Original Paper

Comparison of Perceived Social Support and Domestic Violence Between Fertile and Infertile Women in North of Iran

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ABSTRACT

Introduction: Infertility is a global health problem with higher psychological consequences for women. The level of domestic violence and perceived social support and its associated factors in infertile and fertile women differ between developed and developing countries.

Objective: The present study aims to determine and compare perceived social support and domestic violence among fertile and infertile women in northern Iran.

Materials and Methods: This case-control study was conducted on 344 eligible women (172 infertile and 172 fertile) who were selected using a convenience sampling method from among those visited two infertility treatment and gynecology clinics of Al-Zahra Hospital in Rasht, north of Iran, in 2021. The instruments were a sociodemographic/fertility profile form, the Multidimensional Scale of Perceived Social Support (MSPSS), and the domestic violence sale. After collecting the data, they were analyzed using the Kolmogorov-Smirnov test, Mann-Whitney U test, Kruskal-Wallis test, and multiple linear regression analysis, considering a significance level of P<0.05.

Results: The mean age of fertile and infertile women was 35.43±6.2 and 34.47±5.88 years, respectively. The mean score of domestic violence was significantly different between fertile and infertile women (11.96±13.84 in fertile women vs 6.38±9.69 in infertile women, P=0.001), but this difference was not significant after controlling for sociodemographic/fertility variables. The total MSPSS score was 58±15 for fertile women and 58±4.16 for infertile women. The was no was significant difference in the MSPSS score between fertile and infertile women after controlling for sociodemographic/fertility variables. According to the regression coefficients, in fertile women, only family income level (P=0.008, b=-6.43) had a significant relationship with perceived social support, while in infertile women, family income status (P=0.034, b=-6.18) and women's

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occupation (P=0.008, b=14.58) had a statistically significant relationship with perceived social support. There was a significant relationship between the total score of domestic violence and age at marriage (P=0.004, b=-1.28), husband's education (P=0.002, b=-7.66), and place of residence (P=0.031, b=-5.44) in fertile women, while the total score of domestic violence in infertile women had a statistically significant relationship only with family income level (P=0.001, b=5.71).

Conclusion: Domestic violence is less common in infertile women than in fertile women from north of Iran. After studying the predictive effect of social support on domestic violence in fertile and infertile women, the results showed that perceived social support was not a predictor of this difference. Given that fertile women were exposed to more domestic violence, it is suggested that future studies focus on other factors related to violence in these women.

Highlights

- The prevalence of infertility in different regions of Iran is different.

- Domestic violence is one of the psychological consequences of infertility in women.

- Domestic violence in infertile women was significantly lower than in fertile women.

- Perceived social support was not a predictor of difference between domestic violence in fertile and infertile women.

Plain Language Summary

Infertility is a global health problem that affects people's interpersonal, social and marital relationships and threatens their mental and social health. One of the psychological consequences of infertility in women is domestic violence, such that 71% of women in recent years in Iran have experienced domestic violence. The women exposed to violence need social support. The aim of this study was to compare perceived social support and domestic violence in fertile and infertile women in north of Iran. The results showed that domestic violence was less common in infertile women than in fertile women and perceived social support was not a predictor of difference between domestic violence in fertile and infertile women. Based on the results, insufficient income in infertile women, living in the countryside, and age at marriage in fertile women were factors associated with domestic violence.

Introduction

nfertility is defined as the inability to achieve a successful pregnancy after one year of unprotected sexual intercourse [1]. Infertility can occur in two forms: Primary and secondary infertility. Primary infertility means that the individual has never experienced pregnancy, while secondary infertility occurs when the individual, despite having a history of pregnancy (regardless of whether it resulted in miscarriage or live birth), is unable to conceive after one year or more of regular unprotected intercourse [2].

