazarus Stress questionnaires were completed, and the outcome of pregnancies was followed up. All data analysis was performed by SPSS 22 software.

Results: In this study, 32 women successfully passed the 20th week, and 18 women had a miscarriage. The mean score of anxiety in women with recurrent abortion with unsuccessful pregnancies was 12.56 (SD = 1.886) and with successful pregnancies, it was 7.38 (SD = 2.780). The mean score of anxiety for unknown abortion was 12.21, and for immunological, abortion was 6.89. 8.48 were related to abortion because of other reasons. 33% of the variance in stress coping strategy was related to women with recurrent abortion. The anxiety level of women suffering from recurrent miscarriages in secondary recurrent miscarriage (11.67) was higher than primary abortion (7.88). There was a difference between the anxiety of women suffering from recurrent miscarriages and a history of four miscarriages and two miscarriages. This was statistically significant ($P < 0.0005$).

Conclusion: The anxiety level of pregnant women that have recurrent abortion history and abortion outcome is more than they have successful pregnancies outcome. Therefore, anxiety can be considered one of the factors influencing recurrent abortion. Therefore, anxiety can be considered one of the factors influencing recurrent abortion.

Keywords: Abortion, Anxiety, Stress, Pregnancy.

[DOR: 20.1001.1.27832104.2023.7.1.5.3]

[DOI: 10.18502/jsbch.v7i1.12792]

[DOR: 20.1001.1.27832104.2023.7.1.5.3]
[DOI: 10.18502/jsbch.v7i1.12792]

Introduction

Worldwide, abortion is one of the commonest gynecological procedures that affects all societies and has psycho-social consequences. The prevalence of abortion is 10-15%, and the prevalence of recurrent abortion is 0.5-5% worldwide (Huang X 2022, Tao2012).

The result of the study showed that 5% of couples will experience two recurrent miscarriages, and 2% of them will experience three or more miscarriages (Huang X 2022, Tao2012, Abdishahshahani, 2020).

Usually, recurrent miscarriage is defined as the occurrence of three or more miscarriages, back to back, in the first or second trimester of pregnancy. Recurrent miscarriage is divided into two groups: primary and secondary. Primary recurrent miscarriage is when patients have not experienced a live birth. This is while a woman with secondary recurrent miscarriage has had at least one live birth. Various factors such as genetic, anatomical, infectious, hormonal, and immunological are known as the causes of recurrent miscarriage, but the role of anatomical and hormonal disorders is still questioned. Therefore, the main causes of recurrent miscarriage include chromosomal abnormalities and immunological disorders (Abdishahshahani, 2020).

Recurrent miscarriage is a very disappointing experience for patient and doctor because of the uncertainty of the effect of treatment and its etiology. Only in less than 50% of cases of recurrent miscarriage, the cause is known. In another study, the rate of abortion by unknown causes was 35.6% (Bachir, 2019., El Hachem, 2017).

Of the unknown causes affecting the function of mother's immune system are psychological problems, stress, and anxiety of mothers.

Normal anxiety exists in all humans, the anxiety that does not interfere with daily functions of humans. But pathological anxiety is often associated with low mood and other neurotic characteristics. Anxious patients are usually restless and physiologically in a state of excitement. A person's behavior reflects his inner turmoil, which is shown in a worried and anxious face, restlessness, and excitement (Hocaoglu, 2022., Fukui, 2017., Zhao, 2021). Stress is a state in mind and body caused by mental and physical pressure on a person. Stress is a state caused by pressure. Stress can be roughly interpreted the same as nervous pressure and considered a state a person manifests in front of incompatible external stimuli. In another definition, stress is a response a person has to adapt to an external situation different from normal situation. It manifests itself behaviorally, psychologically, or physically. In this definition, stress is a person's reaction to threatening situations in the environment (Kulathilaka, 2016., Zhaohui, 2012., Qu F, 2017).

This study investigated the level and coping style of anxiety in recurrent abortion regarding successful and non-successful pregnancies.

Methods

This was a descriptive study comparing the level and coping style of anxiety for recurrent abortion in successful and non-successful pregnancies in the winter of 2020 at Avicenna Infertility clinic in Tehran, Iran.

