

# Association of Depression and Resilience with Fertility Quality of Life among patients presenting to the infertility Centre for treatment in Karachi, Pakistan

**Shireen Shehzad Bhamani**

Aga Khan University Medical College Pakistan

**Nida Zahid** (✉ [nida.zahid@aku.edu](mailto:nida.zahid@aku.edu))

Aga Khan University Medical College Pakistan <https://orcid.org/0000-0001-8812-9463>

**Wajeeha Zahid**

Aga Khan University Medical College Pakistan

**Salima Farooq**

Aga Khan University Medical College Pakistan

**Saima Sachwani**

Aga Khan University

**Marilyn Chapman**

Vancouver Island University

**Nargis Asad**

Aga Khan University Medical College Pakistan

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## Research article

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# Abstract

## Background

In Pakistan there is dire need to explore the quality of life among infertile males and females and their undesirable psychological outcomes. Thus, the aim of this study was; 1. To compare the QoL of males and females presenting to the infertility centre for treatment, 2. To assess the association of QoL with resilience, depression and other socio-demographic factors among males and females presenting to infertility clinic for treatment

## Methods

An Analytical Cross Sectional study was conducted and study participants were recruited from Australian Concept Infertility Medical Center Karachi (ACIMC) Pakistan. A non-probability (purposive) sampling strategy was used to recruit the participants. The sample size was 668. Data was analyzed using STATA version 12.

## Results

After adjusting for the covariates we observed that males who were less resilient their QoL was 8.47 units significantly lower and those who were depressed their QoL was 17.849 units significantly lower as compared to their counterparts. . Formal education, low monthly income and friends were significantly associated with QoL among males . Similarly, females who were less resilient their QoL was 8.606 units lower and those who were depressed their QoL was 19.387 units significantly lower as compared to their counterparts.. Formal education and low monthly income had a significant association with QoL among females.

## Conclusion

Fertility related QoL of men and women has a significant association with no formal education, number of friends, income, depression and resilience. Therefore, health care professionals in the field of infertility must be adequately trained to respond to the needs of individuals going through these psychological problems.

## Background

World wide infertility is recognized as a pandemic reproductive health issue [1]. An estimated 60 to 80 million couples suffer from infertility [2, 3]. Infertility is the most devastating experience for both the genders [4]. It can lead to marital conflict, hopelessness, guilt, shame, worthlessness, anxiety, depression, social isolation, sexual dysfunction and decreases sexual self-esteem [5, 6]

Fertility is a biological phenomena but unfortunately it is controlled by social cultural values. In a patriarchal society like ours child bearing inability is often attributed to only female partners. Families

humiliate, blame, and discriminate females more than males. [7, 8].

A study conducted in Pakistan and India found that 35–50% infertility is due to male factor [9, 10]. In low and middle income countries (LMIC) such as India, Egypt, Iran, Nigeria, Ghana and Pakistan females are held responsible for infertility [1, 11, 12]. Consequently infertile women are omitted from social and traditional rituals [13]. Moreover, infertile females are abused physically, emotionally and verbally and end up getting divorced [12, 13]. Thus women who are blamed for childlessness suffer from personal grief, frustration and consequently develop poor mental health and social functioning [1, 14, 15]. Guilt, self-blame and low self-esteem lead to psychopathology in infertile females. Therefore, depression, anxiety, suicidal ideation and poor quality of life are exhibited more in infertile women as compared to infertile men [11, 13]. Studies from India, Italy, China, Tehran and Iran indicate that infertility in female partners has negative outcome on their marital life [6, 11, 16]. Infertility also has a negative impact on women's psychological health [14, 17, 18].

However, studies from Bangladesh and India suggest that infertile males are also stigmatised, socially disgraced, lose their social status and are questioned about their manhood and are therefore reluctant to take treatment [19, 20]. Although there is a huge psychological burden due to infertility, however, not all couples report being socially distressed and inconsistency is reported from literature [17]. It is anticipated that it is their own resilience and social support, that plays a vital role in their emotional stability [21]. Resilience can act as a buffer against the negative psychological impact of infertility and help develop psychological tolerance. Individuals having resilience possess high self-esteem, optimism, self-confidence, problem solving ability and life satisfaction. Thus, resilience is key to improve QoL among infertile males and females. [17, 22]. Therefore, there is dire need to explore the quality of life of infertile males and females from our cultural context and their undesirable psychological outcomes. Moreover, it is also imperative to explore the positive and constructive coping mechanisms among infertile patients which can ultimately prevent them from developing mental illnesses. Thus, in the light of literature the objectives of our study are ;

