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Research Article

The Impact of Infertility on Quality of Life and Psychological Well-Being: A Comprehensive Prospective Cohort Study

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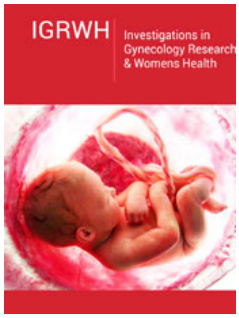

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Abstract

Background: Infertility, defined as the inability to conceive after one year of unprotected intercourse, affects approximately 15% of couples worldwide. This condition often brings significant emotional and psychological challenges, leading to diminished quality of life and well-being. Despite its prevalence, the psychosocial impact of infertility remains underexplored, necessitating comprehensive research to inform effective support and intervention strategies.

Objectives: This study aims to assess the quality of life and psychological well-being among individuals experiencing infertility. The specific objectives are to evaluate the impact of infertility on these parameters, identify socio-demographic factors influencing quality of life and psychological well-being, and determine the coping mechanisms and support systems utilized by individuals with infertility.

Methods: A prospective cohort study was conducted with 209 individuals experiencing infertility, recruited from a reproductive health clinic. Data were collected at baseline, six months, and twelve months using standardized instruments: the WHOQOL-BREF for quality of life, the DASS-21 for psychological well-being, and the Fertility Problem Inventory (FPI) for infertility-related stress. Demographic and health/fertility data were also gathered. Statistical analyses, including correlation and regression analyses, were performed using SPSS software to identify significant predictors and trends.

Result: The study revealed a significant negative impact of infertility on both quality of life (β = -0.36, 95% CI: -0.47 to -0.25, p < 0.001) and psychological well-being (β = -0.29, 95% CI: -0.40 to -0.18, p < 0.001). Longer duration of infertility (r = -0.28, p < 0.01), lower income (r = -0.24, p < 0.01), lack of social support (r = -0.31, p < 0.01), and higher levels of stress (r = 0.35, p < 0.01) were strongly correlated with poorer outcomes. Regression Analysis identified treatment and medical services satisfaction (β = 0.38, 95% CI: 0.25 to 0.51, p < 0.001), duration of marriage (β = -0.13, 95% CI: -0.24 to -0.02, p = 0.009), and previous pregnancy outcomes (β = 0.20, 95% CI: 0.08 to 0.32, p = 0.002) as significant predictors of quality of life. Psychological well-being was significantly influenced by age (β = -0.04, 95% CI: -0.07 to -0.01, p = 0.045), duration of marriage (β = 0.16, 95% CI: 0.04 to 0.28, p = 0.007), previous abortions (β = -0.08, 95% CI: -0.14 to -0.02, p = 0.014), and previous pregnancies (β = 0.16, 95% CI: 0.02 to 0.30, p = 0.024). The findings highlight the importance of addressing both medical and psychosocial aspects in infertility care.

Conclusion: Infertility significantly diminishes quality of life and psychological well-being, underscoring the need for comprehensive and patient-centered care. Effective interventions should integrate medical treatment with psychological support and social services tailored to the specific needs of individuals and couples facing infertility. By adopting a holistic approach, healthcare providers can better support the emotional and psychological well-being of this population, ultimately improving their overall quality of life. These insights provide a valuable foundation for developing targeted strategies to mitigate the psychosocial burden of infertility and enhance the effectiveness of reproductive health services.

Keywords: Infertility; Quality of life; Psychological well-being; Prospective cohort study; Infertility-related stress; WHOQOL-BREF; DASS-21; Fertility Problem Inventory (FPI); Longitudinal analysis; Patient-centered care; Emotional support; Reproductive health; Psychosocial impact; Demographic factors; Coping mechanisms; Social support systems