The study population included 50 women suffering from recurrent miscarriages with a history of at least 2 consecutive miscarriages. Some of them had children (i.e. they had recurrent secondary miscarriages), and some did not experience a live birth (i.e. they have had miscarriages). All of them were pregnant and in the fifth to the twentieth week of pregnancy, they were asked to complete 2 questionnaires (Kettle anxiety and Lazarus stress coping strategies). Then, they were contacted for the follow-up outcome of pregnancy.

Data collection tools

This study was conducted through an anxiety questionnaire (Katell), and a stress coping strategies questionnaire (Lazarus)

Kettle's anxiety questionnaire is based on extensive research and is designed for people over

[DOR: 20.1001.1.27832104.2023.7.1.5.3]

[DOI: 10.18502/jsbch.v7i1.12792]

14-15 years old (San Lazaro, 2017). This questionnaire contains 40 questions, asked in two series of 20 questions, and their scoring is done separately. Each question is assigned a score between 0 and 2, which shows the highest and the lowest levels of anxiety in that question. In this way, the first 20 questions can be from zero to forty and the next 20 questions from zero to forty points. In total, each person can get between 0 and 80 points, which is called a general anxiety score. The first score of 0 to 40 shows covert anxiety and the second series of scores shows overt anxiety. There is a distinction between overt and covert anxiety questionnaires. Covert anxiety is the general tendency to respond to various situations with a high level of anxiety, while overt anxiety is more specific and refers to a person's anxiety at a specific moment (Huss B, 2021). This scale has been used in various studies, and the validity and reliability of the questionnaire are confirmed. In addition, in the Iranian version edited by Mansour and Dadestan in 1988 with research on 16342 men and 8532 women, that considered a suitable tool for anxiety diagnosis (San Lazaro, 2017). In addition, the reliability of the tool or scale was calculated through Cronbach's alpha, and the number 0.76 was obtained, which represents an acceptable reliability coefficient. Based on the classification, normal or non-traumatic anxieties were also defined as anxiety when the subject's overall anxiety score was less than 40.

The Lazarus stress coping skills test is based on the Lazarus model of stress and the behavioral self-regulation model presented by Carver and Eskiro Weintraub (1989), and translated by Zulfiqari, Mohammad Khani, and Ebrahimi (1371). It has been revised according to Iranian culture and other available coping scales. Its validity and reliability in the study by Carver, et al. (1989) were obtained as r = 0.76. The highest reliability coefficient (r = 0.95) was related to the scale of religion and the lowest (r = 0.63) was related to non-religious involvement. The reliability coefficient of the whole scale was calculated as 0.93 (Ho AL, 2022., Farren, 2016).

This questionnaire has 66 items and evaluates eight coping methods, which were finally divided into two general styles, problem-oriented and emotion-oriented. Lazarus has stated the internal consistency of the scales from 0.66 to 0.79 for each of the coping methods (Farren, 2016).

This study was approved by ethical committee of the Avicenna Research Institute, ACECR, and Tehran, Iran. The Code of Ethics was 88/7916.

Statistical method

To analyze data, descriptive and inferential statistics analysis of the data, frequency distribution, mean, standard deviation, and minimum and maximum values were considered. Regarding the inferential statistics, Kolmogorov-Smirnov test, Durbin-Watson statistic, Pearson correlation coefficient, multivariate correlation coefficient, and simultaneous multivariate regression analysis was run. The mean scores of over two groups were compared; student's t-test to compare the scores of two independent groups, and Chi-square x^2 test. All statistical analysis was performed using SPSS ver.22.

The study was approved by the institutional review board with the ethics code: 88/7916 of Avicenna Research Institute. Informed written consent was obtained from all participants before their enrollments in this study. All the participants were received thorough information about the study. A written informed consent was received from each participant.

Result

In this study, among 50 women, 32 women successfully passed the 20th week and 18 women had a miscarriage. Then, the results were analyzed in terms of the level of anxiety and stress-coping strategies n.

The mean scores of anxiety in women with recurrent abortions regarding unsuccessful and successful pregnancies were 12.56 (SD = 1.886) and 7.38 (SD = 2.780), respectively. The comparison of the scores shown that the anxiety level of women with recurrent abortions was higher than women with one abortion. There was a difference observed in the level of anxiety of women suffering from

recurrent abortions regarding unsuccessful and successful pregnancies, which was statistically significant at 0.01. Considering the significance of the mean, and regarding the confidence level of 99%, the authors can state that there was a difference between the levels of anxiety in recurrent, repeated abortion with regard to successful and unsuccessful pregnancies.

