

# Quality of Life among Infertile Couples in Gaza City, Palestine

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## Research

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## Abstract

**Background:** Infertility is an important health problem affecting the quality of life accompanied by significant emotional and psychological consequences. Infertile couples living with emotional disturbances face challenges with less success of infertility treatment.

**Purposes:** This study aimed to investigate the quality of life of infertile couples who seek In-Vitro Fertilizations (IVFs) by gender in Gaza city, Palestinian. **Methods and materials:** A cross sectional study was conducted, from Feb 2018 to Nov 2018, 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 ANOVA and independent t-test was applied to compare between males and females. P value less than 0.05% was considered statistical significance.

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

**Conclusion:** The males' total scores of FertiQoL and its subscales were higher than females' scores. The mean total of FertiQoL increased with better education, however, decreased with increase of age, duration of marriage, duration of infertility and number of IVF attempts. Psychological assessment and Counseling are necessary for infertile women taking into considerations factors affecting their QoL.

## Introduction

Quality of life is one of the most important components of health. The concept of quality of life is defined in different ways and can be interpreted in three ways. The first definition of the welfare aspects of a person's life; the second definition is related to the economic, social and physical abilities and the third definition is dealing with symptoms or specific disease. Measurement of quality of life makes it possible to understand the needs of the clients and thus improve the quality of the 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 and one of the most common problems 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 infertile women had low quality of life, while more than half of them had a decent quality of life. Family and community pressure on the quality of life of infertile women had a significant negative impact (5). Infertile women are more vulnerable to undesirable quality of life than men, and support measures for both sexes, especially women, are essential (6). The prevalence of infertility varies among ethnic groups and races, and is about 10–15%, and its incidence has increased by about 50% over the past decade (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 after the death of the mother, the death of the father and betrayal of the spouse is in the fourth place (11). One cause of infertility can be physical disease such as the Polycystic Ovary Syndrome, which accounts for 5–10% (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 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 a 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).

In general, 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 marital 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 ethic, culture and geographical aspects. In this regard, this study aimed to investigate the quality of life (QoL) of infertile couples who seek IVF in Gaza city, Palestinian.

## Methods And Materials

### Study design and setting

This study is a cross sectional survey, was conducted on 383 infertile couples who seek IVFs services in Alhello, Al Bassma and Al-Hindawy infertility clinics in Gaza city.

### 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 interviewing. FertiQoL questionnaire

consists of 34 questions and measured QoL on two sections, core (24 questions) and treatment (10 questions) (20). In addition to two questions asked about personal health and satisfaction with QoL in general. Average time to fill the questionnaire was 25 minutes.

## **Sample and sampling**

A convenience sample of 390 couples were approached however three women and two males refused to participate and two women provided incomplete questionnaire and the missing value was more than 5%. Thus, 383 couples involved and participated. Sample size was calculated according to traditional formula of cross-sectional design (21).

## **Ethical issues**

The couples were provided with explanation about the purpose of the study and confidentiality of information was assured. Participation was voluntary-based and women were asked to give consent prior starting the study. Permission was obtained from administration of the involved infertility clinics in Gaza city and from Ministry of health, department of research. Data are kept in the first author closet and will be discarded once publication is made.

## **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, no of deliveries,..) were presented as mean and standard deviation. Categorical variables (gender, level of education, menstruation pattern, ..) were presented as frequency and percentage. Mean score of FertiQoL and its subscales, with regard to independent variables, were compared between males and females using one way ANOVA and independent t-test. Analysis used p value less than 0.05% as statistical significance.

## **Results**

### **Characteristics of respondent couples**

The mean age (SD) of females and males was 29.28 (6.71) and 34.54 (8.54) years old 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 been previously delivered a baby and 40% of them had at least delivered one child. The mean duration of fertility of couples was 5.66 (3.54) years and 71.1% had experiences IVF at most twice (Table 1).