Worldwide, approximately 186 million people suffer from infertility, with most cases occurring in developing countries [3]. According to the statistics from the centers for disease control and prevention, about 6 percent of women aged 15-44 are affected by infertility [4]. In an Iranian systematic review and meta-analysis, the prevalence of infertility was reported to be 7.88% [5], the prevalence of infertility in different regions of Iran was reported to vary, with an estimate of 23.81% in Guilan Province [6]. Infertility is considered a global health issue with physical, psychological, and social dimensions, and it can even affect interpersonal, social, and marital relationships, threatening individuals' psychological and social well-being [7, 8].

The social-psychological consequences of female infertility are classified into six main groups: Quality of life (QoL), depression, anxiety, social support, sexual function, and violence [9]. One of the important psychological consequences of infertility for women is violence [10]. Violence against women is considered a major clinical health issue and a violation of women's

Nasiri N, et al. Social Support and Domestic Violence Between Fertile and Infertile Women. J Holist Nurs Midwifery. 2025; 35(4):295-306.

human rights, rooted in gender inequalities [11]. Violence has various forms that can come from a spouse (former spouse) or partner and differ in frequency and severity; psychological violence involves the use of verbal and non-verbal communication with the intent to cause mental or emotional harm; physical violence occurs when an individual uses hitting, kicking, or physical force to try to harm their partner; sexual violence involves coercion or attempts to force a partner to engage in a sexual act, sexual contact, or a non-physical sexual event, despite the individual not consenting or being unable to consent [12].

The World Health Organization (WHO) has reported that globally, one in three women experiences physical, psychological, or sexual violence in their lifetime, primarily inflicted by their spouse or partner [13, 14]. In Iran, 71% of women experience violence in the past year [15], including psychological/verbal violence (58%), physical violence (25.2%), and sexual violence (10%)[16]. Iranian pregnant women also experience partner violence at a rate of 48.5%, which is mainly emotional violence (45.5%) [17]. The prevalence of domestic violence in Iran against infertile women varies from 14 to 88% [18]; and violence against infertile women in three dimensions—psychological (52.4%), physical (34%), and sexual (27.2%)—has been higher compared to fertile women [19]. Since infertile women are at risk of violence, they need social support; this improves the life satisfaction of infertile women and, by reducing anxiety, depression, negative self-perception, and hostility, increases their resilience, especially during infertility treatment. Therefore, attention to social support in women's infertility is impactful and important [10, 20, 21]. Social support means providing material and emotional support from close ones to an individual who is exposed to stressful or difficult conditions [22]. With increased support from spouses, the incidence of postpartum depression in women decreases [23]. There is also a significant positive correlation between perceived social support (from family, friends, and significant others) and adaptation to infertility and QoL [24]. With increasing age and marriage age, perceived social support in infertile women also increases [25].

In some studies, infertile women and those who conceal their infertility have been reported to have lower perceived social support from significant others (spouse or partner) [26-31]. However, in another study, perceived social support was reported to be higher in infertile women than in fertile women [32]. Considering the contradictions in the results of some studies conducted in this regard, as well as the higher prevalence of infertility and cultural and social differences in Iran, the present study aims to determine and compare perceived social support and domestic violence among fertile and infertile women in northern Iran.

Materials and Methods

This is a case-control study conducted on 344 eligible women who were selected using a convenience sampling method from among those visited two infertility treatment and gynecology clinics of Al-Zahra Hospital in Rasht, north of Iran, in 2021. The sample size was first obtained as 130 per group based on the formula, considering the type I error (α) of 0.05, the type II error (β) of 0.2, and an effect size (d) of 0.35. Then, considering a 15% sample dropout and to increase the accuracy of the results, the sample size increased to 172 in each group. The inclusion criteria for fertile women were history of at least one pregnancy, having at least one child, no previous or current history of infertility, and no pregnancy at the time of the study. The inclusion criteria for infertile women were the confirmation of infertility by a gynecologist and having an infertility file. The general inclusion criteria for both groups were the literacy to answer questions, being Iranian, being able to understand and speak Persian, living with a spouse, no chronic heart or lung diseases, blood pressure, diabetes, cancer, no medication use, and no mental disorders (based on self-report or medical file), and willingness to participate in the study and complete the questionnaires. During the study period, 775 women referred to the infertility treatment clinic and 3430 women to the gynecology clinic, of whom 442 were eligible to participate in the study. Finally, 344 eligible women were included, 172 infertile women as the case group and 172 fertile women as controls.

