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## Quality of life of infertile couples in the Gaza Strip, Palestine

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## ABSTRACT

**Objective:** To investigate the quality of life of infertile couples who seek *in vitro* fertilizations (IVFs) by gender in the Gaza Strip, Palestine.

**Methods:** A cross-sectional study was conducted, from February 2019 to November 2019, among 383 infertile couples selected through convenient sampling. A valid and reliable Arabic version of the fertility quality of life questionnaire (FertiQoL) was used in data collection. One way analysis of variance and independent *t*-test were applied to compare between males and females.

**Results:** The mean age of males and females was (34.54±8.54) years and (29.28±6.71) years, respectively. More than half of them had university degree (64% and 60%, respectively). The mean duration of infertility was (5.66±3.54) years. The mean males' scores of FertiQoL and its subscales (emotion, mind/body, social, core, tolerability, and treatment) were significantly higher than females' scores ( $P<0.05$ ).

**Conclusions:** Males have higher scores of FertiQoL and its subscales than females. The mean score of FertiQoL increases with better education, but decreases with increase of age, duration of marriage, duration of infertility and number of IVF attempts. Routine psychological assessment and counseling are necessary for infertile women taking into considerations factors affecting their quality of life.

**KEYWORDS:** Quality of life; Infertility; Couples; Gender; Palestine; FertiQoL; IVF

## 1. Introduction

Quality of life is one of the most important components of health. The concept of quality of life is defined in different ways, however, it can be interpreted in three ways: firstly the welfare aspects of a

person's life, secondly the economic, social and physical abilities and thirdly symptoms of a disease. Measurement of quality of life makes it possible to understand the needs of clients and thus contributes to improvement of quality of services[1,2]. Different factors affect the quality of life of individuals. Infertility is one of the most difficult and effective conditions for quality of life as well as a common problem in today's world[3].

According to the World health Organization (WHO), infertility is as an important problem in reproductive health, which is not a disease but it can cause significant emotional disturbances and cause social and psychological consequences[4]. In a study, 12% of

## Significance

It is well known that infertile couples are exposed to some psychological distresses which affect their quality of life, and females as a vulnerable groups are at much higher risks than males. This study adds to the existing body of knowledge about quality of life of couples who failed to have offspring, in undiscovered area in this world. Moreover, contributing factors were also determined. At the end, comprehensive care, including psycho-social, is significant to improve the quality of infertile couples' life.

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infertile women had low quality of life, while more than half had a decent quality of life. Family and community pressure on infertile women had a significant negative impact on their quality of life[5]. Infertile women are more vulnerable to undesirable quality of life than men, and thus supporting measures for both sexes, especially women, are essential[6]. The incidence increased by 50% over the past decades, whereas the prevalence of infertility is about 10%-15%, giving that it varies among ethnic groups and races[7-9].

In dealing with spiritual issues, couples' participation can be a good solution because there is a positive result in each issue of common life between couples[10]. According to the results of the research conducted in comparison with the stressful events of life, infertility is in the fourth place after the death of the mother, the death of the father and betrayal of the spouse[11]. One cause of women infertility can be physical disease such as the polycystic ovary syndrome, which accounts for 5% to 10%[12].

Infertility predisposes individuals to depression and anxiety. The emotional disturbances of infertile couples and secondary symptoms of infertility create a defective cycle that reduces the likelihood of treatment of infertility[13]. On the other hand, infertility treatments cause harmful effects on the physical, economic, and psychosocial aspects and result in reducing self-confidence and disrupting masculinity in men and femininity in women[14]. That is why infertility is considered as defeat in the view point of couples and having a baby is one of the best events that happen for a couple. Also, in the reverse condition, infertility affects the same amount of couple lives[15]. Infertility can be one of the reasons for divorce[16]. Also, nearly half of infertile women do not have marital adjustment and experienced problems in their relationship with their spouses. Lower sexual satisfaction in infertile couples than fertile couples was reported. As the treatment progresses, the stress level increases significantly and marital satisfaction decreases[17].

