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Marital Adjustment and Its Relationship with Religious Orientations Among Iranian Infertile and Fertile Women: A Cross-Sectional Study

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Abstract This study aimed to determine the status of marital adjustment and its relationship with religious orientations in fertile and infertile women. This study was conducted on 160 infertile and 320 fertile Muslim Iranian women. There was significant difference in terms of marital adjustment in two groups. There was significant relationship between marital adjustments with intrinsic religious orientation in two groups; however, there was no significant relationship between marital adjustments with extrinsic religious orientation. The results suggest that intrinsic religious orientation is likely to increase marital adjustment in fertile and infertile women. However, further studies should be performed to assess the association of religious orientations with marital adjustment in other communities and religions.

Keywords Marital relationship · Satisfaction · Religious · Infertility · Women

Introduction

According to the World Health Organization (WHO), infertility is defined by the failure to achieve a pregnancy after 12 months or more of regular unprotected sexual intercourse (World Health Organization 2009). According to a systematic literature review of 277 studies, the prevalence of primary and secondary infertility was 0.9–3 and 7.2–18%, respectively (Mascarenhas et al. 2012). Although the infertility rate noticeably varies

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between countries, WHO has introduced it to the world as a general health problem and a potential threat to the sustainability of people and communities (Boivin et al. 2007). Couples' response to an infertility diagnosis is as terrible as to being informed about the sudden death of a loved one or an unpleasant event. Basic reactions are including denial, anger, isolation, a sense of guilt, and depression (Maillet 2002).

Studies also reported poor levels of marital adjustment among infertile women (Peterson et al. 2003; Bali et al. 2010). Marital adjustment is feelings of happiness, satisfaction, and pleasure experienced by a spouse when considering all current aspects of his marriage. Marital adjustment plays a crucial role in couples' mental health (Qadir et al. 2013), sharing problems with family members to find appropriate solutions (Lian and Yusooff 2009), and forming a peaceful community (Ebenuwa-Okoh 2011), whereas marital maladjustment creates an insecure attachment among children and family problems (Lian and Yusooff 2009). Emotional expressions, couples' personality (Ebenuwa-Okoh and Okorodudu 2003), and infertility (Mongaa et al. 2004) are the predictors of marital adjustment or maladjustment.

WHO requires the medical groups to not only diagnose and treat infertility, but also consider its psychological effects and put their effort into improving the couples' quality of life and marital adjustment (World Health Organization 2002). Besides infertility, some studies refer to religions as a factor that affect on marital relationship (Hosseini-Dowlatabadi et al. 2013; Rostami-Bayg et al. 2014). Religion is a major part of many people's life and their way of coping with important problems (Phillips et al. 2014). A literature review titled "outcomes of religious and spiritual adaptations to psychotherapy" showed that incorporating religion into psychological consultancies might be an effective way as most people referred to religion and spirituality when copping with life stresses (Smith et al. 2007). Currently spirituality is a main topic in health care (Arcury et al. 2000). When persons' spiritual well-being is really compromised, they may suffer from mental disorders such as depression, and loss of meaning in life (Yonker et al. 2012).

Additionally, the role of religion as an adjustment mechanism in breast cancer (Thune-Boyle et al. 2011), excessive alcohol consumption among female college students (Stoltzfus and Farkas. 2012), reduced mental symptoms (Haber. 2011), health promotion (Turner-Musa and Wilson 2006), and health-related quality of life (Mirghafourvand et al. 2017) have been studied and its effects have been showed. Some studies although failed to verify an absolute association between religion and mental health, instead linked the mental health to people's religious orientations (Hackney and Sanders 2003).

Religious orientations have defined by Allport and Ross. People with extrinsic religious orientation are less involved in religious rituals and take advantage of religion as a mean to reach their goals and objectives. They also apply religion to form or retain their social relationships, security, comfort, socialization, and position, and to justify their acts. On the other hand, those with high intrinsic religious orientation consider religion as a primary goal and the most important part of their life and seek all aspects of their life through religion (Allport and Ross 1967). Accordingly, it was studied how marital adjustment is associated with factors such as sexual performance (Mirghafourvand et al. 2013), thinking style (Mirghafourvand et al. 2016), and personality characteristics (Erdogan-Taycan and Cepik 2014). While there is not clear evidence about the effect of religious orientations on marital adjustment, especially among infertile women, it is essentially important to reach an obvious perception of marital adjustment among infertile women and its association with religious orientations comparing with fertile women. Since Iranian society is a religious society inclined to spiritual values, investigation of religious status among women is

seemed necessary and obtaining a relationship between marital satisfaction and religious was expected.

