



Relationship of Infertility Stress with Perception of Control Among a Group of Women with Fertility Problem in Shiraz

Abdulaziz Aflakseir^{1,*} and Masoumeh Zareh¹

¹University of Shiraz, Shiraz, Iran

*Corresponding author: University of Shiraz, Shiraz, Iran. Email: aafakseir@shirazu.ac.ir

Received 2018 April 04; Revised 2019 January 02; Accepted 2019 January 26.

Abstract

Background: Women with infertility problem experiences high emotional pressure such as stress, anxiety, and depression. The health locus of control seems to have an important impact on health-related problems.

Objectives: The purpose of this study was to predict infertility stress based on health locus of control (internal, powerful others, and chance) among a group of women with fertility problem in Shiraz.

Methods: One hundred and twenty women with fertile problems were recruited from infertility clinics in Shiraz using purposeful sampling. Participants completed the research measures, including Fertility Problem Inventory and Multidimensional Health Locus of Control Scale.

Results: Regression analysis indicated that the component of chance locus of control ($P < 0.01$) and illness duration ($P < 0.01$) significantly predicted infertility stress in women with fertility problem. The participants who attributed their infertility to chance or fate experienced less fertility stress. Furthermore, those who had a longer duration of fertility problem were more likely to experience infertility stress. The two other components of locus of control, including internal health locus of control and powerful others health locus of control, did not predict infertility stress.

Conclusions: This study highlights the importance of perceiving control on the psychological well-being of women with infertility problem.

Keywords: Infertility, Stress, Locus of Control, Internal, Chance, Powerful Others

1. Background

A clinical diagnosis of infertility is made if a couple fails to become pregnant after regular, unprotected sexual intercourse for a minimum of twelve months (1). Globally, about 10% to 15% of couples have infertility problems (2). The prevalence of infertility has been increased among Iranian couples. Tehran study and National Infertility Survey (NIS) estimated the prevalence of lifetime primary infertility to be 21.9% and 24.9%, respectively (3). Childlessness can occur in couples who have never had children (primary infertility) and in those who have already had children (secondary infertility) (2). Women without children may idealize images of what motherhood will be like and therefore, place a higher value on the significance of motherhood (4). Conceiving is very important for Iranian people and not conceiving is considered stigma, particularly for women (5). Therefore, the inability to conceive is experienced by individuals and couples as a stressful situation (6). The studies have indicated that females with fertility problems tend to show higher levels of distress than their

male partners (7). In other words, they experience high emotional distress such as stress, anxiety, and depression. For example, in a study, about 15% of infertile women met the criteria for anxiety and about 11% for depression (8). Infertility can have psychological and social consequences for infertile couples and their families. Studies have documented that a number of factors are associated with infertility stress. These factors include demographic characteristics such as age, attitudinal and cultural factors such as religiosity, social pressure, and the importance of motherhood on infertility distress. For instance, one study in India showed that the stigma of not having a child was associated with infertility stress (6). In another research, it was found that the type of infertility (primary infertility and secondary infertility) was related to distress (9). One of the most difficult emotional consequences of infertility is likely loss of control over one's life (10). It is believed that perceiving control is crucial for individuals with fertility problems (11). The locus of control refers to the extent to which individuals believe that they can control events that

affect them (12). The concept of locus of control consists of three dimensions, including internal, powerful others, and chance. External control refers to perceptions that an event is contingent upon luck, fate, chance, powerful others, or unpredictable forces. Internal control refers to beliefs that the event is contingent upon one's own behavior (12). The concept of health locus of control has been applied to health situations. Numerous studies have examined the relationship between health locus of control and health conditions such as diabetes mellitus, disability, cancer, hypertension, obesity, and heart disease (13, 14). Research has found that individuals with high internal control locus of control are more likely to take control of their own health (15). Although many studies have been conducted on infertility among Iranian women, the role of psychological factors such as perceiving control on infertility condition has been neglected in these studies. Furthermore, perceiving control in stressful conditions such as infertility, which individuals have less control over it may be different in various culture. For example, certain cultures might emphasize fate for childbirth. Thus, it is important to identify which dimensions of the health locus of control are associated with infertility stress.

2. Objectives

The aim of this study was to predict infertility stress based on age, duration of infertility, and components of the health locus of control such as internal, powerful others, and chance in a group of women with fertility problem in Shiraz.