By and large, different researchers have different opinions about the effect of infertility on couples' relationships. Some researchers believe that tolerating diagnosis and treatment of infertility causes couples to be more intimate, and they will feel closer to each other[18], while many researchers reported declining of couples' performance as a result of infertility. They have emphasized the increase in marital conflicts among infertile couples[19]. As mentioned, quality of life of infertile couples can be varied by ethnic, culture and geographical aspects including Palestine. There is lack of studies on this topic in the geographical area of Palestine, and thus this study aimed to investigate the quality of life (QoL) of infertile couples who seek IVF in the Gaza Strip, Palestine.

## 2. Materials and methods

### 2.1. Study design and setting

This study was a cross-sectional survey, conducted on 383 infertile

couples who seek IVFs services at Al-Hello, Al-Bassma and Al-Hindawy infertility clinics in the Gaza city, Palestine.

### 2.2. Data collection and measurement

Data were collected for nine months from February 19th, 2019 to November 2019 by three trained midwives worked in the selected infertility clinics. Eligible couples met the inclusion criteria: primary or secondary infertility, over 18 years of age, and willingness for participation in the study. The couples were asked to fill the fertility quality of life questionnaire (FertiQoL), while waiting for medical appointment, following face to face interview-based technique. The questionnaire had two parts: firstly, the socio-demographic and clinical characteristics (age, living place, education level, duration of marriage, number of deliveries and abortions, duration of infertility, *et al*), and secondly the FertiQoL questionnaire, developed by Boivin, Takefman, and Braverman in 2011, consisted of 34 questions and QoL was measured on two sections: core (24 questions) and treatment (10 questions), in addition to two questions asked about personal health and general satisfaction with QoL[20]. The internal consistency, measured by the Cronbach alpha coefficient, of the Core and Treatment FertiQoL (and subscales) was good to excellent and ranged between 0.72 and 0.92[21]. Each item of the FertiQoL was scored from 0 to 4 and the whole subscale score ranged between 0 to 100, giving that higher score means better quality of life. We used the Arabic version available at: <http://sites.cardiff.ac.uk/fertiqol/files/2015/02/fertiqol-Arabic.pdf>. Average time to fill the questionnaire was 25 minutes.

### 2.3. Sample and sampling

A convenience sampling of 390 couples was approached. Three women and two men refused to participate and two women provided incomplete questionnaire and the missing values were more than 5%, and thus, 383 couples participated in the study. Sample size was calculated according to traditional formula of the cross-sectional design[21].

### 2.4. Statistical analysis

Prior analysis, data were checked for completeness, outliers and errors. Data were analyzed using the IBM SPSS 22 (SPSS Inc., Chicago, Ill). Continuous variables (age, marital years, number of deliveries, *etc*) were presented as mean and standard deviation (mean  $\pm$ SD). Categorical variables (gender, level of education, menstruation pattern, *etc*) were presented as frequency and percentage. Mean score of FertiQoL and its subscales, with regard to independent variables, were compared between males and females by using one way analysis of variance and independent *t*-test. *P*-value less than 0.05 was considered as statistical significance.

## 2.5. Ethical statement

Couples were provided with explanation about the purpose of the study and confidentiality of information was ensured. Participation was voluntary-based and couples were asked to give consent prior starting the data collection. Permission was obtained from the administration of the involved infertility clinics and from the Ministry of Health, Department of Research (PHRC/HC/277/19). Data are kept with the first author in private closet and will be discarded once publication is achieved.

## 3. Results

### 3.1. Characteristics of respondent couples

The mean age of females and males was (29.28±6.71) years and (34.54±8.54) years, respectively. More than half of them had university degree and more (60% and 64%, respectively). Majority of females were housewives (77.2%), whereas, 75.7% of males had job. The mean duration of marriage was (7.94±2.32) years. More than one third of women had previously delivered a baby and 40% of them had at least delivered one child. The mean duration of infertility of couples was (5.66±3.54) years and 71.1% had experienced at most two IVFs (Table 1).

### 3.2. Perception about health and quality of life

Males' responses to the question about health in general revealed that one fifth (19.7%) rated their health as poor or very poor and 71.1% perceived their health as good or very good. In turn, 23% of females rated their health as poor and very poor, while 67.3% rated their health as good and very good. With regard to satisfaction about quality of life, one fifth and 67.3% of males were dissatisfied (dissatisfied, very dissatisfied) and satisfied (satisfied, very satisfied), respectively. For females, 20% and 65.4% were dissatisfied and satisfied with their quality of life, respectively.