Introduction

Infertility, defined as the inability to conceive after one year of unprotected intercourse, affects millions of individuals and couples worldwide. Vander et al. [1], The prevalence of

infertility has been estimated to be approximately 15% globally, making it a significant public health concern. Nik Hazlina et al. [2], The journey of infertility is often accompanied by a myriad of emotional and psychological challenges, which can profoundly impact the quality of life and psychological well-being of those affected. Hart VA [3] The experience of infertility can lead to feelings of inadequacy, guilt, and frustration, which may result in increased stress, anxiety, and depression. Bai CF et al. [4], Socially, individuals and couples facing infertility may encounter stigmatization, social isolation, and strained relationships with family and friends. Bornstein et al. [5], These emotional and social stressors can exacerbate the psychological burden of infertility, further diminishing the overall quality of life. Makleff et al. [6] Despite the recognition of the psychological and social dimensions of infertility, there is a need for comprehensive research that systematically examines these aspects. This study aims to fill this gap by exploring the effect of infertility on the quality of life and psychological well-being of individuals experiencing fertility problems. By adopting a prospective cohort study design, this research provides robust evidence on the multifaceted impact of infertility, highlighting the need for holistic and patient-centered care in reproductive health services.

The study's primary objectives include assessing the quality of life among individuals with infertility, evaluating the psychological impact of infertility, identifying socio-demographic factors that influence quality of life and psychological well-being, and determining the coping mechanisms and support systems used by individuals with infertility. These objectives are critical for developing effective interventions and support systems tailored to the unique needs of individuals and couples facing infertility.

The significance of this study lies in its potential to inform healthcare practices and policies aimed at improving the emotional and psychological support provided to individuals undergoing fertility treatment. By understanding the specific factors that contribute to the psychological distress and reduced quality of life in this population, healthcare providers can develop targeted strategies to enhance the overall well-being of their patients. Moreover, this research contributes to the broader discourse on reproductive health, advocating for a more comprehensive approach that addresses both the medical and psychosocial aspects of infertility. This study seeks to provide valuable insights into the complex interplay between infertility, quality of life, and psychological well-being. The findings underscore the importance of integrated care that encompasses medical treatment, psychological support, and social interventions, ultimately contributing to better health outcomes for individuals and couples experiencing infertility.

Materials and Methodology

Study Design

This study employs a prospective cohort design, which allows for the examination of changes over time in the quality of life and psychological well-being of individuals experiencing infertility. This design is particularly suited for understanding the temporal relationships between infertility-related stressors and their impact on quality of life and psychological well-being.

Participants

The study included individuals experiencing infertility who are seeking treatment at a reproductive health clinic. The inclusion criteria are as follows:

A. Individuals diagnosed with infertility (inability to conceive after one year of unprotected intercourse).

B. Aged 18-45 years.

C. Willing to participate in the study and provide informed consent.

D. Exclusion criteria include individuals with a history of severe psychiatric disorders unrelated to infertility and those undergoing infertility treatment for less than six months.

Sample size calculation

A power analysis was conducted to determine the appropriate sample size, ensuring the study is adequately powered to detect significant effects. Based on an expected effect size of 0.3, a power of 0.8, and an alpha level of 0.05, a sample size of 209 participants was deemed sufficient.

Recruitment strategy

Participants were recruited from a reproductive health clinic. Recruitment methods included informational brochures, posters in clinic waiting areas, and direct invitations from healthcare providers. Potential participants were provided with detailed information about the study and asked to provide informed consent.

Data collection

Data was collected using standardized questionnaires and scales at three time points: baseline (prior to initiating infertility treatment), six months, and twelve months into the treatment. This longitudinal approach helped capture the dynamic changes in quality of life and psychological well-being over time.

Demographic data: Age, Duration of marriage, Relationship to spouse (relative or non-relative), Annual household income, Education level, Employment status

Health and fertility data: Duration of difficulty in conceiving, Previous pregnancies and abortions, Number of children, Region of residence

Quality of life and psychological measures

a) Quality of life was assessed using the WHOQOL-BREF, a widely validated instrument that measures physical, psychological, social, and environmental domains.

b) Psychological well-being was measured using the Depression Anxiety Stress Scales (DASS-21), which provides insights into the levels of depression, anxiety, and stress.

c) Infertility-related stress was evaluated using the Fertility Problem Inventory (FPI), which assesses the specific stressors associated with infertility.

Treatment and medical services: Access to fertility treatments, Satisfaction with medical care, Side effects of treatments and Support from medical staff.

Instruments

The selected instruments are chosen for their reliability and validity in assessing the relevant constructs:

A. WHOQOL-BREF: This 26-item questionnaire assesses the quality of life across four domains: physical health, psychological health, social relationships, and environment. Each item is rated on a five-point Likert scale, with higher scores indicating better quality of life.