Materials and Methods

Study Design, Participants, and Setting

This study was a cross-sectional study. The research Ethics Committee of the Tabriz University of Medical Sciences approved the study protocol (code: 92.11.42). This study was conducted on 160 infertile and 320 fertile Muslim Iranian women aged 15–49 visited in Alzahra infertility clinic and healthcare centers in Tabriz. Tabriz is one of the most populous cities in Iran with a population of over 1.73 million. Most Tabriz residents are followers of Shia Islam. The city has an Armenian Apostolic minority who follow Christianity. There is a small, Jewish community, but most of them have moved to Tehran (Capital of Iran). Participants were recruited between 1 April and 30 September, 2014.

Participants were examined based on the following eligibility criteria: Iranian nationality (as there are foreign patients in infertility clinic), women aged 15–49, being the only wife of their husband, lack of family conflict within last week, lack of physical problems (spinal cord injury, amputated body parts, paralysis, body part deformation, etc.), lack of mental problems (being under treatment or under supervision by a psychiatrist), lack of illness (cardiovascular diseases, lung diseases, epilepsy, diabetes, hypothyroidism, hyperthyroidism), not consuming drug or alcohol, not being under stressful events within last 3 months (a fundamental change in life conditions, death or disease of a close relative), not consuming medicine for sexual complaints. Complete information was then delivered to individuals about objectives, confidentiality, and privacy.

To determine the sample size, the correlation between marital adjustment and religious orientation was obtained from previous studies (Nikoy and Seyf 2006) and entered into G-POWER (version 3.1.2). The sample size was determined 160 with the confidence level of 95% and test power of 90% using two-tailed test. As participants were selected from healthcare centers by cluster sampling, the effect of design on the sample size was also taken into consideration. According to Salganic and colleague's study (Salganik. 2006), the minimum design effect was 2, and the minimum sample size was determined 320 (160×2) in fertile group.

Sampling Method

The two-stage cluster and the convenience sampling methods were used for selecting fertile and infertile women, respectively.

Fertile women were randomly selected from 27 healthcare centers and 53 sub-centers in Tabriz-Iran by using of randomizer software. The sample size in each center was then determined based on demographic information available in each centers (the number of women having at least a child covered by each center) and regarding the size of the primary population. In the next step, a list of all women covered by each center was prepared. All women were ranked in the list by the number of row using randomizer. They were randomly selected 1.5 times more than the share of each center, so that those lacked of inclusion criteria or interest in participation or were not available could be replaced by the next ones in the list. The researcher then made contact with people. Researcher

concisely explained reasons and methods of the research to participants. Those interested in participation were asked to attend in a certain date and time in the health care centers to complete the required questionnaires. Following the visiting, they were assessed for eligibility criteria. In case of being eligible, comprehensive information was delivered to them about objectives, confidentiality and privacy, and they were asked to participate in the research. Written informed consent was obtained from participants. Then, questionnaires with the necessary explanations were given them, and they were asked to complete in a quiet area (in the absence of husbands) and delivered them to the researcher.

Data Collection Tools

Socio-demographic questionnaire, dyadic adjustments scale (DAS), and Alport religious orientation scales were employed for data collection.

Socio-demographic Questionnaire

It includes participants' and their husband's age, job, education, sufficiency of income for expenses, and the age difference with the spouse. Infertile women also answered some questions about the reasons of infertility, duration of treatment, treatment method, and treatment expectancy.