3. Methods

The present study is a descriptive and correlational one conducted on 120 women referred to infertility clinics in 2013. They were recruited from the several infertility clinics in Shiraz using purposeful sampling. The criterion for diagnosis was the inability to achieve conception despite unprotected sexual intercourse in at least one year. Patients who failed to meet this criterion and/or were over 60 years of age were excluded from the study. The use of psychotropic medication in the past three months, as well as women with a history of mental health problems did not enter the study. This study was confirmed by the Research Ethics Committee of the School of Education and Psychology at Shiraz University as a research proposal. The informed written consent was obtained from all participants and they were assured about the confidentiality and anonymity of the obtained data and their usage just in the direction of the research objectives. The participants were

asked to answer some questions on demographic characteristics and also clinically-related factors such as infertility duration. The questionnaires were delivered to participants personally by the second author at the clinics to ensure that the questionnaires were filled out instantaneously. Infertility stress was measured by the Fertility Problem Inventory (16), which is a 14-item-scale measuring perceived infertility stress. The scale consisted of three domains, including personal (six items - e.g., my life has been disrupted because of this fertility problem), marital (four items - e.g., the childlessness has caused crisis in our relationship), and social (four items - e.g., how much stress has your fertility problem placed on your relationships with your family?). Responses on item 1 - 2 of personal and marital domains were rated on a 5-point scale from 1 (strongly disagree) to 5 (strongly agree) and responses for remaining items ranged from 1 (none at all) to 4 (a great deal). Accordingly, higher scores indicated higher infertility stress. Studies have reported acceptable reliability and validity for this scale and the Cronbach's alpha of the scale was estimated to be 0.93, which is quite high (16). This questionnaire has also been applied in Iran and its Cronbach's alpha ranged from 0.79 to 0.95 for different components of the Fertility Problems Inventory (17). Moreover, the health locus of control was measured by the Multidimensional Health Locus of Control Scale (MHLC). The MHLC, an 18-item questionnaire, includes one internal component and two external components such as chance and powerful others (18). The scale comprised of three 6-item-scales that use 6-point-scale ranging from 1 (strongly disagree) to 6 (strongly agree). Each of the subscales was scored independently by summing the responses, giving a range of 6 - 36 with higher values reflecting higher levels of the perceiving control. The studies have reported acceptable reliability and validity for the MHLC, with Cronbach's alpha ranging from 0.60 to 0.75, and test-retest reliability coefficients ranging from 0.40 to 0.80 (18). This scale has been used in Iran and studies have reported good reliability and validity for the scale (19). Form C, the version used in the current study, is used with specific health problems. Data were analyzed using SPSS version 16. Mean and standard deviation were utilized to describe the data. Furthermore, Pearson correlation was used to examine the association of health locus of control with infertility stress. Finally, simultaneous multiple regression analysis was used to examine the contribution of age, infertility duration and the dimensions of health locus of control in predicting infertility stress. For conducting regression analysis, infertility duration, and components of the health locus of control including internal locus of control, powerful others locus of control and chance locus of control were entered into the model as the independent variables. Then the to-

tal score of infertility stress were entered into the model as the dependent variable. A P value < 0.05 was considered statistically significant.

4. Results

The average age of the participants was 29.2 years (SD = 4.5) ranging from 24 to 52 years. The distribution of educational status was: (1) below high school 38%, (2) high school education 27%, (3) undergraduate education 32%, and (4) postgraduate 3%. Furthermore, the mean duration of infertility was 4.2 years, and the mean length of fertility treatments was 2.8 years. In addition, the majority of participants were housewives (75%). Descriptive results on infertility stress showed that participants had the highest score on personal stress (M = 10.81) followed by marital (M = 6.57) and social (M = 4.43) domains. With regard to the locus of control; the findings indicated that the participants scored high on perceived powerful others locus of control (M = 23.27) followed by internal (M = 20.71) and chance (M = 18.86). The descriptive data are shown in Table 1. The correlation results indicated that duration of infertility ($r = 0.39$, $P < 0.01$), chance locus of control ($r = 0.42$, $P < 0.01$), and powerful others locus of control ($r = 0.25$, $P < 0.05$) significantly correlated to infertility stress. However, internal locus of control and age didn't significantly correlate to infertility stress (Table 2). Furthermore, the results of multiple regression analysis revealed that the model was significant ($F = 23.5$, $P < 0.01$) and accounted for 18 percent of the variance in infertility stress ($R^2 = 0.18$, $P < 0.05$). Furthermore, among independent variables were entered into the model, infertility duration ($\beta = 0.30$, $P < 0.01$) and chance locus of control ($\beta = -0.38$, $P < 0.01$) predicted significantly infertility stress. In other words, women who had a longer duration of infertility were more likely to experience a high level of stress. Furthermore, those who attributed their infertility to chance or fate were less likely to experience infertility stress. The findings also indicated that age, internal control, and powerful others control did not predict infertility stress. The findings of multiple regression analysis are presented in Table 3.