B. DASS-21: This 21-item scale measures the severity of depression, anxiety, and stress symptoms. Each subscale contains seven items, and respondents rate each item on a four-point scale, indicating how much the statement applied to them over the past week.

C. Fertility Problem Inventory (FPI): This 46-item questionnaire assesses the perceived stress related to infertility across five domains: social concern, sexual concern, relationship concern, rejection of childfree lifestyle, and need for parenthood. Each item is rated on a six-point Likert scale, with higher scores indicating greater infertility-related stress.

Procedure

Participants were recruited from a reproductive health clinic and was invited to participate in the study during their initial consultation. Potential participants were identified by healthcare providers based on their diagnosis and treatment plans. During the initial consultation, a research coordinator provided detailed information about the study, including its purpose, procedures, potential risks and benefits, and the voluntary nature of participation. Interested individuals had the opportunity to ask questions and discuss any concerns they may have. Written informed consent was obtained from all participants, ensuring they understand that their participation is voluntary and that they can withdraw from the study at any time without affecting their treatment. Participants were assured of the confidentiality and anonymity of their responses, with personal identifiers replaced by unique study codes to protect their identity.

At baseline, participants completed a series of standardized questionnaires and scales to gather comprehensive demographic and health/fertility data. The demographic questionnaire collected information on age, duration of marriage, relationship to spouse (relative or non-relative), annual household income, education level, and employment status. The health and fertility questionnaire included questions on the duration of difficulty in conceiving, previous pregnancies and abortions, number of children, and region of residence. Participants also completed the WHOQOL-BREF, which assesses quality of life across four domains: physical health, psychological health, social relationships, and environment. The DASS-21 was used to measure the severity of depression, anxiety, and stress symptoms, while the Fertility Problem Inventory (FPI) evaluated infertility-related stress across five domains: social concern, sexual concern, relationship concern, rejection of childfree lifestyle, and need for parenthood. These baseline assessments provided a comprehensive profile of each participant's demographic, health, and psychological status.

Follow-up assessments were conducted at six and twelve months to track changes in quality of life and psychological well-being. Participants were contacted via phone or email to schedule these follow-up sessions at their convenience, ensuring minimal disruption to their daily routines. During each follow-up, participants again completed the WHOQOL-BREF, DASS-21, and FPI, allowing for longitudinal analysis of their experiences over time. The research team closely monitored adherence to the follow-up schedule, providing reminders and support as needed. Data from these follow-up assessments were compared with baseline data to identify trends and patterns in quality of life and psychological well-being, offering insights into the temporal dynamics of infertility-related stress and its impact on individuals. This longitudinal approach enabled the identification of critical periods where intervention might be most beneficial and informed the development of targeted strategies to support individuals experiencing infertility.

Data management plan

All collected data were securely stored in a password-protected database housed within a secure server environment, maintained by the institution's IT department with stringent security measures. Data entry was performed by trained research personnel, with each participant assigned a unique identification number to ensure anonymity. Access to the database was restricted to authorized personnel only, with access logs maintained to monitor data interactions. Data encryption was implemented both in transit and at rest, ensuring robust protection against unauthorized access. Regular backups were conducted daily and stored securely offsite to safeguard against data loss due to physical damage. Automated validation checks and periodic reviews by senior research personnel ensured data integrity, while all personnel with access to the data signed confidentiality agreements to maintain participant privacy.

Handling missing data

Missing data were addressed using multiple imputation techniques to ensure the robustness of the analyses. Initially, missing data instances were identified and documented during data entry and preliminary analysis. The multiple imputation process involved creating several complete datasets by imputing missing values based on observed data, using a model that included relevant covariates. Statistical software such as SPSS, R, or SAS facilitated this imputation process, typically generating 5-10 imputations to capture variability accurately. Sensitivity analyses were conducted to compare results from analyses with and without imputed data, assessing the impact of missing data on study findings. Any significant discrepancies prompted further investigation into the

patterns and potential biases of missing data, ensuring the study's findings remained robust and reliable.