### 3.3. Comparison of mean scales of FertiQoL subscales between males and females

The mean males' scores of FertiQoL and its subscales (emotion, mind/body, social, core, tolerability and treatment) were significantly higher than females' scores ( $P < 0.05$ ). The quality of life of infertile men is better than in women (Table 2).

**Table 1.** Characteristics of participating women and men.

Characteristics	Female	Male
Age, mean±SD	29.28±6.71	34.54±8.54
≤30 years, n(%)	254 (64.3)	156 (39.5)
>30 year, n(%)	140 (35.4)	239 (60.5)
Living place, n(%)		
North of Gaza	72 (18.2)	
Gaza city	184 (46.6)	
Middle area	68 (17.2)	
South of Gaza	71 (18.0)	
Education, n(%)		
Illiterate	25 (6.3)	41 (10.4)
Up to secondary school	133 (33.7)	101 (25.6)
≥ University	237 (60.0)	253 (64.0)
Job, n(%)		
Have a job	90 (22.8)	299 (75.7)
Jobless	305 (77.2)	96 (24.3)
Duration of marriage, mean±SD	7.94±2.32	
≤10 years, n(%)	293 (74.2)	
>10 years, n(%)	102 (25.8)	
Husband polygamy, n(%)		
Yes		49 (12.4)
No		346 (87.6)
Previous delivery, n(%)		
Yes	155 (39.2)	
No	240 (60.8)	
No. of delivery, mean±SD	0.82±1.32	
0, n(%)	235 (59.5)	
1-2, n(%)	116 (29.4)	
≥3, n(%)	44 (11.1)	
No. of abortion, mean±SD	0.78±1.30	
Zero, n(%)	247 (62.5)	
1-2, n(%)	107 (27.1)	
≥3, n(%)	41 (10.4)	
Menstrual pattern, n(%)		
Regular	284 (71.9)	
Irregular	111 (28.1)	
Duration of infertility, mean±SD	5.66±3.54	
≤3 years, n(%)	122 (30.9)	
4-6 years, n(%)	134 (33.9)	
>6 years, n(%)	138 (34.9)	
Previous IVF, n(%)		
Yes	278 (70.4)	
No	117 (29.6)	
Previous No. of IVFs, mean±SD	1.86±1.86	
≤2, n(%)	281 (71.1)	
>2, n(%)	112 (28.4)	
Infertility cause, n(%)		
Wife related cause	56 (14.2)	
Husband related cause		138 (34.9)
Both	80 (20.3)	
Unknown	121 (30.6)	

No. : number.

### 3.4. Relationship between couples' characteristics and FertiQoL subscales

A significant differences were noticed between women' duration of marriage, number of deliveries, number of IVFs performed and emotion score. For men, husband polygamy received highest emotion score. Females had lower scores (>50%) than males for the emotion subscale.

Younger males (below 30 years) had significant higher mind/body and social score than their counterpart females ( $P<0.05$ ). Males scored higher than females for mind/body and significant differences were seen with regard to age groups, education level and duration of marriage (all  $P<0.05$ ). Whereas, differences of females' scores for mind/body were observed in the duration of fertility, number of previous deliveries and IVFs (all  $P<0.05$ ). For women, there was a significant difference between age and the relational, social and core scores (Table 3).

Females who experienced at least three attempts of IVF had lower score for the core dimensions and its subscales. However, differences were significant in core subscale and FertiQoL as a

whole. Males and females below 30 years old reported higher scores for the treatment subscales and significance was noticed in the treatment domain and its subscales, and the FertiQoL as a whole (all  $P<0.05$ ). Similar findings were reported for duration of marriage and number of previous deliveries ( $P<0.05$ ) (Table 4).

With regard to treatment dimensions, including environment and tolerability subscales, the variables age, duration of marriage, and number of women deliveries were statistically significant for both males and females (all  $P<0.05$ ). Similar observation was noticed with education level, however, it was not significant in the tolerability subscale for females ( $P>0.05$ ) (Table 4).