1. To compare the QoL of males and females presenting to the infertility centre for treatment
2. To assess the association of QoL with resilience, depression and other factors among males and females presenting to infertility clinic for treatment

## **Material And Methods**

An Analytical Cross Sectional study was conducted and study participants were recruited from Australian Concept Infertility Medical Center Karachi (ACIMC) Pakistan. The rationale behind the selection of this study Centre is that ACIMC is the only Centre in Karachi having the maximum flow of infertile couples seeking infertility treatment as compared to the other infertility Centres. The additional benefit of selecting this Centre is the representation of all ethnic and socio-economic groups, as infertile couples are referred here from the seven sub branches of the Centre located in different provinces of Pakistan and Angel Trust caters to the non-affording.

All Pakistani Urdu Speaking infertile men and women seeking fertility treatment and willing to participate in the study were included in this study. Any known case of psychiatric illness were excluded from the study.

This study was the secondary objective of our original project whose primary objective was to determine the association of marital maladjustment with quality of life, depression and resilience among infertile couples. Thus the sample size (n = 668) for this study was achieved on the basis of our primary objective (paper in press). A non-probability (purposive) sampling strategy was used to recruit the participants.

## **Outcome Variable**

### **Quality of life**

We used FertiQoL tool for assessing quality of life of infertile patients. This tool was validated in Urdu (paper in press) in our study. The FertiQoL questionnaire is a self-report questionnaire [23]. It is specifically designed for infertile patients to assess their Quality of Life by experts from the European Society of Human Reproduction and Embryology (ESHRE) and the American Society of Reproductive Medicine (ASRM). There are 2 different modules: Core FertiQoL module and Treatment FertiQoL module. The Core FertiQoL consist of 24 items that are categorized into four domains: emotional, cognitive and physical (marked as mind/body), relational, and social domains. The optional treatment module consists of 10 items which are further categorized into two domains: the environment and tolerability for the treatment for infertility. The scale ranges from 0 to 4 and a higher score indicates better QoL.

## **Independent variables**

### **Depression**

We also assessed depression by Urdu version of Beck II Depression Inventory Tool. The content and face validity of the tool was preformed [24–26], It is a 21 item self-report measure of depressive symptomatology. The recommended cut score for depression is 14. Higher scores indicate a greater severity of depressive symptoms(Sadness, Pessimism, Past Failure, Loss of Pleasure, Guilty Feelings, Punishment Feelings, Self-Dislike, Self-Criticalness, Suicidal Thoughts or Wishes, Crying, Agitation, Loss of Interest, Indecisiveness, Worthlessness, Loss of Energy, Changes in Sleeping Pattern, Irritability, Changes in Appetite, Concentration Difficulty, Tiredness or Fatigue and Loss of Interest in Sex). This tool has been widely used in Pakistan. Many AKU initiated research projects used the tool because this tool covers a broader behavioral spectrum and is easier to understand.

### **Resilience**

Resilience which is the ability to rebound or spring back, the power of something to resume its original shape or position after compression or bending.”[27] was also assessed. For this study, we used

Resilience Scale 14 (RS-14) which is validated in Pakistan [24]. A participant was considered resilient, if they either reached or exceeded the cutoff of 73 of RS-14 scale.

## **Socio-Demographic Factors**

A self-designed structured questionnaire was administered to obtain preliminary information about age, education, language, no of family members, marriage type, its duration, personal health and reproductive history including number of miscarriages, alive/dead children, age of last child for secondary infertility cases, male/female cause of infertility, extra marital affairs and second or third marriage, social and religious support mechanism.

## **Ethical Approval**

The Ethical approval (ERC No. 4615-SON-ERC-17) was taken from the Instructional Ethical Review Board; whereas the ethical approval was also sought from the participating study side and study participants before the initiation of this study. We reassured complete confidentiality to the study participants. The data was only accessible to the researchers and the responses were reported in group form and no individual case was identified.