The instruments included a sociodemographic/fertility profile form, the Multidimensional Scale of Perceived Social Support (MSPSS), and the domestic violence sale. The sociodemographic/fertility profile form surveys age, education and occupation of the woman, education and occupation of the husbands, family income status, number of marriages, age at marriage, duration of marriage, place of residence, living with the husband's family, cause of infertility, duration of infertility, number of infertility treatments, number of infertility treatment failures, and type of infertility (primary and secondary). The domestic violence sale adapted from the WHO violence against women instrument and the Hurt-Insult-Threaten-Scream (HITS) domestic violence screening tool [33, 34] that was

Nasiri N, et al. Social Support and Domestic Violence Between Fertile and Infertile Women. J Holist Nurs Midwifery. 2025; 35(4):295-306.

297

developed by Azadarmaki et al. [35]. This tool is a 20-item, self reported questionnaire with three Components: Psychological (7 items), Physical (9 items), and Sexual (4 items). The items are rated on a 5-point Likert scale (never=0, rarely=1, sometimes=2, often=3, and always=4). The total score ranges from 0 to 80, with higher scores indicating higher levels of domestic violence [35]. The MSPSS is a 12-item tool developed by Zimet et al. [36] that measures perceived social support in three domains: Family, friends, and significant other (spouse or partner). Each domain has 4 items that are scored on a 7-point Likert scale (strongly agree, agree, somewhat agree, no opinion, somewhat disagree, disagree, strongly disagree). The total score ranges from 12 to 84, with higher scores indicating greater social support. The Persian version of this tool has been validated by Bagherian-Sararoudi et al. [37].

After receiving the introduction letter and obtaining permission, the researcher visited the clinics in Rasht to collect data twice in the morning and evening shifts. After explaining the study objectives and methods, and emphasizing the confidentiality of the data, written informed consent was obtained from the participants, and the questionnaires were completed. After collecting the data, they were analyzed in SPSS software, version 16 using the Kolmogorov-Smirnov test, Mann-Whitney U test, Kruskal-Wallis test, and multiple linear regression analysis, considering a significance level of P<0.05.

Results

The mean age, age at marriage, and duration of marriage of fertile and infertile women were 35.43±6.2, 34.47±5.88, 19.95±4.16, 25.68±7.32, 14.95±6.52, and 8.67±5.55 years, respectively. The sociodemographic/fertility characteristics of the women are presented in Table 1. The findings showed that 51.7% of fertile women had two or more children and 88.4% of infertile women had no children. Based on the chi-square test and independent t-test results, there was a statistically significant difference in the variables of age at marriage (P=0.001), duration of marriage (P=0.001), women's education (P=0.001), spouse's education (P=0.001), and number of children (P=0.001) between the two groups of fertile and infertile women. However, no statistically significant difference was observed in other sociodemographic/fertility variables. The Mann-Whitney U test results (Table 2) showed no statistically significant difference in the total MSPSS score and in the dimensions of friends and significant other between fertile and infertile women, but the family dimension

score was significantly higher in infertile women than in fertile women (P=0.045). After controlling for sociodemographic/fertility variables using multiple linear regression analysis, the results showed no significant association of the total score and the dimensions of MSPSS with fertility/infertility (Table 3).