(Unsuccessful pregnancy = 18, successful pregnancy = 32).

Table 1 shows that the Chi-square distribution was calculated based on stress-coping strategies in women suffering from recurrent miscarriages with successful and unsuccessful pregnancies. 71.5% of the variance in the stress coping style score has been considered for both successful and unsuccessful cases in relation to women suffering from recurrent abortions. Therefore, the hypothesis that there was a difference between successful and unsuccessful pregnancies regarding stress coping strategies in recurrent abortion patients was confirmed, Table 1.

Table 1. Stress coping strategies in women suffering from recurrent miscarriage with outcome pregnancies

Strategies for dealing with stress	Outcome pregnancy		x^2	Significance level(Sig)	df	ϕ	ϕ^2
	Successful	Unsuccessful					
Solving the problem	18	0	35.795	0.00	2	0.846	0.715
Less useful and ineffective	10	0					
Excited	4	18					
Total	32	18					

Results of this study show that the mean score of anxiety due to unknown abortion is 12.21, and immunological abortion, 6.89 and in abortion for other reasons, it is 8.48, Chart 1.

Table 2 shows the analysis of variance between the levels of anxiety based on the cause of abortion.

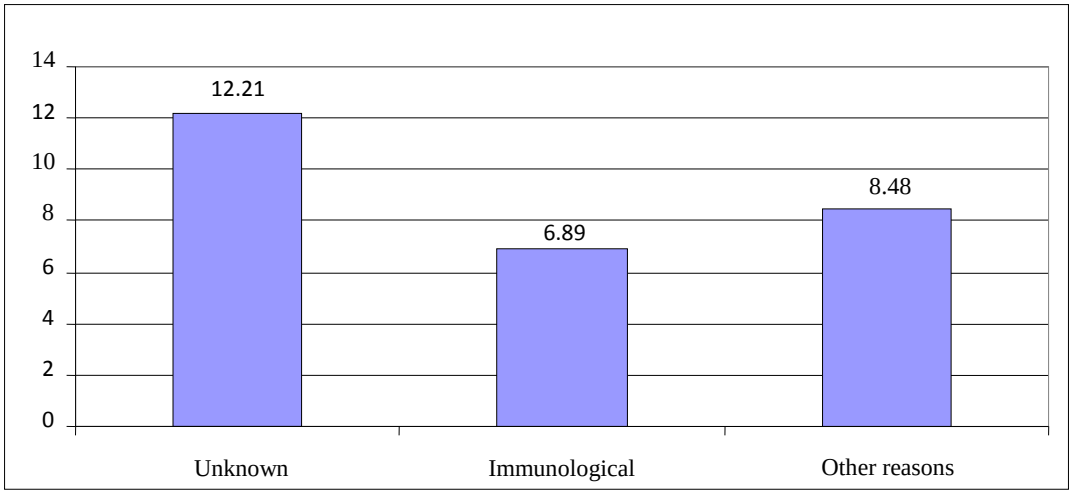

Chart 1. Distribution of the mean score of anxiety in women suffering from recurrent abortions

[DOR: 20.1001.1.27832104.2023.7.1.5.3]
[DOI: 10.18502/jsbch.v7i1.12792]

Table 2. Analysis of variance between the levels of anxiety based on the cause of abortion

Modifications	Sum of squares (s.s)	d.f	mean of squares (m.s)	f	Significance level (sig)	Eta effect size	Power of the test
Modified model	189.133	2	94.567	10.583	0.000	0.311	0.985
Separator, identifier	3465.365	1	3465.364	387.803	0.000	0.892	1.000
Groups	189.133	2	94.567	10.583	0.000	0.311	0.985
Error	419.874	47					
Total	4878	50					
Modified total	609.120	49					

According to the results of Table 2, there is a difference between the rate level of anxiety in women with recurrent abortions and unknown cause with the immunological cause of abortion (Difference of means = 5.33 and Standard deviation = 1.277). Also, this difference is statistically significant between the unknown cause of abortion and the cause of other reasons for abortion at the rate of (Difference of means = 3.73, Standard deviation = 0.984). Therefore, there was a difference between the level of anxiety in recurrent abortion patients and the cause of abortion (CI = 0.99).

33% of the variance in the stress coping strategy score was related to women with recurrent abortions, which was statistically significant, Table 3.