**Table 2.** Differences of women and men scores of the subscale of FertiQoL.

Subscale of FertiQoL	Female		Male		t-test	P-value
	Mean±SD	Min-Max	Mean±SD	Min-Max		
Emotion	47.75±19.29	0.0-100.0	53.75±22.43	4.1-100.0	-5.884	<0.001
Mind/body	52.53±20.71	8.3-100.0	67.99±16.29	33.3-100.0	-4.949	<0.001
Relational	66.79±17.73	12.5-100.0	57.47±22.68	0.0-100.0	-1.621	0.106
Social	61.45±19.25	16.6-100	63.49±19.91	20.8-100.0	-2.367	0.018
CoreQoL	57.13±16.14	14.6-93.7	60.76±17.07	25.0-95.8	-5.131	<0.001
Environment	60.85±17.06	16.6-95.8	60.53±16.52	16.6-100	0.394	0.694
Tolerability	30.93±15.80	0.0-66.7	34.35±16.83	0.0-66.7	-4.375	<0.001
TreatmentQoL	55.10±16.83	15.0-95.0	56.92±16.62	12.5-95	-2.576	<0.001
FertiQoL	56.54±15.10	24.7-91.2	59.64±15.77	26.5-94.1	-5.094	<0.001

**Table 3.** Relationship between infertile women's and men's characteristics and the subscale of emotion, mind/body, relational, social, and core.

Variables	Emotion		Mind/body				Relational				Social				Core					
	Female		Male		Female		Male		Female		Male		Female		Male					
	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P				
Age, years																				
≤30	48.96		53.21	0.706	53.13	0.452	71.42	0.001	68.67	0.006	58.75	0.351	63.04	0.031	66.42	0.018	58.46	0.032	62.60	0.084
>30	45.63	0.097	54.08		51.46		65.71		63.54		56.58		58.67		61.54		54.83		59.55	
Duration of marriage, years																				
≤10	49.50	0.002	54.71	0.141	53.42	0.139	70.50	0.001	69.13	0.001	58.75	0.052	63.79	0.001	65.96	0.001	58.97	0.001	62.64	0.001
>10	42.71		50.92		49.92		60.63		60.04		53.71		54.58		56.29		51.82		55.41	
Husband polygamy																				
Yes	47.58	0.959	63.00	0.015	52.46	0.981	65.04	0.178	67.00	0.928	67.92	0.003	60.17	0.630	66.38	0.247	56.82	0.887	65.59	0.033
No	47.75		52.42		52.50		68.38		66.75		55.96		61.58		63.04		57.17		60.06	
Number of delivery																				
0	49.29		55.79		53.33		71.38		70.38		60.38		64.00		67.75		59.26		63.95	
1-2	47.88	0.005	52.96	0.010	54.04	0.016	65.71	0.001	63.79	0.001	56.25	0.001	60.67	0.001	59.25	0.001	56.60	0.001	58.68	0.001
≥3	39.08		44.79		44.13		55.75		55.46		44.80		49.58		51.67		47.08		49.28	
Previous IVF																				
Yes	47.75	0.964	55.04	0.072	51.83	0.320	67.79	0.757	67.00	0.688	58.21	0.315	62.17	0.249	64.50	0.112	57.21	0.882	61.52	0.171
No	47.67		50.58		54.13		68.38		66.21		55.67		59.71		61.00		56.94		58.93	
Number of IVFs																				
≤2	50.71	0.001	54.79	0.130	55.04	0.002	68.08	0.734	68.54	0.009	59.13	0.017	64.79	0.001	64.50	0.079	59.78	0.001	61.71	0.063
>2	41.88		51.00		45.88		67.46		61.79		53.13		55.50		60.58		51.28		58.16	
Duration of infertility, years																				
≤3	49.88		56.63		56.54		68.79		67.63		61.79		64.63		68.04		59.69		63.86	
4-6	47.21	0.265	51.83	0.201	49.50	0.020	68.75	0.353	67.00	0.671	53.83	0.018	60.13	0.070	61.79	0.007	55.59	0.091	59.06	0.045
>6	46.04		52.79		51.58		66.29		65.71		56.88		59.58		60.79		55.75		59.41	
Education																				
Illiterate	44.17		54.46		49.67		65.42		66.83		56.50		58.17		60.96		54.71		59.43	
Up to secondary school	47.13	0.073	53.71	0.983	52.50	0.200	68.08	0.039	66.25	0.010	59.42	0.299	61.33	0.004	65.29	0.116	56.81	0.008	61.82	0.221
≥ University	49.21		53.83		53.50		69.46		68.04		57.79		62.90		64.25		58.43		61.42	

**Table 4.** Relationship between infertile women's and men's characteristics and the subscale of tolerability, environment, treatment and total FertiQoL.