Table 1  
characteristics of participated women and men

Characteristics	Female n (%)	Male n (%)
Age (M ± SD)	29.28 ± 6.71	34.54 ± 8.54
≤ 30 years	254 (64.3)	156 (39.5)
> 30 year	140 (35.4)	239 (60.5)
Living place	72 (18.2)	
North of Gaza	184 (46.6)	
Gaza city	68 (17.2)	
Middle area	71 (18.0)	
South of Gaza		
Education	25 (6.3)	41 (10.4)
Illiterate	133 (33.7)	101 (25.6)
Up to sec. school	237 (60.0)	253 (64.0)
≥ University		
Job	90 (22.8)	299 (75.7)
Have a job	305 (77.2)	96 (24.3)
Jobless		
Duration of marriage	7.94 ± 2.32	
≤ 10 years	293 (74.2)	
> 10 years	102 (25.8)	
Classification of infertility	240 (60.8)	
Primary	155 (39.2)	
Secondary		
Duration of infertility	5.66 ± 3.54	
≤ 3	122 (30.9)	
4–6	134 (33.9)	
> 6	138 (34.9)	
Previous IVF	278 (70.4)	
Yes	117 (29.6)	
No		
Previous no. of IVFs	1.86 ± 1.86	
≤ 2	281 (71.1)	
> 2	112 (28.4)	
Infertility cause	56 (14.2)	
Wife related cause	138 (34.9)	
Husband related cause	80 (20.3)	
Both	121 (30.6)	
Unknown		

## Perception about health and quality of life

Males' responses to question about health 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 good and very good. With regard to satisfaction about quality of life, one fifth of males (20.3%) and 67.3% were dissatisfied (dissatisfied, very dissatisfied) and satisfied (satisfied, very satisfied) respectively. For females, 20% and 65.4% were dissatisfied and satisfied with quality of their life respectively.

## 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 infertile men is better than in women (Table 2).

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

Subscale of FertiQoL	Female		Male		t-test	p value										
	M ± SD	Min-Max	M ± SD	Min-Max												
Emotion	47.75 ± 19.29	0-100	53.75 ± 22.43	4.1-100	-5.884	< 0.001										
Mind.body	52.53 ± 20.71	8.3-100	67.99 ± 16.29	33.3-100	-4.949	< 0.001										
Relational	66.79 ± 17.73	12.5-100	57.47 ± 22.68	0-100	-1.621	0.106										
Social	61.45 ± 19.25	16.6-100	63.49 ± 19.91	20.8-100	-2.367	0.018										
CoreQoL	57.13 ± 16.14	14.6-93.7	60.76 ± 17.07	25-95.8	-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	0-66.7	34.35 ± 16.83	0-66.7	-4.375	< 0.001										
TreatmentQoL	55.10 ± 16.83	15-95	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										
variables	Emotion				Mind.body				Relational				Social			
	Female		Male		Female		Male		Female		Male		Female		Male	
	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	
Age ≤ 30 > 30	11.75 10.95	.097	12.77 12.98	.706	12.75 12.35	.452	17.14 15.77	.001	16.48 15.25	.006	14.10 13.58	.351	15.13 14.08	.031	15.94 14.77	
Duration of marriage ≤ 10 > 10	11.88 10.25	.002	13.13 12.22	.141	12.82 11.98	.139	16.92 14.55	.001	16.59 14.41	.001	14.10 12.89	.052	15.31 13.10	.001	15.83 13.51	
Husband polygamy Yes No	11.42 11.46	.959	15.12 12.58	.015	12.59 12.60	.981	15.61 16.41	.178	16.08 16.02	.928	16.30 13.43	.003	14.44 14.78	.630	15.93 15.13	
No. delivery Zero 1-2 ≥ 3	11.83 11.49 9.38	.005	13.39 12.71 10.75	.010	12.80 12.97 10.59	.016	17.13 15.77 13.38	.001	16.89 15.31 13.31	.001	14.49 13.50 10.77	.001	15.36 14.56 11.90	.001	16.26 14.22 12.40	
Menstrual pattern Regular Irregular	11.80 10.58	.019	12.68 13.45	.205	12.89 11.88	.070	16.33 16.26	.861	16.12 15.78	.472	13.55 14.39	.168	14.91 14.31	.246	15.15 15.45	
Previous IVF Yes No	11.46 11.44	.964	13.21 12.14	.072	12.44 12.99	.320	16.27 16.41	.757	16.08 15.89	.688	13.97 13.36	.315	14.92 14.33	.249	15.48 14.64	
no. IVFs ≤ 2 > 2	12.17 10.05	.001	13.15 12.24	.130	13.21 11.01	.002	16.34 16.19	.734	16.45 14.83	.009	14.19 12.75	.017	15.55 13.32	.001	15.48 14.54	