The Mann-Whitney U test results (Table 4) showed that the total score of domestic violence in infertile women was significantly lower than in fertile women (P=0.001). The scores of psychological (P=0.001), physical (P=0.001), and sexual (P=0.013) dimensions were also significantly lower in infertile women. After controlling for sociodemographic/fertility variables using multiple linear regression analysis, the results showed no significant association of the total score and the dimensions of domestic violence with fertility/infertility (Table 5).

According to the regression coefficients, in fertile women, only family income level (P=0.008, b=-6.43) had a statistically significant relationship with perceived social support, while in infertile women, family income status (P=0.034, b=-6.18) and women's occupation (P=0.008, b=14.58) had a statistically significant relationship with perceived social support. There was a statistically significant relationship between the total score of domestic violence and age at marriage (P=0.004, b=-1.28), husband's education (P=0.002, b=-7.66), and place of residence (P=0.031, b=-5.44) in fertile women, while the total score of domestic violence in infertile women had a statistically significant relationship only with family income level (P=0.001, b=5.71) (Tables 6 and 7).

Discussion

The results of the present study showed that although the total score of domestic violence in infertile women was lower in fertile women, the difference was not statistically significant, which is in line with the results of Ghoneim et al. [38], while a study showed that the rate of sexual violence in infertile women was significantly higher than in fertile women [39]. Also, the results of the present study are against the results of some other studies [40, 41], which may be due to the lower age of infertile women and the difference in infertility duration, place of residence, living arrangement, educational level of the husbands of infertile women, the used instrument, and sample size.

Table 1. Sociodemographic/fertility characteristics of fertile and infertile women

Variables		Mean±SD/No. (%)	
		Fertile	Infertile
Age (y)		35.43±6.2	34.47±5.88
Age at marriage (y)		19.95±4.16	25.68±7.32
Duration of marriage (y)		14.95±6.52	8.67±5.55
Education	Lower than high school	66(38.4)	45(26.2)
	Diploma	80(46.5)	68(39.5)
	Academic degree	26(15.1)	59(34.3)
Occupation	Housekeeper	148(86)	141(82)
	Employed	7(4.1)	12(7)
	Self-employed	17(9.9)	19(11)
Spouse's education	Lower than high school	84(48.8)	50(29.1)
	Diploma	67(39)	74(43)
	Academic degree	21(12.2)	48(27.9)
Spouse's occupation	Unemployed	8(4.7)	11(6.4)
	Employed	18(10.5)	24(14)
	Self-employed	146(84.9)	137(79.7)
Family income level	Sufficient	94(54.7)	91(52.9)
	Insufficient	78(45.3)	81(47.1)
Number of marriages	1	169(98.3)	163(94.8)
	2	3(1.7)	9(5.2)
Number of children	0	0	152(88.4)
	1	83(48.3)	18(10.5)
	≥2	89(51.7)	2(1.2)
Place of residence	Urban	131(76.2)	130(75.6)
	Rural	41(23.8)	42(24.4)
Living with spouse's family	No	144(83.7)	138(80.2)
	Yes	28(16.3)	34(19.8)
	Duration of infertility	-	5.98(4.98)

Nasiri N, et al. Social Support and Domestic Violence Between Fertile and Infertile Women. J Holist Nurs Midwifery. 2025; 35(4):295-306.

299

Variables		Mean±SD/No. (%)	
		Fertile	Infertile
Cause of infertility	Female factor	-	71(41.3)
	Male factor	-	21(12.2)
	Both	-	31(18)
	Unknown	-	49(28.5)
Number of treatment failures	0	-	77(44.8)
	1	-	32(18.6)
	≥2	-	63(36.6)
Type of infertility	Primary	-	118(68.6)
	Secondary	-	54(31.4)

Table 2. Mean scores of perceived social support and its dimensions in fertile and infertile women

Perceived Social Support	Fertile Women		Infertile Women		P*
	Mean±SD	Median**	Mean±SD	Median**	
Family	20.2±6.1	22 (16.2-25)	21.4±6	22 (18-26)	0.045
Friends	15.9±7.2	17 (9.2-22)	15.2±7.6	15.5 (8-22)	0.372
Significant other	21.9±5.6	23 (20-26)	21.8±5.8	23 (19-26)	0.967
Total	58±15	60 (48-70)	58.4±16	60 (47.2-69)	0.849

*Mann-Whitney U test, **Interquartile range.