## **Plan of Analysis**

Statistical analysis was done on STATA version 12. Descriptive for quantitative variables were reported as mean  $\pm$  SD/ median (IQR) and were assessed by t test/ Mann Whitney test where appropriate. Frequency and percentages were reported for qualitative variables and were assessed by chisquare test/ fisher exact test where appropriate. Unadjusted and adjusted beta coefficient along with their 95% CI were reported to determine the association of resilience, depression and other factors with total QoL of males and females by using linear regression analysis. All plausible interactions and confounders were assessed. A p - value of  $< 0.05$  will be considered as significant.

## **Results**

We enrolled 334 males and 334 females presenting to infertility centre for treatment.

## **Sociodemographic factors of the study participants**

Table I is divided into 3 sections; Demographic factors, Socioeconomic factors and Social religious network among infertile patients presenting to the infertility centre.

The Section A of table 1 describes the demographic factors of the study participants. The mean age was significantly higher among males  $35.53 \pm 6.72$  as compared to females  $30.87 \pm 6.12$  (p value 0.001). A higher proportion of males 93.1% had formal education as compared to their counter part

(84.19%) (p-value <0.001) with higher median years of education among males as compared to females. However, a higher proportion of females (62.6%) had informal education as compared to their counterparts 50% (p value=0.001). We observed that a significantly higher proportion of males (46.7%) were the head of the family as compared to females (2.4%) (p value < 0.001). A significantly higher proportion of males (8.7%) had more than one marriage as compared to females (3.9%).

The section B of table 1 describes the socioeconomic status of the study participants and we observed that a significantly higher proportion of females (84.4 %) were not working as compared to males (2.4%) (p value < 0.001). The median monthly household income reported by males was significantly higher i.e PKR 50,000 (30,000-90,000) as compared to females 35,000 (20000-50000) (p value < 0.001). The section C of table 1 presents the social/ religious network of the study participants. We observed that the males had a greater number of meet ups with their friends as compared females (p value < 0.001). Moreover, we observed that a significantly higher proportion of females (99.1%) were involved in religious activities as compared to 92.8% males. (p value <0.001)

## **Resilience, Depression and QoL among infertile males and females**

Table II shows resilience, depression and QoL among infertile males and females. We observed that the mean resilience scores were significantly higher among males  $77.64 \pm 8.56$  as compared to females  $76.19 \pm 8.69$  (p value = 0.031). A higher proportion of females i.e. 29.6% had lower resilience scores of < 73 as compared to males 21.3%. However, a significantly higher proportion of females were depressed (13.8%) as compared to males (6%). We observed that the mean QoL scores for the following domains (general health , emotional domain, mind and body domain, relational domain and the total QoL was significantly higher among males as compared to females (p value< 0.001), however, QoL for the social domain was not significantly different in both the groups.

## **Univariate analysis to assess relationship of depression, resilience and demographic factors with total quality of life among males and females presenting for infertility treatment**

Table III presents the univariate analysis to assess relationship of demographic factors, socioeconomic factors, resilience and depression with total quality of life among males and females presenting for infertility treatment.

In demographic factors, we evaluated the relationship of; age, educational status, type of marriage, type of family and role in the family with mean QoL among males and females. We observed that among males with every one unit increase in age the mean total QoL was decreased by 0.043 units (p value <

0.25), however, age was not significantly associated with the mean total QoL of females. Moreover, mean QoL among males and females who had no formal was 9.051 and 6.101 units lower respectively as compared to those who had formal education.. Years of formal education significantly increased the QoL of males and females. The females who had arranged marriage their mean QoL was 6.122units lower as compared to those who had love marriage. However, there was no significant difference in the type of marriage and mean QoL among males. There was significant negative association of duration of marriage with QoL among males but not among females. The males and females who lived in extended families had better QoL as compared to those who lived in nuclear families. Moreover, females who were not the head of the family but took part in decision making their mean QoL was significantly better as compared to those who didn't take part in decision making.

We also evaluated the relationship of socioeconomic factors with mean QoL among males and females. We observed that the males who were not working their mean QoL was 7.243 unit lower as compared to those who were working. However, no such difference was observed among females but those who were working outside their house their QoL was 9.143 units higher as compared to those who were working from home. The lower the total household monthly income was the lower was the QoL of both males and females. Moreover, males and females who did not have television, refrigerator in their house, their own cultivated land and vehicle their QoL was significantly lower as compared to those who had it. We observed that the quality of life of males decreased by 0.603 units with increase in number of friends, however it did not have any significant relationship with the QoL of females.