Table 3. Strategies for dealing with stress in women with frequent abortions based on the cause of abortion

Stress coping strategies	Cause of abortion			x^2	Significance level (Sig)	df	ϕ	ϕ^2
	Unspecified	Immunological	Other reasons					
Problem solving	0	7	11	1.826	4	0.002	0.580	0.330
Less useful and ineffective	4	2	4					
Excitement oriented	10	0	12					
Total	14	9	27					

The mean score of anxiety in women suffering from recurrent miscarriage for secondary abortion was 11.67 and for primary abortion were 7.88. Therefore, the anxiety level of women suffering from secondary recurrent miscarriage was higher than primary abortion. There was a difference between the level of anxiety of women suffering from recurrent abortion and the type of abortion (primary and secondary), and this difference was statistically significant at the level of 0.01.

There was a difference between stress coping strategies in recurrent abortion patients and the type of abortion, Table 4.

Table 4. Calculated distribution x2 between stress coping strategies and type of abortion

Stress coping strategies	Abortion type		x^2	Significance level (Sig)	df	ϕ	ϕ^2
	Primitive	Secondary					
Problem solving	16	2	0.087	0.006	2	0.449	0.201
Less useful and ineffective	7	3					
Excitement oriented	9	13					
Total	32	18					

Chart 2 shows that the mean score of anxiety in patients with a history of two abortions is 5, for three abortions, 9.96, for four abortions, 11.43, for five miscarriages, 8 and for six miscarriages, it is 6

[DOR: 20.1001.1.27832104.2023.7.1.5.3]
[DOI: 10.18502/jsbch.v7i1.12792]

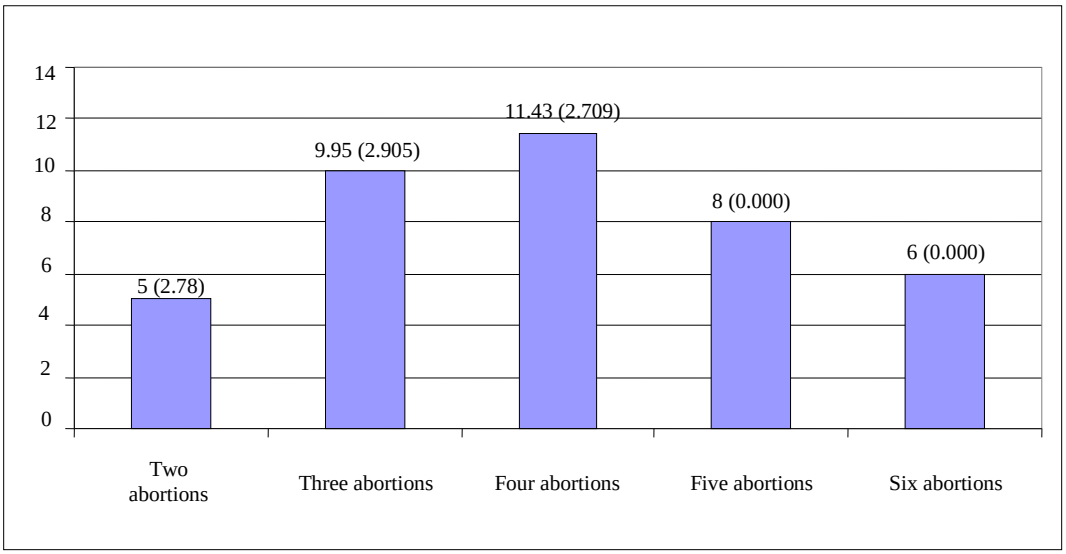

Chart 2. Distribution of the mean (standard deviation) of anxiety in women with frequent abortions and the number of abortions

S = standard deviation, $\overline{X}$ = mean

There was a difference between the level of anxiety in women with recurrent abortions and the number of abortions. This difference was statistically significant at the level of 0.01.

There was a difference (6.43) between the anxiety of women suffering from recurrent miscarriages and a history of four and two miscarriages, which was statistically significant (P < 0.0005). Therefore there was a difference between the level of anxiety in recurrent abortion and the number of abortions (CI = 99%).

62% of the variance for the stress coping strategy score in relation to women suffering from recurrent abortions has been addressed with the number of abortions. There was a difference between stress-coping strategies in recurrent abortion patients and the number of abortions, Table 5.