Relationship between women's and men's characteristics and the subscale of FertQoL

	Female				Male											
variables	Tolerability		Environment		Treatment		Total fertiQoL									
	Female		Male		Female		Male		Female		Male		Female		Male	
	M	P	M	P	M	P	M	P	M	P	M	P	M	P	M	P
Duration of infertility	11.97	.265	13.59	.201	13.57	.020	16.51	.353	16.23	.671	14.83	.018	15.51	.070	16.33	
≤ 3	11.33		12.44		11.88		16.50		16.08		12.92		14.43		14.83	
4-6	11.05		12.67		12.38		15.91		15.77		13.65		14.30		14.59	
> 6																
Education	10.60	.073	13.07	.983	11.92	.200	15.70	.039	16.04	.010	13.56	.299	13.96	.004	14.63	
Illiterate	11.31		12.89		12.60		16.34		15.90		14.26		14.72		15.67	
Up to sec. school	11.81		12.92		12.84		16.67		16.33		13.87		15.10		15.42	
≥ University																
Age	7.77	.015	8.75	.038	15.11	.001	15.28	.002	22.91	.001	24.04	.002	79.06	.006	84.24	
≤ 30	6.81		7.90		13.75		14.02		20.56		21.93		73.20		79.09	
> 30																
Duration of marriage	7.74	.004	8.67	.001	15.13	.001	15.09	.001	22.90	.001	23.77	.001	79.53	.001	83.93	
≤ 10	6.49		7.00		13.07		12.89		19.56		19.89		69.32		73.08	
> 10																
Husband polygamy	7.40	.977	8.40	.760	14.93	.564	14.30	.678	22.34	.732	22.71	.950	76.89	.999	85.69	
Yes	7.42		8.21		14.55		14.55		21.99		22.77		76.89		80.46	
No																
No. delivery	7.95	.001	8.96	.001	15.52	.001	15.52	.001	23.50	.001	24.49	.001	80.42	.001	85.94	
Zero	7.02		7.68		13.98		13.75		21.00		21.43		75.35		77.71	
1-2	5.61		5.86		11.36		11.22		16.97		17.09		62.18		64.40	
≥ 3																
Menstrual pattern	7.58	.175	8.07	.193	14.69	.494	14.51	.898	22.29	.230	22.58	.386	78.04	.065	80.44	
Regular	7.00		8.66		14.37		14.56		21.38		23.23		73.95		82.80	
Irregular																
Previous IVF	7.18	.044	8.41	.206	14.88	.050	14.93	.004	22.06	.890	23.34	.016	76.98	.886	82.41	
Yes	7.99		7.84		13.93		13.55		21.96		21.40		76.66		78.02	
No																
Previous no. of IVFs	8.00	.001	8.63	.004	14.69	.441	14.66	.251	22.71	.001	23.29	.016	78.87	.001	82.58	
≤ 2	5.97		7.23		14.33		14.15		20.31		21.38		71.69		77.17	
> 2																
Duration of infertility	8.39	.002	8.96	.053	14.51	.867	14.75	.743	22.90	.220	23.72	.155	80.21	.085	85.09	
≤ 3	7.14		7.95		14.53		14.44		21.68		22.40		75.41		79.11	
4-6	6.79		7.85		14.75		14.39		21.58		22.25		75.12		79.28	
> 6																
Education	7.00	.237	7.68	.015	15.28	.001	15.04	.001	22.28	.001	22.73	.001	74.80	.002	79.70	
Illiterate	7.46		9.16		14.48		14.73		21.98		23.90		76.56		83.31	
Up sec. school	7.56		8.14		14.91		14.77		22.47		22.92		78.56		81.90	
≥ University																