The total domestic violence score of fertile women showed a significant decrease with the increase of age at marriage. A study [42] showed that employed or high-income people had less intimate partner violence. The results of another study [43] showed that as women's age increases, the rate of domestic violence against them decreases. The results of the present study are not consistent with their results, which can be due to the sample size and the data collection method.

The total score of domestic violence in infertile women had a statistically significant relationship only with income status. The results of a study found the score of domestic violence was directly related to the duration of infertility, duration of marriage, and duration of

Table 3. Perceived social support after controlling sociodemographic/fertility variables

Perceived Social Support	Adjusted Mean Difference (Infertile-fertile)	SE	95% CI	P*
			Lower, Upper	
Family	0.45	0.77	-1.07, -1.97	0.561
Friends	-0.08	0.94	-1.93, 1.77	0.932
Significant other	-0.63	0.73	-2.08, -0.82	0.392
Total	-0.26	1.95	-4.10, -3.58	0.894

*Multiple regression analysis.

Table 4. Mean scores of domestic violence and its dimensions in fertile and infertile women

Domestic Violence	Fertile Women		Infertile Women		P*
	Mean±SD	Median**	Mean±SD	Median**	
Psychological	6.41±6.36	4 (2-10)	3.56±4.66	2 (0-5)	0.001
Physical	4.28±6.38	2 (0-5)	2.12±4.55	1 (0-2)	0.001
Sexual	1.27±2.39	0 (0-2)	0.7±1.59	0	0.013
Total	11.96±13.84	7 (2.2-15)	6.38±9.69	3.5 (1-7.8)	0.001

*Mann-Whitney U test, **Interquartile range.

infertility treatment, and indirectly related to the age at marriage [44]. However, the results of another study showed that the score of domestic violence was lower in women with high school education than in women with university education [39]. This difference may be due to the difference in the age of women, the type of infertility (primary or secondary), or the instrument used in the study.

According to the results of the present study, there was no statistically significant difference in the total score of perceived social support and its domains between fertile and infertile women, which is consistent with the results of Navid et al. [45], while is against the results of other studies [46, 47], perhaps due to difference in the instrument and sociodemographic characteristics of the participants.

Perceived social support was not a relevant variable for domestic violence against either fertile or infertile women.The results of a study [48] showed that, in fertile women, there was a positive and significant correlation between perceived social support in the domains of family and significant other and marital satisfaction of couples. Another study reported a positive and significant correlation between perceived social support and life satisfaction in pregnant women [49], which in-

dicates that perceived social support plays a fundamental role in women's lives.The results of a study showed that social support was higher in infertile women than in fertile women [33], but fertile women experienced more violence. Differences in the instruments used to measure social support and violence, the unreliability of data collection using an online method, less racial diversity (most participants were white and highly educated), and limited access to the Internet may be reasons for the inconsistency of the results of the present study with those of the mentioned study.

Overall, it can be said that domestic violence is less common in Iranian infertile women than in fertile peers, and Perceived social support was not a relevant variable for domestic violence against either fertile or infertile women. In this study, the family income level of 47.1% of infertile women was not sufficient, therefore it is suggested that governmental and private organizations take actions to support or provide financial facilities to infertile couples. It is also recommended that healthcare providers, as physical and psychological supporters of infertile/fertile women, assess and identify the factors that can be effective in preventing, occurring, reducing, or increasing domestic violence and perceived social support, in order to increase perceived social support and reduce domestic violence among these women.