Table 5. Distribution of strategies to deal with stress in women suffering from recurrent abortions and the number of abortions

Strategies to deal with stress	Number of abortions					x^2	Significance level (sig)	d.f	ϕ	ϕ^2
	two	three	four	five	six					
Problem Solving	7	5	2	2	2	19.217	0.014	8	0.620	0.384
Less useful and ineffective	0	6	4	0	0					
Excitement oriented	2	12	8	0	0					
Total	9	23	14	2	2					

Discussion

Recurrent abortion is among the unwanted abortions, usually defined as the occurrence of three or more abortions. According to this study, recurrent miscarriage affects 0.5-5% of pregnant women. Another study showed that 5% of couples will experience two recurrent miscarriages (Huang X 2022, Tao 2012, and Abdishahshahani2020). Recurrent abortions are caused by various factors such as genetic, anatomical, infectious, hormonal, immunological, etc. In some cases, abortions are unjustified, and the role of psychological factors has been ignored in most studies (San Lazaro Campillo, 2017., Tavoli, 2018).

Recurrent miscarriage syndrome has a negative impact on the emotions of the couples involved, and mostly on women. In this study, there was a difference between the levels of anxiety in

[DOR: 20.1001.1.27832104.2023.7.1.5.3]
[DOI: 10.18502/jsbch.v7i1.12792]

recurrent abortion patients and the outcome of pregnancies.

There was a difference between successful pregnancy (32 people) and unsuccessful pregnancy (18 people) regarding anxiety scores of the two groups. Women with unsuccessful pregnancies experienced more anxiety.

It can be concluded that women with a history of recurrent abortions whose pregnancy resulted in abortion face more anxiety during these twenty weeks of pregnancy than women with a history of recurrent abortions who successfully completed their pregnancy.

Pregnant women with high levels of stress and anxiety were at greater risk of spontaneous abortion and early labor pain (premature labor), and premature and incomplete children. There is little evidence for long-term study of functional impairment after exposure to stress during pregnancy; however, retrospective and prospective studies support the possibility of such effects.

Lipel, et al (2017) stated that psychological factors were intertwined in spontaneous abortions and recurrent abortions. Elevation of stress hormones (catecholamines, cortisol), which reduces blood and oxygen supply to the fetus, may lead to labor pain and abortion. Sufficient counseling and treatment may be helpful in overcoming depression and reactions after pregnancy losses and avoiding complications.

In this study, there was a difference between successful and unsuccessful pregnancies regarding stress-coping strategies in recurrent abortion patients.

After statistical analysis, it was confirmed that there were different strategies to deal with stress in recurrent miscarriage patients regarding successful and unsuccessful pregnancies.

Women suffering from recurrent miscarriages with successful pregnancies used a problem-solving, stress-coping technique, and women suffering from recurrent miscarriages with unsuccessful pregnancies used an emotion-oriented, stress-coping technique.

Therefore, using appropriate stress-coping strategies at the time of stress plays a role in pregnancy's success, and women with recurrent miscarriages who had a successful pregnancy used more problem-solving strategies.

Pahlavani, et al (2011), compared the level of stress, coping strategies, and mental health of infertile people with fertile people. They showed that the infertile group experienced more stress and had lower mental health compared to the fertile group. Infertile people who mostly used less useful coping strategies had lower mental health, but there was no significant difference in using problem-solving and emotion-oriented strategies. Moreover, infertile women used significantly less useful coping strategies compared with infertile men.

According to the findings, there was a difference in the anxiety scores of the three groups of women with recurrent abortions. They were divided into three categories based on the cause of the abortion (unknown cause, immunological cause, and other causes). And the mean score of anxiety in women with recurrent abortions for unknown reasons was higher than other two groups.

After comparing the scores, it can be concluded that women with recurrent abortions whose reason for abortion was unclear (that is, the medical reason for their abortion could not be justified) faced more anxiety. The findings were consistent with Hari, et al's study (2000).

Women with recurrent miscarriages for known reasons in comparison with women with recurrent miscarriages with an unknown cause and women with recurrent miscarriages with an immunological cause are more problem-solving and emotion-oriented stress-coping styles.

According to this result, there was a difference in the anxiety scores of the two groups of women suffering from recurrent miscarriages based on the type of miscarriage (primary and secondary).

In the analysis of this hypothesis, it is possible to indicate the level of anxiety of women suffering from recurrent abortions with the secondary abortion type, considering that these women have experienced the birth of a live child and have fewer physiological problems than women with recurrent

[DOR: 20.1001.1.27832104.2023.7.1.5.3]
[DOI: 10.18502/jsbch.v7i1.12792]

abortions with the secondary abortion type. So, it is more likely that the role of anxiety in the occurrence of their miscarriage can be indicated (Arafi, et al, 2012).