Variables	Tolerability				Environment				Treatment				Total FertiQoL				
	Female		Male		Female		Male		Female		Male		Female		Male		
	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	Mean	P	
Age, years																	
≤30	48.56	0.015	54.69	0.038	62.96	0.001	63.67	0.002	57.28	0.001	60.10	0.002	58.13	0.006	61.94	0.018	
>30	42.56		49.38		57.29		58.42		51.40		54.83		53.82		58.15		
Duration of marriage, years																	
≤10	48.38	0.004	54.19	0.001	63.04	0.001	62.88	0.001	57.25	0.001	59.43	0.001	58.48	0.001	61.71	0.001	
>10	40.56		43.75		54.46		53.71		48.90		49.73		50.97		53.74		
Husband polygamy																	
Yes	46.25	0.977	52.50	0.760	62.21	0.564	59.58	0.678	55.85	0.732	56.78	0.950	56.54	0.999	63.01	0.110	
No	46.38		51.31		60.63		60.63		54.98		56.93		56.54		59.16		
Number of delivery																	
0	49.69		56.00		64.67		64.67		58.75		61.22		59.13		63.19		
1-2	43.88	0.001	48.00	0.001	58.25	0.001	57.29	0.001	52.50	0.001	53.57	0.001	55.40	0.001	57.14	0.001	
≥3	35.06		36.63		47.33		46.75		42.43		42.73		45.72		47.35		
Previous IVF																	
Yes	44.88	0.044	52.56	0.206	62.00	0.050	62.21	0.004	55.15	0.890	58.35	0.016	56.60	0.886	60.60	0.084	
No	49.92		49.00		58.04		56.46		54.90		53.50		56.37		57.37		
Number of IVFs																	
≤2	50.00	0.001	53.94	0.004	61.21	0.441	61.08	0.251	56.78	0.001	58.23	0.016	57.99	0.001	60.72	0.027	
>2	37.31		45.19		59.71		58.96		50.78		53.45		52.71		56.74		
Duration of infertility, years																	
≤3	52.44		56.00		60.46		61.46		57.25		59.30		58.98		62.57		
4-6	44.63	0.002	49.69	0.053	60.54	0.867	60.17	0.743	54.20	0.220	56.00	0.155	55.45	0.085	58.17	0.041	
>6	42.44		49.06		61.46		59.96		53.95		55.63		55.24		58.29		
Education																	
Illiterate	43.75		48.00		63.67		62.67		55.70		56.83		55.00		58.60		
Up to secondary school	46.63	0.237	57.25	0.015	60.33	0.001	61.38	0.001	54.95	0.001	59.75	0.001	56.29	0.002	61.26	0.047	
≥ University	47.25		50.88		62.13		61.54		56.18		57.30		57.76		60.22		

#### 4. Discussion

The current study aimed to explore QoL and associated factors of infertile couples, who seek IVF, from a dyadic or two perspectives. The results of our study showed that husbands' QoL (in terms of emotion, mind/body, social, core, tolerability and treatment) was more positively affected than their counterparts' women, which is similar to a conclusion drawn by Goker *et al*[22]. Infertility is a stressful status, affecting individual's health including emotions, especially in women. The traditional social pressure in Palestinian society enhances husbands to have a large number of children, especially when infertility is women factor. Infertile Women feel inferior and disappointed[23,24]. Infertility could be life-long and interventions including medical treatments are subjected to failure, and thus psychological, social and economic effects are expected. Emotional support, therapeutic and psychological counseling are vital contributing features for improving quality of life for infertile women[25–27].

Our findings indicated differences in the relation between QoL and age. Youngers have better QoL than infertile individuals above 30 years old, similar to findings of Khayata *et al*[28]. Significant differences were seen in the score between infertile men and women in the core QoL, treatment QoL and overall FertiQoL. This is against findings of the studies of Goker *et al*[22], Karabulut *et al*[26]

and Bolsoy *et al*[29]. Social and psychological support including counseling, to adults, are necessary to infertile couples and raise awareness of society toward infertility as a health issue not a defect or a deficiency.