We also evaluated relationship of resilience and depression with QoL among males and females and we observed that males and females who had low resilience their QoL was 12.018 and 13.278 units lower respectively as compared to those who had higher resilience. Moreover, QoL among males and females was 21.490 and 22.369 units less respectively among those with high depression scores as compared to their counter parts

## **Multivariable analysis to assess relationship of depression, resilience and demographic factors with total quality of life among males and females presenting for infertility treatment**

Table IV shows the multivariable analysis to assess relationship of demographic factors, socioeconomic factors, resilience and depression with total quality of life among males and females presenting for infertility treatment.

We observed that among males after adjusting for the covariates, resilience, depression, educational status, monthly income and number of friends had a significant association with QoL. The males who were less resilient their QoL was 8.470 units significantly lower as compared those who were more resilient. Similarly, those males who were depressed their QoL was 17.849 units significantly lower as

compared their counterparts. Moreover, males who had no formal education their QoL was 5.374 units lower as compared to those who had formal education. Males whose household monthly income was between 10,000-80000PKR their QoL was lower as compared to those who had it between 80000-10000000 PKR.

Furthermore, the males who had more friends had lower QoL scores.

We observed that among females after adjusting for the covariates , resilience , depression, and monthly income, had a significant association with QoL. The females who were less resilient their QoL was 8.606 units lower as compared those who were more resilient. Similarly, those females who were depressed their QoL was 19.387 units significantly lower as compared their counterparts. Moreover, females whose household monthly income was between 10,000-25000 PKR their QoL was 7.249 units significantly lower as compared to those who had it between 80000-10000000 PKR.

## Discussion

This study was aimed to compare the QoL of males and females presenting to infertility centre for treatment and to assess its association with other factors.

This study also showed that the infertile males are more resilient than infertile females. The plausible reasons of men more resilient than females in Pakistan would be our society where men are treated superior and have more rights, power and authority to take decisions.

Moreover, in a developing country like ours , having a patriarchal and polygamous society, married women who are unable to conceive are stigmatized and blamed by their spouses and in-laws that leads to depression among infertile females and ultimately high prevalence of depression are significantly associated with low QoL . This finding is consistent with the other studies done in Ghana, Iraq, Heidelberg Germany which also indicate that females scores high in depression. Study done in western Iran have also found that 76% of infertile women suffered from depression, while 61.5% suffered from clinical depression [28-30]. This study showed that prevalence of depression and anxiety in infertile women is high as compared to men. [6] The divorce rate is twice as high amongst infertile couples and the fear of remarriage of their husband adds to their misery[31].

Females undergo numerous invasive procedures for infertility diagnosis and treatment in comparison to males [16] All these factors have a negative impact on the females contributing to the high prevalence of depression among them. Our findings are comparable to those reported by infertile women of developing countries including Iran, Taiwan, India, Tunisia, Chinese along with developed countries like America, Polish and Italy. [32-38] However, a few studies, did not find any association between QoL and depression among infertile women.[39, 40]

In our study the infertile females and males having higher household monthly income had significantly better QoL in comparison to those with lower monthly income. This is comparable to the study done in

Iran by A Namdar et al [41] who also reported a positive association between monthly income and QoL in women. Another study conducted in Iran on infertile couples reported positive association which was consistent with our findings, that higher income is associated with better QoL among male gender. [42]. Hence, this proves that financial stability somewhat compensates for childlessness.

In addition, our study identified that infertile females and males having higher resilience had significantly better QoL in comparison to those with low resilience scores. Literature also proved that resilience is positively associated with fertility QoL. Resilience also has the moderating effect in psychological stress with QoL. ([22]. Moreover, another study also supports that resilience is a protective factor against infertility related distress and impaired quality of life for infertile couples. [17]

Our study results showed that infertile males having large circle of friends had lower QoL scores. Presumably with more friends the infertile males may have to face social pressure or a lot of probing questions which adds to their frustration of infertility resulting in lower QoL scores. Literature also suggests that men have less social support and are less likely to confide in friends about infertility as compared to women [43]. Another reason for the growing social circle of friends could be a diversion, a coping mechanism or an outlet for their emotion to overcome the feelings of hopelessness. Our findings are comparable with the results of other study [44]. On the other hand no association was found between social circle and QoL among infertile females. Steuber et al [45] reported that women who are unable to disclose their infertility have poor QoL due to unmet social support.