In this study, there was a difference between strategies to deal with stress in recurrent abortion patients regarding the type of abortion.

In this study, there was a difference between the level of anxiety in recurrent abortion patients and the number of abortions.

According to the result of this study, it can be said that there was a difference in the anxiety scores of five groups of women with recurrent abortions based on the number of abortions (2, 3, 4, 5, and 6 abortions). Women with a history of 4 abortions faced more anxiety than other women, and women with a history of 2 abortions experienced less anxiety.

If women with 2 abortions have less anxiety, it is expected that women with 6 abortions have more anxiety, but the present study did not confirm it. It can be said that women who experienced more than 4 abortions, have reached a state of "desperation" to have children. They no longer have the emotional state of the first pregnancy.

Thaghafi, et al (2012) argued that the duration of infertility treatment, which is usually long, can aggravate mental and psychological condition of women. Findings showed that the mean scores of anger in the first 3 years were higher than other times of treatment, and the mean scores of general mental status and depression were higher in women who were treated for 4-6 years than in other groups.

In this study, there is a difference between the stress coping strategies in recurrent abortion patients with the number of abortions.

After statistical analysis and the significance of chi-square, it was confirmed that there was a difference between stress coping strategies in recurrent abortion patients regarding the number of abortions.

Women with recurrent abortions and a history of 2 abortions were more prone to problem-solving technique; women with recurrent abortions and a history of 3 and 4 abortions mostly used emotion-oriented technique, and women with frequent abortions and a history of 5 and 6 miscarriages mostly used problem-solving coping style

Strengths and limitations of the study

As an interdisciplinary research, the researcher must have a relative mastery of physical issues and women's diseases for this study. Another issue is that experts were more involved with medical and physical issues and symptoms. They distanced themselves from the holistic view of humans and their problems.

Another issue was mental and physical condition of the affected women, all of whom were pregnant and were not in the right condition to answer the questionnaire with many questions.

There was time limitation .This was because the researchers had to wait until the people passed the 20th week of pregnancy successfully.

There was lack of specific resources and research on frequent abortion and anxiety.

Conclusion

The relationship between the levels of anxiety and stress-coping strategies in women with recurrent abortions and the outcome of pregnancy are significantly different. The anxiety level of pregnant women with recurrent abortions whose pregnancies led to abortions is significantly higher than other pregnant women. Patients with recurrent miscarriage and a successful pregnancy are more. In addition, women with recurrent abortions and successful pregnancies use problem-solving stress coping techniques, and women with recurrent abortions and unsuccessful pregnancies use more emotion-oriented stress-coping techniques.

Acknowledgments

This study was derived from a M.Sc. dissertation and supported by a grant from Avicenna Infertility Center Foundation. The authors would like to thank all parents who participated in the study.

Conflict of Interest

Authors declared no conflict of interest.

[DOR: 20.1001.1.27832104.2023.7.1.5.3]
[DOI: 10.18502/jsbch.v7i1.12792]

[DOR: 20.1001.1.27832104.2023.7.1.5.3]

[DOI: 10.18502/jsbch.v7i1.12792]

Authors' contribution

Conceptualization, S. O.; methodology, S. O., B. Gh.; formal analysis, S. H., Z. S.; investigation, S. O., B. Gh., Z. S.; writing, reviewing, and editing, S. O., B. Gh., Z. S.; supervision, B. Gh.; writing original draft, Z. S. All authors read and approved of the final manuscript and were responsible for any question related to the paper.

References

Huang, X., Ju, H., & Song, G. (2021). Evaluation of basal hormone levels and androgen receptor gene mutations in individuals with recurrent abortion. Cellular and Molecular Biology, 67(4), 274-281. Doi: 10.14715/cmb/2021.67.4.30.

Tao, P., Coates, R., & Maycock, B. (2012). Investigating marital relationship in infertility: a systematic review of quantitative studies. Journal of reproduction & infertility, 13(2), 71.