Dyadic Adjustment Scale (DAS)

It has been developed by Spanier (1976) to study the quality of marital relationship. This 32-item scale consists of four dimensions including: understanding (shared interests, and talking to each other), marital attachment (agreement in general accepts of life), satisfaction (marital satisfaction, level of disagreement, mutual trust, and satisfaction in the relation), emotional expression (incline to have sexual relation, and affective expression). Scores vary from 0 to 151 with higher scores showing strong marital adjustment. Spinner reported the intrinsic consistency coefficient equal with 0.96. As to the higher psychometric properties than other tools, this scale was recommended in 1989 (Spanier 1976). In Iran, Moosavi (2013) calculated the scale reliability equal with 0.90. In present study, ICC (95% Confidence Interval) and Cronbach's alpha were found 0.85 (0.74–0.93) and 0.92, respectively.

Allport Religious Orientation Scale

It has been developed by Allport and Ross (1967) to study the intrinsic and extrinsic religious orientations. Feagin (1964) introduced a 21-item version including all items of Allport's scale. Items 1–12 measured extrinsic religious orientation, and items 13–21 measured intrinsic religious orientation. Items were scored in the 1–5 Likert scale (from totally disagree, relatively disagree, no idea, totally agree, to relatively agree). Having high scores for items 1–12 indicate high extrinsic religious orientation, but low scores for items 13–21 show high intrinsic religious orientation. The retranslated version into Persian was corrected and adjusted to Iranian culture and religion following rewriting for several times. Mokhtari et al. reported the reliability equal with 0.71 by Cronbach's alpha (Mokhtari et al. 2001). In present study, ICC (95% confidence interval) and Cronbach's alpha were found 0.78 (0.72–0.83) and 0.72, respectively.

Statistical Analysis

Data were analyzed by SPSS 19, and socio-demographic characteristics, marital adjustment, and religious orientations were explained by descriptive statistics including mean (standard deviation) and frequency (percent). The independent t test was used to compare two groups on marital adjustment and religious orientations. Regarding the normal data distribution, Pearson's test was used to assess the association between marital adjustment and religious orientations. This association was also assessed by adjusting the confounding variables through general linear model test. At first, the relationship between any of socio-demographic characteristics was individually measured among both fertile and infertile women by unadjusted general linear model. Variables with $P < 0.05$ were then entered in the adjusted general linear model along with religious orientations.

Results

About half of fertile (54.3%) and infertile (53.5%) women were aged 25–34 with age means (standard deviation) of 29.0 (SD = 6) and 28 (SD = 6), respectively. More than half of fertile (56.6%) and infertile (61%) women's husbands were aged 25–34 with age means (standard deviation) of 33 (SD = 7.3) and 33 (SD = 6.2), respectively. The age difference of a half of fertile (45.6%) and infertile (59.7%) women with their husbands was 5–10 years. 39.3% of fertile women had married 5–10 years ago and 53.5% of infertile women had married 5 or fewer years ago. The mean age difference of fertile and infertile women with their spouses was 5.0 (SD = 3) and 4.0 (SD = 2). More than three-forth of fertile (81%) and infertile (80%) women had diploma or lower levels of education. The spouses' education among three-forth of fertile women (80%) and among about half of infertile women (48%) was also diploma or lower levels of education. Most of fertile (89%) and infertile (83%) women were housewives and about half of fertile and infertile women had self-employed spouses. 60% of fertile women and 49% of infertile women claimed to enjoy relatively good monthly income (Table 1).

For 164 fertile (51.3%) women, it was their first fertility and more than half of them (62.5%) had a child. Most women (84.6%) did not have an abortion.

The infertility causes with respect to the prevalence were feminine (37.1%), masculine (21.1%), common (13.2%), and unknown (8.2%), respectively. About one-third of women were prescribed medication (34%), 22.6% were recommended intrauterine insemination (IUI) along with medication, 11.3% were advised in vitro fertilization (IVF), and 11.3% were suggested microinjection. About half of infertile women (51.4%) were under treatment for 12 months or fewer. About half of women (54.1%) hoped to be cured and 38.2 relatively hoped.