Another finding of the present study is that males with lower educational level had low QoL scores. This finding is in agreement to Jahromi et al and Drozdol et al, which highlights that infertile men with low or without academic education had lower scores of QoL. [11, 46].

The current study had several strengths and limitations. This is the first study to describe the association of QoL with resilience, depression and other socio-demographic factors among infertile males and females presenting to infertility clinic that caters to people from diverse socioeconomic and ethnic backgrounds. Contextual and reliable tools were used to assess QoL with resilience, depression and other factors among infertile males and females.

However, the limitations of our study were; data on QoL, and depression was collected using self-reporting tools; hence, element of reporting bias could not be eliminated. Though, special attention was given to ensure the privacy and confidentiality of data collection process to minimize this effect. It was a single centered study hence the results can be generalized to all the private infertility clinics.

## **Conclusion**

This study concludes that among infertile men QoL was negatively associated with no formal education, number of friends and depression however, had positive association with high income and high resilience scores. Similarly among females QoL was associated with depression, resilience and high income. Hence, future studies are required to explore the effectiveness of gender-specific mental health

interventions such as resilience building to decrease depression and improve QoL among infertile individuals. Therefore, mental health experts, fertility experts and other health care providers must be adequately trained to respond to the holistic needs of individuals going through fertility related problems.

## List Of Abbreviations

ACIMC	Australian Concept Infertility Medical Centre
LMIC	Low Middle Income Country
QoL	Quality of Life
ESHRE	European Society of Human Reproduction and Embryology
ASRM	American Society of Reproductive Medicine
SD	Standard Deviation
IQR	Inter quartile range

## Declarations

### Funding

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**Conflict of Interest** All authors declare no conflict of interest

**Consent:** Consent was attained from the patients for data collection and for publishing the results

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### Authors' contributions

SSB contributed overall from project conceptualization, operationalization, data management, cleaning, analysis review, manuscript drafting and reviewing. NZ helped in data cleaning, analysis, manuscript writing, and reviewing the paper. WZ contributed in discussion section and reviewing the paper. SF contributed in introduction section and reviewing paper. SS contributed in method section and reviewing paper, MC and NA contributed in reviewing the paper. All authors saw and approved the final version of manuscript.

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## Tables

**Table I: Socio-demographic factors of the study participants presenting to the infertility Centre**

1. Demographics				
	Male (n=334)	Female (n=334)	P value	
<b>Age (in years)</b>				
Mean ± SD	35.53 ±6.72	30.87 ± 6.12	0.001*	
<b>Formal Education</b>				
Yes	311 (93.1%)	281 (84.1%)	<0.001*	
No	23 (6.9%)	53 (15.9%)		
<b>Years of education (in years)</b>				
Median(IQR)	14 (10-16)	12 (7-16)	0.001*	
<b>Informal Education</b>				
Yes	167 (50.0%)	209 (62.6%)	0.001*	
No	167 (50.0%)	125 (37.4%)		
			<0.001*	
<b>Role in the family</b>				
Head	156 (46.7%)	8 (2.40%)		
Not Head but take part in decision	171 (51.2%)	251 (75.1%)		
Does not take decision, only follower	7 (2.10%)	75 (22.5%)		
<b>First Marriage</b>				
Yes	305 (91.3%)	321 (96.1%)	0.011*	
No	29 (8.70%)	13 (3.90%)		
<b>B. Socioeconomic</b>				
<b>Working</b>				
Yes	326 (97.6%)	52 (15.6%)	<0.001*	
No	8 (2.40%)	282 (84.4%)		

<b>Spouse employed</b>						
Yes	50	(15.0%)	330	(98.8%)	<0.001*	
No	284	(85.0%)	4	(1.20%)		
<b>Total household income (in PKR)</b>	50000 (30000-90000)		35000 (20000-50000)		<0.001*	
<b>Median (IQR)</b>						
	61	(18.4%)			<0.001*	
<b>Total Monthly income (in PKR)</b>	58	(17.5%)				
1000-25000	106	(32.0%)	84	(25.3%)		
25000-40000	106	(32.0%)	86	(25.9%)		
40000-80000			103	(31.0%)		
80000-10000000			59	(17.8%)		
<b>Total</b>	331		332			
<b>C. Social/Religious Network</b>						
<b>No of meet up with friends/week</b>						
<1 times /week	195	(58.4%)	265	(79.3%)	<0.001*	
1-5 times/ week	133	(39.8%)	49	(14.7%)		
≥ 5 times/week	6	(12.3%)	6	(3.40%)		
<b>Religious activities</b>						
Yes	310	(92.8%)	331	(99.1%)	<0.001*	
No	24	(7.20%)	3	(0.90%)		

\*significant at p value< 0.05 by t test/chisquare/fisher exact test.