Table 5. Domestic violence adjusted mean difference after controlling sociodemographic/fertility variables

Domestic Violence	Adjusted Mean Difference (Infertile-fertile)	SE	95% CI	P*
			Lower, Upper	
Psychological	-1.28	0.70	-2.66, 0.11	0.071
Physical	-1.19	0.72	-2.6, 0.22	0.097
Sexual	-0.2	0.26	-0.72, 0.31	0.438
Total	-2.67	1.52	-5.66, 0.32	0.080

*Multiple regression analysis.

Nasiri N, et al. Social Support and Domestic Violence Between Fertile and Infertile Women. J Holist Nurs Midwifery. 2025; 35(4):295-306.

301

Table 6. Relationship of sociodemographic/fertility variables with domestic violence in fertile women

Variables		b	SE	β	95% CI	t	P*
					Lower, Upper		
Age (y)		0.55	0.42	0.24	-0.28, 1.37	1.3	0.195
Age at marriage (y)		-1.28	0.44	-0.38	-2.14, -0.41	-2.92	0.004
Duration of marriage (y)		-0.43	0.39	-0.2	-1.2, 0.34	-1.1	0.272
Education	Lower than high school	Ref.	-	-	-	-	-
	Diploma	4.15	2.60	0.15	-099, 9.3	1.6	0.113
	Academic degree	3.88	3.77	0.1	-3.56, 11.32	1.03	0.304
Occupation	Housekeeper	Ref.	-	-	-	-	-
	Employed	5.87	5.68	0.08	-5.36, 17.09	1.03	0.304
	Self-employed	1.22	3.46	0.03	-5.61, 8.05	0.35	0.725
Spouse's education	Lower than high school	Ref.	-	-	-	-	-
	Diploma	-7.66	2.44	-0.27	-12.49, -2.83	-3.14	0.002
	Academic degree	-6.59	4.32	-0.16	-15.12, -1.94	-1.53	0.129
Spouse's occupation	Unemployed	Ref.	-	-	-	-	-
	Employed	-6.2	6.66	-0.14	-19.36, -6.96	-0.93	0.354
	Self-employed	-6.03	5.22	-0.16	-16.34, 4.28	-1.16	0.250
Family income level	Sufficient	Ref.	-	-	-	-	-
	Insufficient	2.61	2.22	0.09	-1.77, -6.99	1.18	0.240
Number of marriages	1	Ref.	-	-	-	-	-
	2	-4.04	7.78	-0.04	-19.42, 11.33	-0.52	0.604
Number of children	1	Ref.	-	-	-	-	-
	≥2	2.00	2.37	0.07	-6.69, 2.69	0.84	0.401
Place of residence	Urban	Ref.	-	-	-	-	-
	Rural	-5.44	2.49	-0.17	-10.36, -0.52	-2.18	0.031
Living with spouse's family	No	Ref.	-	-	-	-	-
	Yes	0.68	2.83	0.02	-4.92, 6.28	0.24	0.811
Total MSPSS score		-0.08	0.07	-0.09	-0.23, 0.06	-1.11	0.267

MSPSS: Multidimensional scale of perceived social support.

*Multiple regression analysis.

Table 7. Relationship of sociodemographic/fertility variables with domestic violence in infertile women