It is acknowledged that education level has a significant impact on infertile QoL. Infertile individuals of lower education are more prone to social stigma and thus are under much stress[30]. In our study, high education level was a positive influencing factor, similar to previous study of Karabulut *et al*[26]. As the education level of infertile individuals increases, the QoL improves. Better education contributes to coping and adaptation to stressful experiences. In contrast, lower education level might increase depression of infertile couples and make dyadic adjustment and coping to anxious situation inadequate and difficult[30]. In this study, females with higher education obtained better scores in the core, social, relational and treatment subscales. Previous studies reported no relationship between the women's educational level and FertiQoL subscale scores[31]. Differences of findings could be attributed to using of various instruments and variations in the socio-demographic background of participated subjects.

Significant relationship is noticed between duration of marriage and QoL. Married men for less than 10 years have higher QoL than their counterparts' women[32]. However, females' QoL was only higher for relational subscale. Similar findings were reported from

Chachamovich *et al*[33] and Keramat *et al*[34]. A possible explanation with regard to Arabic context is that partners are under family pressure, especially from mothers-in-law to see their grandchildren. In Islamic rules, men have chances to get married to other wives if the marriage is failed to bring children. In return, women remain anxious and feared as infertility time increases. They fear from their husbands to get a second wife or to reach menopause time with no backbone support or being a mother. Women prefer to have boys because they are the support in front of families and social pressures. One study found no significant effect between QoL and duration of marriage[35].

QoL of infertile women in all FertiQoL subscales decreased with increased number of IVFs attempts, in contrast to their counterparts' men. This is reasonable and acceptable because interventions to treat infertility, including injections, aspiration, intra-cytoplasmic injection, IVFs and medical treatments, are mostly applied to women and thus they may be exposed to physical and psychological complications resulting from interventions. Moreover, increased failures of IVFs attempts could lead to emotional disturbances, frustration and anxiety. Similar finding was reported by Pasch *et al*[36].

A significant relationship was found between QoL and the duration of infertility among men. Infertile men for less than 3 years have a significant better QoL[35]. Previous studies reported decrease in the QoL as the infertility duration increases[22,35,37,38]. As a source of speculation, infertile men who live in a society, like that in the Gaza Strip, are in hurry to have children very earlier to satisfy themselves and their families and to overcome social pressure and stigma. However, as the infertility duration increases, men accept and accommodate to situation over the time. We found females' QoL depends on duration of infertility[39]. This is inconsistent with findings of Baghiani Moghadam *et al*[40].

This study had some limitations. Firstly, many independent factors which may affect QoL of infertile couples were not studied. Hereafter, further studies are recommended to exclude potential confounding factors. Secondly, we did not have the control group from fertile couples to compare the results. To better understand such effects, doing case control study with large sample size is recommended. Thirdly, the nature of cross-sectional design limits the causal relationship.

In conclusion, infertility affects the QoL of infertile Palestinian couples. Males' total scores of FertiQoL and its subscales (emotion, mind/body, social, core, tolerability, and treatment) are higher than females' scores. The mean score of total FertiQoL increases with better education, but decreases with increase of age, duration of marriage, duration of infertility and number of IVF attempts.

### Conflict of interest statement

The research has no conflict of interest.

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### Authors' contributions

Suha Baloushah and Aymen Elsous designed the study. Aymen Elsous, Atef Masad and Ali Al-Derawi wrote the first draft. Suha Baloushah, Samira Barjasteh, and Soha Abou Eid participated in writing the manuscript. Atef Masad and Soha Abou Eid edited the manuscript before submission. Data analyzing was performed by Aymen Elsous. All authors read and approved the final version.