Quality assurance

To ensure data quality, all data collectors underwent comprehensive training on study protocols, data collection procedures, and the use of data collection instruments, supported by detailed Standard Operating Procedures (SOPs). A pilot test preceded the main study to identify and rectify any issues in the data collection process. Regular data audits verified the accuracy and completeness of collected data through random sampling and consistency checks, with audit logs maintained for reference. For subjective data, inter-rater reliability was assessed to ensure consistency. A feedback mechanism allowed data collectors to report issues encountered during data collection, discussed in regular debriefing sessions to implement solutions. A dedicated quality control team oversaw these processes, providing continuous training and support to maintain high data quality standards.

Data analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics were used to characterize the sample and provide an overview of the demographic and health/fertility profiles of the participants. Inferential statistical analyses included correlation analyses to identify significant associations between quality of life, psychological well-being, and various demographic and health/fertility factors. Regression analyses were conducted to determine the strongest predictors of quality of life and psychological well-being. The longitudinal design of the study allowed for repeated measures ANOVA to examine changes over time in the quality of life and psychological well-being of the participants. This analysis helped identify trends and patterns in the data, providing insights into the temporal dynamics of these constructs.

Ethical considerations

The study adhered to the ethical guidelines outlined by the Declaration of Helsinki. Informed consent was obtained from all participants, and they were assured of their right to withdraw from the study at any time without penalty. Confidentiality and anonymity were maintained throughout the study, and all data were stored securely. The study protocol was reviewed and approved by the Institutional Review Board (IRB) of the participating institution to ensure that it met ethical standards for research involving human participants. By incorporating these additional details, the methodology section became more comprehensive, addressing various aspects of study design, data management, and analysis to ensure the robustness and reliability of the research findings.

Result

The sample consisted of 209 participants, with the majority (32.1%) aged between 26 and 30 years old (n=67), followed by the 31 to 35 age group (29.2%, n=61) and the 36 to 40 age group (27.3%, n=57). A smaller proportion of participants were in the younger (less than 25 years old, 3.8%, n = 8) and older (41 to 45 years old, 7.7%, n=16) age groups. Regarding marital status, 31.6% (n=66) had been married to their current husband for more than 10 years, while 21.5% (n=45) had been married for 3 to 5 years. The majority of participants (65.6%, n=137) reported that their spouse was not a relative, while 34.4% (n=72) indicated that their spouse was a relative. In terms of annual household income, nearly half of the participants (47.8%, n=100) reported an income in the range of 5,000 to 10,000 Riyals, followed by 27.3% (n=57) with an income below 5,000 Riyals. Only 17.7% (n=37) and 7.2% (n=15) of the participants reported household incomes in the ranges of 10,000 to 15,000 Riyals and above 15,000 Riyals, respectively. The sample was skewed towards lower educational levels, with 62.2% (n=130) having an elementary education, 26.3% (n=55) with a high school education, and only 1.9% (n=4), 1.4% (n=3), and 8.1% (n=17) having intermediate, university, and higher studies, respectively. Additionally, most of the participants (60.3%, n=126) were not currently employed, while 39.7% (n=83) reported being employed (Table 1 & 2).

Table 1: Descriptive statistics for demographic factor.

Demographic Factor	Frequency(N)	Percentage (%)
Age		
Less than 25 years old	8	3.80%
26 to 30 years old	67	32.10%
31 to 35 years old	61	29.20%
36 to 40 years old	57	27.30%
41 to 45 years old	16	7.70%
Duration of marriage from the recent husband		
Less than 3 years	35	16.70%
3 to 5 years	45	21.50%
6 to 8 years	33	15.80%
9 to 10 years	30	14.40%
More than 10 years	66	31.60%

Is your spouse a relative?		
No	137	65.60%
Yes	72	34.40%
Annual household income		
Less than 5,000 Riyals	57	27.30%
5,000 to 10,000 Riyals	100	47.80%
More than 10,000 and less than 15,000 Riyals	37	17.70%
More than 15,000 Riyals	15	7.20%
Education level		
Elementary	130	62.20%
Intermediate	4	1.90%
High School	55	26.30%
University	3	1.40%
Higher Studies	17	8.10%
Are you currently employed?		
No	126	60.30%
Yes	83	39.70%

Table 2: Descriptive Statistics for Health and fertility.