The mean scores of marital adjustment among fertile and infertile women were 113.8 (SD = 21.9) and 100.0 (SD = 22.3), respectively, with the accessible scores ranging from 0 to 151. 78 fertile (24.3%) and 82 infertile (51.3%) women had poor marital adjustment (scores lower than 100); and 242 fertile (75.6%) and 78 infertile (48.8) had favorable marital adjustment (scores 100 or over). Among fertile women, the mean score was 48.5 (SD = 9.4), 27.6 (SD = 5.9), 17.7 (SD = 5.3) and 8.7 (SD = 2.3) for understanding, satisfaction, attachment, and emotional expression subscales, respectively. Among infertile women, however, the mean score for understanding was 41.9 (SD = 9.6), for satisfaction was 23.5 (SD = 6.9), for attachment was 17.0 (SD = 5.5), and for emotional expression

Table 1 Socio-demographic characteristics in fertile ($n = 320$) and infertile ($n = 160$) women

Variables	Fertile group ($n = 320$) *N* (%)	Infertile group ($n = 160$) *N* (%)
Age	29 (6.1)[a]	28.8 (6.1)[a]
Husband age	33.6 (7.3)[a]	33 (6.2)[a]
Education		
High school and lower	265 (83.1)	131 (81.8)
Diploma and bachelor	48 (15)	23 (14.4)
Master's and Ph.D.	6 (1.9)	6 (3.8)
Husband education		
High school and lower	255 (79.9)	76 (47.8)
Diploma and bachelor	52 (16.3)	59 (37.1)
Master's and Ph.D.	12 (3.8)	24 (15.1)
Occupation		
Housewife	285 (89)	133 (83.1)
Employee	24 (7.5)	11 (6.9)
Other[b]	11 (3.5)	16 (10)
Husband occupation		
Unemployment	5 (1.6)	3 (1.9)
Employee	72 (22.6)	25 (15.6)
Worker	84 (26.3)	43 (27.4)
Self-employed	156 (48.9)	81 (51.6)
Other[c]	2 (0.6)	5 (3.2)
Sufficiency of income for expenses		
Completely	89 (28)	38 (23.9)
Absolutely not	193 (60.7)	78 (49.1)
To some extent	36 (11.3)	43 (27)
Age of marriage	21 (3)[a]	22 (5)
Couple age difference	5 (3)[a]	4 (2)

[a]Data are represented by mean (SD)

[b]Tailor and packaging at home

[c]Clergy and packaging at home

was 7.6 (SD = 2.4). According to the independent *t* test results, there was a significant difference between the both groups in terms of marital adjustment and subscales of marital adjustment ($P < 0.001$).

The mean score of extrinsic religious orientation among fertile and infertile women were 33.5 (SD = 7.2) and 35.4 (SD = 6.7), respectively, with the accessible scores ranging from 12 to 60. The mean score of intrinsic religious orientation among fertile and infertile women were 17.1 (SD = 6.7) and 22.1 (SD = 7.3), respectively, with the accessible scores ranging from 9 to 45. According to the independent t test results, there was also a significant difference between the both groups in terms of intrinsic ($P < 0.001$) and extrinsic ($P = 0.004$) religious orientations (Table 2).

Pearson correlation test showed that among fertile women, there was no significant association between marital adjustment and extrinsic religious orientation ($r = 0.06$,

Table 2 Comparison of marital adjustment and religious orientations in fertile and infertile women

Variable	Fertile ($n = 320$) Mean (SD)	Infertile (160)	P value
Total score of marital adjustment (0–151)	113.8 (21.9)	100.0 (22.3)	< 0.001
Agreement (0–75)	48.5 (9.4)	41.9 (9.6)	< 0.001
Satisfaction (0–35)	27.6 (5.9)	23.5 (6.9)	< 0.001
Attachment (0–28)	17.7 (5.3)	17.0 (5.5)	< 0.001
Express of emotions (0–13)	8.7 (2.3)	7.6 (2.4)	< 0.001
Extrinsic religious orientation (12–60)	33.5 (7.2)	35.4 (6.7)	0.004
Intrinsic religious orientation (9–45)	17.1 (6.7)	22.1 (7.3)	< 0.001

* P value is based on independent-samples t test

$P = 0.242$). Among the dimensions of marital adjustment, extrinsic religious orientation was founded to be significantly associated with attachment ($r = 0.15$, $P = 0.040$). There was significant association between marital adjustment and intrinsic religious orientation ($r = -0.23$, $P < 0.001$). Also, there was significant association between intrinsic religious orientation and mutual understanding ($r = -0.19$, $P = 0.001$), satisfaction ($r = -0.27$, $P < 0.001$), attachment ($r = -0.10$, $P < 0.001$), and emotional expression ($r = -0.20$, $P < 0.001$) (Table 3).