### References

- [1] Schalock RL, Verdugo MA, Gomez LE. Translating the quality of life concept into practice. In: Shogren KA, Wehmeyer ML, Singh NN. (eds.) *Handbook of positive psychology in intellectual and developmental disabilities*. Washington, DC: Springer, Cham; 2017, p. 115-126.
- [2] Karimi M, Brazier J. Health, health-related quality of life, and quality of life: What is the difference? *Pharmacoeconomics* 2016; **34**(7): 645-649.
- [3] Bayoumi RR, van der Poel SZ, Koert E, Boivin J. Fertility awareness and quality of life: Assessment and impact of fertility problems and infertility. *Global Reprod Health* 2018; **3**(4): e21.
- [4] Mollaiynezhad M, Jaaferpour M, Jahanfar SH, Jam-shidi R. Infertility related stress and marital life in Iranian infertile women who referred to Isfahan infertility treatment clinic. *J Reprod Infertil* 2001; **2**(1): 26-39.
- [5] Alieh G, Laya F. Quality of life and its correlated among a group of infertile Iranian women. *Med Sci Monit* 2007; **13**(7): CR313-CR317.
- [6] Rashidi B, Montazeri A, Abedinia N, Shariat M, Ashrafi M, Ramezanzadeh F. Health-related quality of life in Iranian couples receiving IVF/ICSI treatment. *Payesh* 2012; **11**(3): 385-389.
- [7] Berek JS, Hillard PJA. Initial assessment and communication. In: Berek JS. (ed.) *Berek & Novak's gynecology*. 14th ed. Philadelphia: Lippincott Williams & Wilkins; 2007, p. 3-25.
- [8] Speroff L, Fritz MA. *Clinical gynecologic and endocrinology and infertility*. 7th ed. Philadelphia: Lippincott. Williams & Wilkins; 2005.
- [9] Ahmadi H. *Survey on relationship between marital satisfaction and irrational communicative belief*. Mashhad: Mashhad University of Medical Sciences; 2003, p.121.
- [10] Rabiepoor S, Khodaei A, Valizadeh R. Husbands' participation in prenatal care and breastfeeding self-efficacy in Iranian women: A randomized clinical trial. *Med J Islamic Republic Iran* 2019; **33**(1): 353-357.