Abdishahshahani, M., Torabi, M., & Kazemi, A. (2020). Investigating related factors to psychological symptoms of infertile couples undergoing assisted reproductive treatment. Journal of education and health promotion, 9. Doi: 10.4103/jehp.jehp_412_19. [Persian]

Bachir, S., & Aouar, A. (2019). Study of the impact of consanguinity on abortion and mortality in the population of Beni Abbes (southwestern Algeria). Egyptian Journal of Medical Human Genetics, 20, 1-7. Doi: 10.1186/s43042-019-0004-7

El Hachem, H., Crepaux, V., May-Panloup, P., Descamps, P., Legendre, G., et al. (2017). Recurrent pregnancy loss: current perspectives. International journal of women's health, 331-345. Doi: 10.2147/IJWH.S100817.

Hocaoglu, C. (2019). The psychosocial aspect of infertility. Infertility, assisted reproductive technologies and hormone assays, 65. Available at: https://www.intechopen.com/chapters/63247. Doi: 10.5772/intechopen.80713.

Fukui, A., Kamoi, M., Funamizu, A., Fuchinoue, K., Chiba, H., et al. (2015). NK cell abnormality and its treatment in women with reproductive failures such as recurrent pregnancy loss, implantation failures, preeclampsia, and pelvic endometriosis. Reproductive medicine and biology, 14, 151-157. Doi: 10.1007/s12522-015-0207-7.

Zhao, Y., Zhou, Q., Li, J., Luan, J., Wang, B., et al. (2021). Influence of psychological stress and coping styles in the professional identity of undergraduate nursing students after the outbreak of COVID-19: A cross-sectional study in China. Nursing Open, 8(6), 3527-3537. Doi: 10.1002/nop2.902.

Kulathilaka, S., Hanwella, R., de Silva, V. A. (2016). Depressive disorder and grief following spontaneous abortion. BMC psychiatry, 16, 1-6. Doi: 10.1186/s12888-016-0812-y

Huang, Z., Hao, J., Su, P., Huang, K., Xing, X., et al. (2012). The impact of prior abortion on anxiety and depression symptoms during a subsequent pregnancy: data from a population-based cohort study in China. Klinik Psikofarmakoloji Bülteni-Bulletin of Clinical Psychopharmacology, 22(1), 51-58. Doi: 10.5455/bcp.20111102040509

Qu, F., Wu, Y., Zhu, Y. H., Barry, J., Ding, T., et al. (2017). The association between psychological stress and miscarriage: a systematic review and meta-analysis. Scientific reports, 7(1), 1-8. Doi: 10.1038/s41598-017-01792-3

Campillo, I. S. L., Meaney, S., McNamara, K., O'Donoghue, K. (2017). Psychological and support interventions to reduce levels of stress, anxiety or depression on women's subsequent pregnancy with a history of miscarriage: an empty systematic review. BMJ open, 7(9), e017802. Doi: 10.1136/bmjopen-2017-017802

Huss, B. (2021). Well-being before and after pregnancy termination: the consequences of abortion and miscarriage on satisfaction with various domains of life. Journal of Happiness Studies, 22(6), 2803-2828. Doi: 10.1007/s10902-020-00350-5

Ho, A. L., Hernandez, A., Robb, J. M., Zeszutek, S., Luong, S., et al. (2022). Spontaneous Miscarriage Management Experience: A

Systematic Review. Cureus, 14(4). Doi: 10.7759/cureus.24269. PMID: 35602780; PMCID: PMC9118363.

Farren, J., Jalmbrant, M., Ameye, L., Joash, K., Mitchell-Jones, N., et al. (2016). Post-traumatic stress, anxiety and depression following miscarriage or ectopic pregnancy: a prospective cohort study. BMJ open, 6(11), e011864. Doi: 10.1136/bmjopen-2016-011864.

Sugiura-Ogasawara, M., Ozaki, Y., & Suzumori, N. (2014). Management of recurrent miscarriage. Journal of Obstetrics and Gynaecology Research, 40(5), 1174-1179.

Pfeifer, S., Goldberg, J., Lobo, R., Thomas, M., Widra, E., et al. (2013). Definitions of infertility and recurrent pregnancy loss: a committee opinion. Fertil Steril, 99(1), 63. Doi: 10.1016/j.fertnstert.2012.09.023

Tavoli, Z., Mohammadi, M., Tavoli, A., Moini, A., Effatpanah, M., et al. (2018). Quality of life and psychological distress in women with recurrent miscarriage: a comparative study. Health and quality of life outcomes, 16(1), 1-5. Doi: 10.1186/s12955-018-0982-z. [Persian]