Among infertile women there was a significant association between marital adjustment and extrinsic religious orientation ($r = 0.16$, $P = 0.041$). Among the dimensions of marital adjustment, extrinsic religious orientation was founded to be significantly associated with understanding ($r = 0.18$, $P = 0.022$). Also, there was a significant association between marital adjustment and intrinsic religious orientation ($r = -0.43$, $P < 0.001$). Intrinsic religious orientation was also significantly associated to mutual understanding ($r = -0.43$, $P < 0.001$), satisfaction ($r = -0.40$, $P < 0.001$), and attachment ($r = -0.31$, $P < 0.001$) (Table 3).

Table 3 Correlation of marital adjustment with religious orientations in fertile and infertile women

Variables	Extrinsic religious		Intrinsic religious	
	Fertile r (P value)	Infertile r (P value)	Fertile r (P value)	Infertile r (P value)
Total score of marital adjustment (0–151)	0.06 (0.242)	0.16 (0.041)	0.23 (< 0.001)	0.45 (< 0.001)
Agreement (0–75)	0.06 (0.258)	0.18 (0.022)	0.19(< 0.001)	0.43 (< 0.001)
Satisfaction (0–35)	− 0.31 (0.583)	0.13 (0.089)	0.27(0.001)	0.40 (< 0.001)
Attachment (0–28)	0.15 (0.040)	0.05 (0.529)	0.10(< 0.001)	0.31 (< 0.001)
Express of emotions (0–13)	0.04 (0.459)	0.08 (0.267)	0.20(< 0.001)	0.14 (0.076)

Based on the unadjusted general linear model analysis, significant relationships were found between marital adjustment and education, spouse's education, job, spouse's job, the adequacy of monthly income, and age difference with the spouse ($P < 0.05$). Also, according to adjusted general linear model with adjusting other variables, adequacy of monthly income and intrinsic religious predicted marital adjustment among fertile and infertile women ($P < 0.05$). They also predicted 15.7 and 32.6% of the marital adjustment variance among fertile and infertile women, respectively (Table 4).

Discussion

The present study addressed marital adjustment and religious orientations among fertile and infertile women. Based on the results of this study, about half of infertile and one-fourth of fertile women had poor marital adjustment, and there was a significant difference between two groups on intrinsic and extrinsic religious orientation. For fertile women, there was no significant association between marital adjustment and extrinsic religious orientation. But, there was significant association between marital adjustment and intrinsic religious orientation. For infertile women, marital adjustment was disclosed to be significantly associated with both intrinsic and extrinsic religious orientation. Based on adjusted linear model, there was a significant association between intrinsic religious orientation and marital adjustment among fertile and infertile women.

In Tabriz-Iran (setting of this research), some studies have assessed the relationship between religious and quality of life (REF) and mental health (REF), but no study has been carried out on the relationship between marital adjustment and religious orientations among fertile and infertile women. Results of Mirghafourvand et al.'s (2017) study on 520 female students in Tabriz-Iran showed a significant relationship between health-related quality of life and received religious support and religiosity; and results of Mohamadi et al.'s (2016) study on 180 female nurses in Tabriz showed that the nurses with intrinsic

Table 4 The relationship between marital adjustment with demographic characteristics and religious orientations in fertile and infertile women

Variable	Fertile ($n = 320$)		Infertile ($n = 160$)	
	β (CI 95%)[b]	P value	β (CI 95%)[a]	P value
Extrinsic religious	0.2 (− 0.1 to 0.6)	0.220	0.3 (− 0.1 to 0.8)	0.119
Intrinsic religious	− 0.6 (− 1.0 to − 0.2)	0.002	− 1.0 (− 1.5 to − 0.5)	< 0.001
Education (Reference: Master's and Ph.D.)				
High school	− 8.5 (− 31.1 to 14.1)	0.460	− 8.8 (− 32.5 to 17.4)	0.458
Diploma and bachelor	− 8.1 (− 26.7 to 10.4)	0.388	2.9 (− 16.2 to 22.0)	0.764
Sufficiency of income for expenses (Reference: to some extent)				
Completely	17.3 (7.1 to 27.4)	0.001	8.5 (− 1.8 to 18.9)	0.107
Absolutely not	8.4 (− 0.6 to 17.4)	0.069	6.1 (− 1.9 to 14.2)	0.135
Interval age with husband	0.6 (− 0.5 to 1.9)	0.280	− 0.9 (− 2.6 to 0.7)	0.280
Adjusted R^2	%15.7		%32.6	