**Table II: Resilience, Depression and QoL among infertile males and females**

<b>Resilience/Depression</b>	<b>Male (n=334)</b>	<b>Female (n=334)</b>	<b>p-value</b>
<b>Resilience</b>			
<b>Resilience (Mean± SD)</b>	77.64 ± 8.56	76.19 ± 8.69	0.031*
<b>Resilience</b>			
<b>&lt;73 (less resilient)</b>	71 (21.3%)	99 (29.6%)	0.013*
<b>≥73 (more resilient)</b>	263 (78.7%)	235 (70.4%)	
<b>Depression</b>			
<b>Depression (Median(IQR))</b>	3.00 (1.00-7.00)	7.00 (2.00-12.00)	<0.001*
<b>Depression</b>			
<b>&lt;17 (not depressed)</b>	314 (94.0%)	288 (86.2%)	<0.001*
<b>≥17 (depressed)</b>	20 (6.0%)	46 (13.8%)	
	<b>Males</b>	<b>Females</b>	
<b>Quality of life</b>			
<b>General Health</b>	56.45 ± 19.36	48.34 ± 11.52	<0.001*
Mean ± SD			
<b>Emotional Domain</b>			
Mean ± SD	82.63 ± 13.43	60.02 ± 23.38	<0.001*
<b>Mind and Body Domain</b>			
Mean ± SD	85.65 ± 15.46	55.40 ± 23.60	<0.001*
<b>Relational Domain</b>			
Mean ± SD	79.98 ± 19.56	88.76 ± 10.60	<0.001*
<b>Social Domain</b>			
Mean ± SD	78.23 ± 13.35	77.75 ± 18.05	0.696
<b>Total Qol scores</b>			
Mean ± SD	81.58 ± 12.15	70.48 ± 15.69	<0.001*

\*significant at p value < 0.05 by chi-square of independence/ t test

**Table III: Univariate analysis to assess relationship of depression, resilience and demographic factors with total quality of life among males and females presenting for infertility treatment**

Variables	Univariate analysis			
	Males Unadjusted beta coefficient (SE)	95% CI	Females Unadjusted beta coefficient (SE)	95% CI
<b>Demographics</b>				
<b>Age (in years)</b>	-0.043 (0.099)	-0.239, 0.*	-0.054 (0.140)	-0.331, 0.221
<b>Formal Education</b>				
Yes (ref)				
No	-9.051(2.569)	-14.106,-3.996*	-6.101 (2.329)	-10.683,- 1.518*
<b>Years of formal education (in years)</b>	0.269(0.070)	0.131, 0.407 *	0.135 (0.071)	-0.004, 0.275*
<b>Informal Education</b>				
Yes (ref)				
No	2.345 (1.319)	-0.249,4.940*	3.113 (1.768)	-0.365, 6.592*
<b>Type of Marriage</b>				
Self-Choice (ref)				
Arranged	0.119 (1.611)	-3.051,3.289	-6.122 (2.277)	-10.602, -1.642*
<b>Duration of marriage (in years)</b>	-0.302(0.124)	-0.546,-0.057 *	0.051(0.139)	-0.221,0.324
<b>Type of family</b>				
Extended	2.176 (1.378)	-0.535, 4.888*	2.759 (1.799)	-0.781, 6.300*
Nuclear (ref)				
<b>Role in the family</b>				
Head (ref)	-0.449 (1.340)		-11.740 (5.565)	
Not Head but take part in decision		-3.086, 2.186*		-22.629, -0.730

Does not take  
decision, only  
follower

-5.367 (4.677)

-16.373 (5.763)