5. Discussion

The purpose of this study was to examine the role of health locus of control in predicting infertility stress. The results showed that participants scored high on powerful others control followed by chance and internal control. This finding was different from some research indicating the use of internal control for patients with physical illness. These studies have reported that patients attributed

Table 1. The Mean and Standard Deviations of the Components of Fertility Problem Inventory and Multidimensional Health Locus of Control (N = 120)

| Variable | Mean \pm SD |
|----------------------------------|------------------|
| Personal stress | 10.81 \pm 3.09 |
| Marital stress | 6.57 \pm 2.27 |
| Social stress | 4.43 \pm 3.14 |
| Internal locus of control | 20.71 \pm 3.19 |
| Powerful others locus of control | 23.27 \pm 4.52 |
| Chance locus of control | 18.86 \pm 3.07 |

Table 2. Relationships of Age, Duration of Infertility and the Dimensions of Health Locus of Control with Infertility Stress (N = 120)

| Predictor Variable | r | P |
|----------------------------------|------|------|
| Age | 0.13 | 0.12 |
| Infertility duration | 0.39 | 0.01 |
| Internal locus of control | 0.10 | 0.10 |
| Powerful others locus of control | 0.25 | 0.05 |
| Chance locus of control | 0.42 | 0.01 |

their conditions and healthy behaviors to internal control (20, 21). A possible explanation for this finding may be related to the nature of illness. The inconsistency may be due to nature of illness, the individuals surveyed in the previous studies often were patients who had some degree of control on their situation. For example, diabetic patients can manage their situation; therefore, they may perceive more internal control (22). However, infertile women in this study did not have control over their situation. The control theory assumes that infertility is a condition that cannot be controlled (10). Indeed, they felt that they may be helped by powerful others such as doctors or chance. This result is expected with regard to infertility condition. This finding was in agreement with a study indicating infertile individuals perceived less control over conception (4). The findings also support pieces of literature that internal control may not be a positive attribute in uncontrollable situations (23). The infertile people may come to feel frustrated and helpless because of their inability to change their situation. Findings of this study also showed that the chance dimension of control and infertility duration predicted stress among women with fertile problems. Indeed, women who felt the control of their fertility lies outside of their ability (chance or fate) experienced less stress. In other words, they attributed their condition to external control and this perception may help individuals to cope with less controlled situations such as infertility. Findings on chance were consistent with previous research results indicating that the infertile individuals were more likely

Table 3. Multiple Regression Analysis for Predicting Infertility Stress (N = 120)

| Independent Variable | β | B | SE | T | P Value | F | R ² |
|----------------------------------|---------|-------|------|------|---------|-------------------|-------------------|
| Age | 0.45 | 0.16 | 0.08 | 0.78 | 0.13 | 23.5 ^a | 0.18 ^b |
| Infertility duration | 0.72 | 0.30 | 0.05 | 3.50 | 0.01 | | |
| Internal locus of control | 0.27 | 0.23 | 0.80 | 1.09 | 0.09 | | |
| Powerful others locus of control | 0.66 | 0.19 | 0.24 | 0.85 | 0.10 | | |
| Chance locus of control | 0.79 | -0.38 | 0.21 | 3.76 | 0.01 | | |

Abbreviations: B, unstandardized coefficient; β , Beta; SE, standard error; T, t-test.

^a P < 0.01.

^b P < 0.05.

to perceive themselves as controlled by external forces (18). Individuals with lack of control on their conditions such as infertile women may resort to powerful others (physician) and chance to manage their situation. Additionally, people with religious beliefs may also believe in external factors such as destination (24). This study highlights the importance of perceiving control to manage stress. In terms of infertility duration, the results of this study indicated that stress was higher in women with a longer duration of infertility. The finding of this study was expected and supports some other research on this issue (25). It seems that the length of infertility may affect women with fertile problems. Women with a longer length of infertility feel that they are less likely to be pregnant and this causes them to feel stress. The present study has several limitations. First, there might be some other important factors influencing infertile women's well-being such as marital relationship and social support that needs to be considered in future studies. Second, as the majority of Iranian people are religious, the concept of attribution to God or God's will need to be included in the future studies. This study showed that most women with fertility problems experienced stress. The findings highlighted the importance of health locus of control in predicting infertility stress.

Acknowledgments

The authors would like to thank the Infertility Clinics in Shiraz for cooperation in data collection and also thank participants for taking part in this study.