Relationship between women's and men's characteristics and the subscale of FertQoL

## Relationship between couples' characteristics and FertiQoL subscales

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

Younger males (below 30 years had significant higher mind/body and social score ( $p < 0.01$ ). Males scored higher than females for mind/body and significant differences is seen with regard to age groups, education level and duration of marriage ( $P < 0.05$ ). Whereas, differences of females' scores were achieved in the duration of fertility, number of previous deliveries and IVFs. There was a significant difference between age and women's relational, social and core scores.

The females who experienced IVF at least three times had lower score for its core dimensions and its subscales. However, differences are significant in core subscale and FertiQoL as a whole. The males and females below 30 years old reported higher scores for the treatment subscales and significance is achieved in treatment, its subscales and FertiQoL domain. Similar findings are reported for duration of marriage and number of previous deliveries ( $p < 0.05$ ) (Table 3).

## 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 was their counterparts women, similar to a conclusion drawn by Goker and his colleagues (22). Infertility is a stressful status affects 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, thus, psychological, social and economic effect is 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 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 Goker and his colleagues study (22), Karabulut, Ozkan & Oguz (26) and Bolsoy et al., (29). Social and psychological support including counseling, to elders, are necessary to infertile couples and raise awareness of society toward infertility as a health issue not defect or 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, Ozkan & Oguz (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 makes dyadic adjustment and coping to anxious situation inadequate and difficult (30). In this study, men with higher education obtained better scores in the environment and treatment subscales; however, women obtained better scores in the core, social, relational, environment 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. Men married for less than 10 years have higher QoL than their counterparts' women (32). However, females QoL were 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, 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 first married is failed to bring children. In return, women remain anxious and feared as infertility time increases. 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 women may exposed to physical and psychological complications resulting from interventions. Moreover, increase failures of IVFs attempts could lead to emotional disturbances, frustration and anxiety. Similar finding was reported by Jahromi et al. (2018) and Ragni et al. (2005).

A significant relationship was found between the quality of life 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). As a source of speculation, infertile men who live in a society, like 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 time. We found females QoL depends on duration of infertility (38). This is inconsistent with findings of Baghiani Moghadam et al. (39).

## Limitations of study

This study had several 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 didn't have control group from fertile couples to compare 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.

## Conclusion

Infertility affects the QoL of infertile Palestinian couples. The males' total scores of FertiQoL and its subscales (emotion, mind/body, social, core, tolerability, and treatment) were higher than females' scores. The mean total fertiQoL increased with better education, however, decreased with increase of age and duration of marriage, duration of infertility and number of IVF attempts.

## Abbreviations

FertiQoL  
Fertility quality of life  
IVFs  
In-vitro fertilizations  
QoL  
Quality of life  
WHO  
World health organization

# Declarations

## Consent for publication

Each couple gave two consents and signatures, for male and female, to participate in this study and publish the findings with all reserved rights. Anonymity was ensured. No pictures were taken or video recorded

## Availability of data

Original data from the study is available with the first author up on request

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## Author's contribution

SB and AE designed the study. AE, AM and AD wrote the first draft. SB, SB and SE participated in writing the manuscript. AM and SE edited the script before submission, data analyzing was performed by AE. All authors read and approved the final version.

## Conflict of interest

The research has no conflict of interest

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