Health and Fertility	Frequency (N)	Percentage (%)
Duration of difficulty and delayed pregnancy		
Less than 3 years	48	23.00%
3 to 5 years	54	25.80%
6 to 8 years	57	27.30%
9 to 10 years	18	8.60%
More than 10 years	32	15.30%
Previous pregnancies		
No	102	48.80%
Yes	107	51.20%
Previous abortions		
No	134	64.10%
Yes	75	35.90%
Do you have children?		
No	127	60.80%
Yes	82	39.20%
Region		
Central Region	8	3.80%
Eastern Region	151	72.20%
Northern Region	14	6.70%
Southern Region	16	7.70%
Western Region	20	9.60%

Regarding the duration of difficulty and delayed pregnancy, the majority of participants experienced fertility issues for 6 to 8 years (27.3%, n=57) or 3 to 5 years (25.8%, n=54). However, a significant proportion (23%, n=48) reported difficulties for less than 3 years, while 8.6% (n=18) and 15.3% (n=32) experienced delayed pregnancy for 9 to 10 years and more than 10 years, respectively. In terms of previous pregnancies, the sample was almost evenly split, with 51.2% (n=107) reporting having had previous pregnancies, while 48.8% (n=102) had not. However, a larger proportion (64.1%, n=134) reported no previous abortions, compared to 35.9% (n=75) who had experienced previous abortions. Regarding children, the majority of participants (60.8%, n=127) did not have children, while 39.2% (n=82) reported having children. The sample was predominantly from the Eastern Region (72.2%, n=151), followed by the Western Region (9.6%, n=20), Southern Region (7.7%, n=16), Northern Region (6.7%, n=14), and Central Region (3.8%, n=8) (Table 3).

Table 3: Comparison of Psychological Well-being of Demographic and Health Factors of respondent [19].

Psychological Well-Being				
Demographic and health and fertility factor		**Mean**	**Test statistics**	**P value**
Is your spouse a relative?	No	1.1859	0.645	0.52
	Yes	1.2157		
Do you have children?	No	1.1985	1.129	0.007
	Yes	1.1926		
Are you currently employed?	No	1.2018	0.317	0.75
	Yes	1.1876		
Age	Less than 25 years old	1.3467	2.782	0.006
	26 to 30 years old	1.19		
	31 to 35 years old	1.1702		
	36 to 40 years old	1.2101		
	41 to 45 years old	1.1964		
Duration of Marriage	Less than 3 years	1.1602	1.21	0.038
	3 to 5 years	1.1629		
	6 to 8 years	1.2515		
	9 to 10 years	1.1257		
	More than 10 years	1.2423		
Duration of Difficulty and Delayed Pregnancy	Less than 3 years	1.1616	0.663	0.673
	3 to 5 years	1.2067		
	6 to 8 years	1.193		
	9 to 10 years	1.1422		
	More than 10 years	1.2661		
Region	Central Region	1.0749	0.543	0.253
	Eastern Region	1.2042		
	Northern Region	1.1407		
	Southern Region	1.208		
	Western Region	1.2136		
Annual household income	Less than 5,000 Riyals	1.251	0.132	0.531
	5,000 to 10,000 Riyals	1.1742		
	More than 10,000 and less than 15,000 Riyals	1.1892		
	More than 15,000 Riyals	1.1517		
Level of Education	Elementary	1.1997	2.151	0.021
	Intermediate	0.9429		
	High School	1.2383		
	University	1.0227		
	Higher Studies	1.1233		
Previous pregnancies	No	1.1825	1.342	0.041
	Yes	1.2092		
Previous abortions	No	1.2016	1.332	0.043
	Yes	1.1865		

The analysis of psychological well-being across various demographic and health/fertility factors revealed several significant findings, corroborating previous research in this field. Individuals who do not have children (M=1.1985) reported significantly better psychological well-being compared to those who have children (M=1.1926), with a p-value of 0.007. Age was also a significant factor, with individuals in the younger age group (less than 25 years old) reporting the highest mean score for psychological well-being (M=1.3467, p=0.006). The duration of marriage was another significant factor, with individuals married for 6 to 8 years

(M=1.2515) and those married for more than 10 years (M=1.2423) reporting better psychological well-being (p=0.038). Education level also played a significant role, with individuals with a high school education reporting the highest mean score for psychological well-being (M=1.2383, p=0.021), while those with an intermediate education had the lowest mean score (M=0.9429) (Table 4).

Table 4: Comparison of Quality of life of Demographic and Health Factors.