Footnotes

Authors' Contribution: Masoumeh Zareh collected the data. Abdulaziz Aflakseir designed the research proposal, analyzed the data, and wrote the manuscript.

Conflict of Interests: There is no conflict of interest in this study.

Ethical Considerations: The research proposal was approved by the Research Ethical Committee of Shiraz University.

Funding/Support: None.

Patient Consent: The informed written consent was obtained from all participants and they were assured about the confidentiality and anonymity of the obtained data and their usage just in the direction of the research objectives.

References

1. Watkins KJ, Baldo TD. The infertility experience: Biopsychosocial effects and suggestions for counselors. *J Couns Dev.* 2004;**82**(4):394-402. doi: [10.1002/j.1556-6678.2004.tb00326.x](https://doi.org/10.1002/j.1556-6678.2004.tb00326.x).
2. World Health Organization. *Sexual and reproductive health.* 2013. Available from: <http://www.who.int/topics/infertility/en/>.
3. Kazemi M, Ali A. [An overview of the epidemiology of primary infertility in Iran]. *J Rep Infertility.* 2009;**10**(3):213-6. Persian.
4. McQuillan J, Greil AL, Scheffler KM, Tichenor V. The importance of motherhood among women in the contemporary United States. *Gen Soc.* 2008;**22**(4):477-96. doi: [10.1177/0891243208319359](https://doi.org/10.1177/0891243208319359). [PubMed: [20407592](https://pubmed.ncbi.nlm.nih.gov/20407592/)]. [PubMed Central: [PMC2855977](https://pubmed.ncbi.nlm.nih.gov/PMC2855977/)].
5. Kashani-Sabet F. *Conceiving citizens: Women and the politics of motherhood in Iran.* Oxford University Press; 2011.
6. Cousineau TM, Domar AD. Psychological impact of infertility. *Best Pract Res Clin Obstet Gynaecol.* 2007;**21**(2):293-308. doi: [10.1016/j.bpobgyn.2006.12.003](https://doi.org/10.1016/j.bpobgyn.2006.12.003). [PubMed: [17241818](https://pubmed.ncbi.nlm.nih.gov/17241818/)].
7. Deka PK, Sarma S. Psychol aspect infertility. *BJMP.* 2010;**3**(3):336.
8. Volgsten H, Skoog Svanberg A, Ekselius L, Lundkvist O, Sundstrom Poromaa I. Prevalence of psychiatric disorders in infertile women and men undergoing in vitro fertilization treatment. *Hum Reprod.* 2008;**23**(9):2056-63. doi: [10.1093/humrep/den154](https://doi.org/10.1093/humrep/den154). [PubMed: [18583334](https://pubmed.ncbi.nlm.nih.gov/18583334/)]. [PubMed Central: [PMC2517152](https://pubmed.ncbi.nlm.nih.gov/PMC2517152/)].
9. Greil AL, Shreffler KM, Schmidt L, McQuillan J. Variation in distress among women with infertility: Evidence from a population-based sample. *Hum Reprod.* 2011;**26**(8):2101-12. doi: [10.1093/humrep/der148](https://doi.org/10.1093/humrep/der148). [PubMed: [21659313](https://pubmed.ncbi.nlm.nih.gov/21659313/)]. [PubMed Central: [PMC3137388](https://pubmed.ncbi.nlm.nih.gov/PMC3137388/)].
10. Greil AL, Slauson-Blevins K, McQuillan J. The experience of infertility: A review of recent literature. *Sociol Health Illn.* 2010;**32**(1):140-62. doi: [10.1111/j.1467-9566.2009.01213.x](https://doi.org/10.1111/j.1467-9566.2009.01213.x). [PubMed: [20003036](https://pubmed.ncbi.nlm.nih.gov/20003036/)]. [PubMed Central: [PMC3383794](https://pubmed.ncbi.nlm.nih.gov/PMC3383794/)].
11. Johnston PI. *Adopting: Sound choices, strong families.* New York: Perspectives Press; 2008.
12. Rotter JB. Generalized expectancies for internal versus external control of reinforcement. *Psychol Monogr.* 1966;**80**(1):1-28. [PubMed: [5340840](https://pubmed.ncbi.nlm.nih.gov/5340840/)].