-14.568, 3.833

-27.711,  
-5.036

<b>Socioeconomic status</b>				
	<b>Males</b>	<b>95% CI</b>	<b>Females</b>	<b>95% CI</b>
	<b>Unadjusted beta coefficient (SE)</b>		<b>Unadjusted beta coefficient (SE)</b>	
<b>Working status</b>				
Yes (ref)	-4.957 (4.325)			
No		-13.467,3.5523	-0.319(2.371)	-4.984, 4.346
<b>Work Place</b>				
	-	-	-	-
Inside the house (ref)	-4.418 (1.829)	-8.016,-0.820*	9.143 (3.908)	1.288, 16.997*
Outside the house	9.312 (12.015)	-14.325,32.950	-13.706(9.972)	-33.746, 6.334
Both				
<b>Total Monthly income (in PKR)</b>				
1000-25000	-6.385 (1.921)	-10.165, -2.604*	-8.401 (2.582)	-13.479, -3.322*
25000-40000	-2.255 (1.952)	-6.097, 1.586	0.009 (2.569)	-5.045, 5.063
40000-80000	-4.056 (1.646)	-7.295, -0.817*	2.499 (2.477)	-2.373, 7.373
80000-10000000(ref)	-	-	-	-
<b>TV in the house</b>				
Yes (ref)	-	-	-	-
No	-4.945 (1.941)	-8.763, -1.128*	-6.244 (2.471)	-11.161, -1.382*
<b>Refrigerator in the house</b>				
Yes (ref)	-	-	-	-
No	-6.655 (2.106)	-10.797, -2.513*	-10.016 (2.912)	-15.744, -4.287*

<b>Own cultivated land</b>				
Yes (ref)	-	-	-	-
No	-4.184 (1.658)	-7.446, -0.923*	-5.092 (1.954)	-8.937, -1.248*
<b>Own Vehicle</b>				
Yes(ref)	-		-	
No	-6.914(1.575)	-10.011,-3.815*	-6.760 (1.989)	-10.673,-2.847*

<b>Social</b>				
<b>Number of friends</b>	-0.603(0.202)	-0.1000, -0.206*	-0.126 (0.320)	-0.757, 0.504
<b>Resilience and depression</b>				
	<b>Males</b>	<b>95% CI</b>	<b>Females Unadjusted beta coefficient (SE)</b>	<b>95% CI</b>
	<b>Unadjusted beta coefficient (SE)</b>			
<b>Resilience</b>	0.677 (0.067)	0.543,0.811*	0.828 (0.088)	0.655,1.001*
<b>Resilience</b>				
<73 (less resilient)	-12.018 (1.479)	-14.92, -9.108*	-13.278(1.736)	-16.694,-9.863*
≥73 (more resilient) (ref)	-	-	-	-
<b>Depression</b>	-1.057 (0.092)	-1.238, -0.888*	-1.597 (0.082)	-1.758, -1.435*
<b>Depression</b>				
<17 (not depressed) (ref)	-	-	-	-
≥17 (depressed)	-21.490(2.532)	-26.471,16.509*	-22.369 (2.172)	-26.642, -18.095*

\*significant at p value < 0.25 by univariate analysis

**Table IV: Multivariable analysis to assess relationship of depression, resilience and demographic factors with total quality of life among males and females presenting for infertility treatment**

Variables	Multivariable analysis			
	Males	95% CI	Females	95% CI
	Adjusted Beta Coefficient (SE)		Adjusted Beta Coefficient (SE)	
<b>Resilience</b>				
<73 (less resilient)	-8.470 (1.422)	-11.268,-5.672*	-8.606 (1.599)	-11.753,-5.458*
≥73 (more resilient) (ref)	-	-	-	-
<b>Depression</b>				
<17 (not depressed) (ref)	-	-	-	-
≥17 (depressed)	-17.849 (2.365)	-22.503,-13.196*	-19.387(2.078)	-23.476,-15.298*
<b>Formal Education</b>				
Yes (ref)	-	-	NS	NS
No	-5.374 (2.245)	-9.794, -0.954*		
<b>Number of friends</b>				
	-0.554 (0.172)	-0.893, -0.216*	NS	NS
<b>Total Monthly income (in PKR)</b>				
10,000-25,000	-3.551(1.687)	-6.870,-0.231*		
25000-40000	-1.793 (1.670)	-5.079,-1.493	-7.249 (2.161)	-11.501,-2.996*
40000-80000	-2.747 (1.386)	-5.474,-0.020*	-2.615 (2.155)	-6.854, 1.624
80000-10000000(ref)	-	-	-0.644 (2.078)	-3.443, 4.732
			-	-

\*significant at p value < 0.05 by multivariable analysis

NS non-significant