Based on adjusted general linear model

[a]95% (confidence interval)

religious orientation have better mental health. Results of both studies are consistent with our results and show importance of religious.

Also, this result is consistent with Tamannaei-Far (2011) and Griel (1997) studies. Infertility decreases intimacy and self-esteem and increases depression, consequently resulting in a troubled interpersonal relationship (Sultan and Tahir 2011). Our findings are not consistent with Lee et al. (2001) study. Cultural and social differences can be attributed as the causes of such the difference in our results with Lee et al. study.

Both groups showed that the intrinsic religious orientation was significantly associated with marital adjustment. The association between religious orientation and marital adjustment has not been widely studied. Our findings are consistent with Sullivan (2001) study. Sullivan found that religion was significantly associated with the rate of divorce, commitment, and marital satisfaction. This also is consistent with Nikkuy and Seyf (2006) and Hosseininasab et al. (2009) studies.

In this study, infertile women had both poor intrinsic religious orientation (higher score shows lower intrinsic religious orientation) and poor marital adjustment. Some studies reported that intrinsic religious orientation was associated with less anxiety, sleeplessness and depression (Milevsky and Levitt 2004; Dezutter et al. 2006). Others also found that intrinsic religious orientation is associated with physical and mental health (Bryd et al. 2007).

The exact mechanism of how religious orientations affect marital adjustment is not clearly known. It seems intrinsic religiosity may serve as a protective mechanism. Intrinsic beliefs enhance resilience and reduce the psychological impact of stressful events (Laufer and Solomon 2011). People with intrinsic religious orientation probably have a stronger recognition of the world and themselves (Janoff-Bulman 2004). This raises their self-control and self-efficiency (Fisher et al. 2006). Different perceptions of stressful events are of other factors. Stressful events are viewed by people with intrinsic religious orientation as a challenge while those with extrinsic religious orientation see them as a threat. Therefore, people with intrinsic religious are more inclined to express their positive emotions (Fisher et al. 2006). According to another mechanism, people with intrinsic religious orientation are happier and more optimistic (Lewis et al. 2005; Salsman et al. 2005), while people with extrinsic religious orientation are anxious and depressed (Amrai et al. 2011). In fact, people with higher level of extrinsic religious orientation, on the one hand, are more inclined to active adjustment and enjoy social-affective supports, and, on the other hand, they do not mentally involve themselves in the problems. Although one of these styles is active and the other is inactive, people with extrinsic orientation may apply both mechanisms (Phillips, 2014). Religious beliefs affect all aspects of human life including family relations and play an important role in solving marital problems (Ahmadi et al. 2006).

Limitations and Strengths

The limitation of the present study was that because of the nature of marital adjustment questions, it was possible that participants do not respond properly. However, the researcher relatively eased this limitation by assuring participants of answers confidentiality. Furthermore, as the research was conducted on Muslim women, thus, the results of this study should be very cautiously generalized to the other religions. However, the results of this study can be generalized to other cities in Iran. About 99% of Iranian population are followers of Islam, and Tabriz is the same. Also, Tabriz is the fifth most populous city in Iran and can be representative of other cities. The study also had several strengths like comparing marital adjustment and religious orientation between fertile and infertile

women. Here, the potential confounding variables were identified as exclusion criteria. The probable confounders were adjusted by the general linear model.

Conclusion

This study shows significantly poor marital adjustment among infertile women than fertile ones. The intrinsic religious orientation was found to be significantly related to marital adjustment. More studies are suggested to be carried out on the association between marital adjustment and religious orientations among infertile women in other religions. In future studies, types of adaptations applied by infertile women with different religious orientations are recommended to be studied and compared with fertile women.

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