- [11] Oddens BJ, den Tonkelaar I, Nieuwenhuyse H. Psychosocial experiences in women facing fertility problems-A comparative survey. *Hum Reprod (Oxford, England)* 1999; **14**(1): 255-261.
- [12] Foroozanfard F, Soleimani A, Arbab E, Samimi M, Tamadon MR. Relationship between IL-17 serum level and ambulatory blood pressure in women with polycystic ovary syndrome. *J Nephropathol* 2017; **6**(1): 15.
- [13] Amiri M, Chaman R, Sadeghi Z, Khatibi MR, Ranjbar M, Khosravi A. Quality of life among fertile and infertile women. *Iran J Psychiat Behav Sci* 2017; **11**(1): e5641.
- [14] Vannuccini S, Clifton VL, Fraser IS, Taylor HS, Critchley H, Giudice LC, et al. Infertility and reproductive disorders: Impact of hormonal and inflammatory mechanisms on pregnancy outcome. *Hum Reprod Update* 2015; **22**(1): 104-115.
- [15] Moura-Ramos M, Gameiro S, Canavarró MC, Soares I, Almeida-Santos T. Does infertility history affect the emotional adjustment of couples undergoing assisted reproduction? The mediating role of the importance of parenthood. *Br J Health Psychol* 2016; **21**(2): 302-317.
- [16] Ardekani ZB, Akhondi MM, Kamali K, Khalaf ZF, Eskandari S, Ghorbani B. Mental health status of patients attending avicenna infertility clinic. *J Reprod Infertil* 2010; **11**(4): 319-324.
- [17] Donarelli Z, Gullo S, Lo Coco G, Marino A, Scaglione P, Volpes A, et al. Assessing infertility-related stress: The factor structure of the fertility problem inventory in Italian couples undergoing infertility treatment. *J Psychosom Obstet Gynecol* 2015; **36**(2): 58-65.
- [18] Greil AL, Slauson-Blevins K, McQuillan J, Lowry MH, Burch AR, Shreffler KM. Relationship satisfaction among infertile couples: Implications of gender and self-identification. *J Family Issues* 2018; **39**(5): 1304-1325.
- [19] Zhuoran W, Wanpeng L, Tao P, Coates R. Qualitative research on infertile Chinese couples' understanding of sexuality. *Family Pract* 2017; **35**(1): 88-92.
- [20] Boivin J, Takefman J, Braverman A. The fertility quality of life (FertiQoL) tool: Development and general psychometric properties. *Fertil Steril* 2011; **96**(2): 409-415.e3
- [21] Charan J, Biswas T. How to calculate sample size for different study designs in medical research? *Indian J Psychol Med* 2013; **35**(2): 121-126.
- [22] Goker A, Yanikkerem E, Birge O, Kuscü NK. Quality of life in Turkish infertile couples and related factors. *Hum Fertil* 2017; **21**(3): 195-203.
- [23] Direkvand-Moghadam A, Delpisheh A, Direkvand-Moghadam A. Effect of infertility on the quality of life, a cross-sectional study. *J Clin Diagn Res* 2014; **8**(10): OC13- OC15.
- [24] Huppelschoten AG, van Dongen AJ, Verhaak CM, Smeenk JM, Kremer JA, Nele WL. Differences in quality of life and emotional status between infertile women and their partners. *Hum Reprod* 2013; **28**: 2168-2176.
- [25] Ried K, Alfred A. Quality of life, coping strategies and support needs of women seeking traditional Chinese medicine for infertility and viable pregnancy in Australia: A mixed methods approach. *BMC Womens Health* 2013; **13**: 17.
- [26] Karabulut A, Ozkan S, Oguz N. Predictors of fertility quality of life (FertiQoL) in infertile women: Analysis of confounding factors. *Eur J Obstet Gynecol Reprod Biol* 2013; **170**: 193-197.
- [27] Yanikkerem E, Kavlak O, Sevil U. Infertile couple's problems and nursing approach. *J Anatol Nurs Health Sci* 2008; **11**: 112-121.
- [28] Khayata GM, Rizk DE, Hasan MY, Ghazal-Aswad S, Asaad MA. Factors influencing the quality of life of infertile women in United Arab Emirates. *Int J Gynaecol Obstet* 2003; **80**: 183-188.
- [29] Bolsoy N, Taspınar A, Kavlak O, Sirin A. Differences in quality of life between infertile women and men in Turkey. *J Obstet Gynecol Neonatal Nurs* 2010; **39**(2): 191-198.
- [30] Alibaşoğlu H. *Emotional symptoms in infertility, marital adjustment, and gender differences in the context of sexual functioning*. Doctoral dissertation. İstanbul: Bakırköy Professor Mazhar Osman Mental Health and Neurological Diseases Education and Research Hospital; 2010.
- [31] Kahyaoglu Sut H, Balkanlı Kaplan P. Quality of life in women with infertility via the FertiQoL and the hospital anxiety and depression scales. *Nurs Health Sci* 2015; **17**: 84-89.
- [32] Namdar A, Mehdi M, Naghizadeh Zamani M, Yaghmaei F, Sameni M. Quality of life and general health of infertile women. *Health Qual Life Out* 2017; **15**: 139.
- [33] Chachamovich JR, Chachamovich E, Zachia S, Knauth D, Passos EP. What variables predict generic and health-related quality of life in a sample of Brazilian women experiencing infertility? *Hum Reprod* 2007; **22**: 1946-1952.
- [34] Keramat A, Masoomi SZ, Mousavi, SA, Poorolajal J, Shobeiri F, Hazavhei SM. Quality of life and its related factors in infertile couples. *J Res Health Sci* 2014; **14**: 57-63.
- [35] Marzieh S, Nikvarz F, Zangiabadizadeh M. The quality of life and some effective factors on infertile couples. *Ann Trop Med Public Health* 2017; **10**: 928-938.
- [36] Pasch LA, Gregorich SE, Katz PK, Millstein SG, Nachtigall RD, Bleil ME, et al. Psychological distress and *in vitro* fertilization outcome. *Fertil Steril* 2012; **98**(2): 459-464.
- [37] Çavdar NK, Co kun AM. The effect of infertility upon quality of life and self-esteem. *MOJ Womens Health* 2018; **7**(3): 89-94.
- [38] Aslzaker M, Pourshahbaz A, Bagheri Lankarani N, Mohammadkhani P, Geranmayepour S. Effects of infertility stress, psychological symptoms, and quality of life on predicting success rate of IVF/ICSI treatment in infertile women. *Pract Clin Psychol* 2016; **4**: 275-281.
- [39] Dillu R, Sheoran P, Sarin J. An exploratory study to assess the quality of life of infertile couples at selected infertility clinics in Haryana. *J Nurs Health Sci* 2013; **2**(3): 45-55.
- [40] Baghiani Moghadam MH, Aminian AH, Abdoli AM, Seighal N, Falahzadeh H, Ghasemi N. Evaluation of the general health of the infertile couples. *Iran J Reprod Med* 2011; **9**(4): 309-314.