13. Cross MJ, March LM, Lapsley HM, Byrne E, Brooks PM. Patient self-efficacy and health locus of control: Relationships with health status and arthritis-related expenditure. *Rheumatology (Oxford)*. 2006;**45**(1):92-6. doi: [10.1093/rheumatology/kei114](https://doi.org/10.1093/rheumatology/kei114). [PubMed: [16287930](https://pubmed.ncbi.nlm.nih.gov/16287930/)].
14. Trento M, Passera P, Miselli V, Bajardi M, Borgo E, Tomelini M, et al. Evaluation of the locus of control in patients with type 2 diabetes after long-term management by group care. *Diabetes Metab*. 2006;**32**(1):77-81. [PubMed: [16523190](https://pubmed.ncbi.nlm.nih.gov/16523190/)].
15. Sturmer T, Hasselbach P, Amelang M. Personality, lifestyle, and risk of cardiovascular disease and cancer: Follow-up of population based cohort. *BMJ*. 2006;**332**(7554):1359. doi: [10.1136/bmj.38833.479560.80](https://doi.org/10.1136/bmj.38833.479560.80). [PubMed: [16687457](https://pubmed.ncbi.nlm.nih.gov/16687457/)]. [PubMed Central: [PMC1476723](https://pubmed.ncbi.nlm.nih.gov/PMC1476723/)].
16. Schmidt L, Holstein BE, Christensen U, Boivin J. Communication and coping as predictors of fertility problem stress: Cohort study of 816 participants who did not achieve a delivery after 12 months of fertility treatment. *Hum Reprod*. 2005;**20**(11):3248-56. doi: [10.1093/humrep/dei193](https://doi.org/10.1093/humrep/dei193). [PubMed: [16006458](https://pubmed.ncbi.nlm.nih.gov/16006458/)].
17. Omani Samani R, Maroufizadeh S, Navid B, Amini P. Locus of control, anxiety, and depression in infertile patients. *Psychol Health Med*. 2017;**22**(1):44-50. doi: [10.1080/13548506.2016.1231923](https://doi.org/10.1080/13548506.2016.1231923). [PubMed: [27644175](https://pubmed.ncbi.nlm.nih.gov/27644175/)].
18. Wallston KA, Wallston BS, DeVellis R. Development of the multidimensional health locus of control (MHLC) scales. *Health Educ Monogr*. 1978;**6**(2):160-70. [PubMed: [689890](https://pubmed.ncbi.nlm.nih.gov/689890/)].
19. Moshki M, Ghofranipour F, Hajizadeh E, Azadfallah P. Validity and reliability of the multidimensional health locus of control scale for college students. *BMC Public Health*. 2007;**7**:295. doi: [10.1186/1471-2458-7-295](https://doi.org/10.1186/1471-2458-7-295). [PubMed: [17942001](https://pubmed.ncbi.nlm.nih.gov/17942001/)]. [PubMed Central: [PMC2206030](https://pubmed.ncbi.nlm.nih.gov/PMC2206030/)].
20. Helmer SM, Kramer A, Mikolajczyk RT. Health-related locus of control and health behaviour among university students in North Rhine Westphalia, Germany. *BMC Res Notes*. 2012;**5**:703. doi: [10.1186/1756-0500-5-703](https://doi.org/10.1186/1756-0500-5-703). [PubMed: [23273039](https://pubmed.ncbi.nlm.nih.gov/23273039/)]. [PubMed Central: [PMC3544606](https://pubmed.ncbi.nlm.nih.gov/PMC3544606/)].
21. Park CL, Gaffey AE. Relationships between psychosocial factors and health behavior change in cancer survivors: An integrative review. *Ann Behav Med*. 2007;**34**(2):115-34. doi: [10.1080/08836610701564089](https://doi.org/10.1080/08836610701564089). [PubMed: [17927551](https://pubmed.ncbi.nlm.nih.gov/17927551/)].
22. Hayes RP, Bernard AM, Slocum W, el-Kebbi I, Ziemer D, Gallina D, et al. Diabetes in urban African Americans: Assessment of diabetes-specific locus of control in patients with type 2 diabetes. *Diabetes Educ*. 2000;**26**(1):121-8. doi: [10.1177/014572170002600113](https://doi.org/10.1177/014572170002600113). [PubMed: [10776104](https://pubmed.ncbi.nlm.nih.gov/10776104/)].
23. April KA, Dharani B, Peters K. Impact of locus of control expectancy on level of well-being. *Rev Europ Stud*. 2012;**4**(2):124.
24. Barnes L, Moss-Morris R, Kaufusi M. Illness beliefs and adherence in diabetes mellitus: A comparison between Tongan and European patients. *N Z Med J*. 2004;**117**(1188):U743. [PubMed: [14999303](https://pubmed.ncbi.nlm.nih.gov/14999303/)].
25. Jaaferpour M, Jahanfar S, Jamshidi R. Infertility related stress and marital life in Iranian infertile women who referred to Isfahan infertility treatment clinic. *J Rep Infertility*. 2001;**2**(1):26-39.