Variables		B	SE	β	95% CI Lower, Upper	t	P*
Age (y)		0.3	0.59	0.18	-0.96, 1.46	0.52	0.605
Age at marriage (y)		-0.09	0.57	-0.06	-1.21, 1.04	-0.15	0.882
Duration of marriage (y)		0.18	0.58	0.1	-0.98, 1.33	0.3	0.762
Education	Lower than high school	Ref.	-	-	-	-	-
	Diploma	-1.12	2.13	-0.06	-5.33, 3.08	-0.53	0.598
	Academic degree	-2.21	2.48	-0.11	-7.12, 2.69	-0.89	0.374
Occupation	Housekeeper	Ref.	-	-	-	-	-
	Employed	-1.28	3.34	-0.03	-7.88, 5.32	-0.38	0.702
	Self-employed	-0.68	2.37	-0.02	-5.35, 4	-0.29	0.775
Spouse's education	Lower than high school	Ref.	-	-	-	-	-
	Diploma	1.83	2.12	0.09	-2.35, 6.01	0.86	0.389
	Academic degree	5.29	2.69	0.25	-0.03, 10.62	1.96	0.051
Spouse's occupation	Unemployed	Ref.	-	-	-	-	-
	Employed	1.25	4.09	0.04	-6.83, 9.32	0.31	0.761
	Self-employed	5.08	3.39	0.21	-1.63, 11.78	1.5	0.137
Family income level	Sufficient	Ref.	-	-	-	-	-
	Insufficient	5.71	1.76	0.3	2.24, 9.18	3.25	0.001
Number of marriages	1	Ref.	-	-	-	-	-
	2	3.4	3.61	0.08	-2.21, 8.49	0.94	0.348
Place of residence	Urban	Ref.	-	-	-	-	-
	Rural	1.08	1.88	0.05	-2.05, 4.97	0.57	0.567
Living with spouse's family	No	Ref.	-	-	-	-	-
	Yes	0.14	1.93	0.01	-4.15, 3.3	0.07	0.941
Duration of infertility		-0.09	0.26	-0.04	-0.06, 0.42	-0.34	0.735
Cause of infertility	Wife's problem	Ref.	-	-	-	-	-
	Husband's problem	-2.63	2.53	-0.09	-7.64, 2.37	-1.04	0.30
	Both	-1.03	2.27	-0.04	-4.49, 3.46	-0.45	0.655
	Unknown	-0.90	1.77	-0.04	-4.4, 2.59	-0.051	0.611
Frequency of treatment failure	Without fail (first time)	Ref.	-	-	-	-	-
	Failed once	-0.5	2.07	-0.02	-4.59, 3.59	-0.34	0.809
	Failed twice or more	1.03	1.77	0.05	-2.47, 4.52	0.58	0.562
Type of infertility	Primary	Ref.	-	-	-	-	-
	Secondary	-0.41	1.94	-0.02	-4.24, 3.41	-0.21	0.831
Total MSPSS score		-0.05	0.05	-0.08	-0.14, 0.05	-0.96	0.337

MSPSS: Multidimensional scale of perceived social support.

*Multiple regression analysis.

Nasiri N, et al. Social Support and Domestic Violence Between Fertile and Infertile Women. J Holist Nurs Midwifery. 2025; 35(4):295-306.

303

One of the limitations of this study was the possibility of women's biased responses to questions related to domestic violence due to cultural, social issues, or shame. Other limitations were the lack of follow-up due to economic issues or refusal of the spouse to seek infertility treatment. Also, these results may not be generalizable to all women in Iran, since data were collected from only one teaching-treatment center in north of Iran. Since the allocation in this study was not done randomly, there is a risk of selection bias. It is recommended that future research, considering data collection from multiple centers, assess the impact of social desirability responding bias on the validity of the results. Also, given the cross-sectional design of the present study, future observational (cohort) studies should be conducted to more accurately examine the outcomes.

Ethical Considerations

Compliance with ethical guidelines

This study was approved by the Ethics Committee of Guilan University of Medical Sciences, Rasht, Iran (Code: IR.GUMS.REC. 2018.34). Written informed consent was obtained from all participants after describing the study objectives. They were free to leave the study at any time.

Authors' contributions

Methodology and data analysis: Saman Maroufizadeh; Data collection: Nadia Nasiri; Writing and final approval: All authors.

Conflict of interest

The authors declared no conflict of interest.

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305

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306

Nasiri N, et al. Social Support and Domestic Violence Between Fertile and Infertile Women. J Holist Nurs Midwifery. 2025; 35(4):295-306.