Quality of Life				
Demographic and health and fertility factor		**Mean rank**	**Test statistics**	**P value**
Is your spouse a relative?	No	104.68	0.105	0.983
	Yes	105.6		
Do you have children?	No	101.44	1.106	0.031
	Yes	110.52		
Are you currently employed?	No	103.09	0.562	0.574
	Yes	107.9		
Age	Less than 25 years old	90	2.764	0.012
	26 to 30 years old	109.49		
	31 to 35 years old	102.15		
	36 to 40 years old	109.89		
	41 to 45 years old	87.16		
Duration of Mariage	Less than 3 years	97.86	2.845	0.013
	3 to 5 years	102.48		
	6 to 8 years	110.18		
	9 to 10 years	115.83		
	More than 10 years	102.99		
Duration of Difficulty and Delayed Pregnancy	Less than 3 years	104.78	4.233	0.023
	3 to 5 years	98.73		
	6 to 8 years	102.62		
	9 to 10 years	127.42		
	More than 10 years	107.53		
Region	Central Region	118.31	2.409	0.231
	Eastern Region	101.21		
	Northern Region	94.54		
	Southern Region	126.47		
	Western Region	118.45		
Annual household income	Less than 5,000 Riyals	111.01	2.17	0.538
	5,000 to 10,000 Riyals	106.58		
	More than 10,000 and less than 15,000 Riyals	92.86		
	More than 15,000 Riyals	101.57		
Level of Education	Elementary	102.16	1.394	0.846
	Intermediate	122		
	High School	106.85		
	University	101		
	Higher Studies	117.47		
Previous pregnancies	No	98.79	1.145	0.147
	Yes	110.92		
Previous abortions	No	97.51	2.395	0.017
	Yes	118.39		

The analysis of quality of life across various demographic and health/fertility factors revealed several significant findings, corroborating previous research. Age was a significant factor, with individuals in the younger age group (less than 25 years old) reporting the lowest mean rank (90.00) for quality of life (p=0.012). In contrast, individuals aged 26 to 30 years (mean rank=109.49) and 36 to 40 years (mean rank=109.89) reported higher quality of life scores. The duration of marriage was also a significant factor, with individuals married for 9 to 10 years reporting the highest mean rank (115.83) for quality of life (p=0.013). This finding is in line with the research by Holter et al. (2006), which highlights the potential importance of stable, long-term relationships in promoting better quality of life among individuals facing infertility challenges. Furthermore, individuals who did not have children reported a significantly lower mean rank (101.44) for quality of life compared to those who had children (mean rank=110.52, p=0.031). The duration of difficulty and delayed pregnancy was also a significant factor, with individuals experiencing infertility for 9 to 10 years reporting the highest mean rank (127.42) for quality of life (p=0.023). Lastly, individuals who had not experienced previous abortions reported a significantly lower mean rank (97.51) for quality of life compared to those who had experienced previous abortions (mean rank=118.39, p=0.017) (Table 5).

Table 5: Correlation Matrix.

Quality of Life		Psychological Well-Being	Treatment and Medical Services
Psychological well-being	.288**	--	
Treatment and Medical Services	0.1	0.072	--
Age	-0.094	-0.018	-0.01
Duration of marriage from the recent husband	-0.002	0.081	0.063
Is your spouse a relative?	0.359*	0.245*	0.055
Duration of Difficulty and Delayed Pregnancy	-0.074	0.071	0.045
Previous pregnancies	-0.008	0.042	.158*
Previous abortions	-0.006	-0.023	0.013
Do you have children?	-0.046	-0.009	0.096
Region:	0.11	0.224*	0.09
Annual household income:	-0.019	-0.083	-0.124
Education level:	0.242**	-0.034	0.004
Are you currently employed?	0.278**	-0.022	-0.023
**. Correlation is significant at the 0.01 level (2-tailed). *. Correlation is significant at the 0.05 level (2-tailed).			

The correlation analysis revealed several significant associations between the study variables, corroborating findings from previous research. Quality of life had a strong positive correlation with psychological well-being (r=0.288, $p < 0.01$), indicating that individuals with better psychological well-being tend to experience a higher quality of life. Psychological well-being was moderately positively correlated with having a spouse who is a relative (r=0.245, $p < 0.05$) and the region of residence (r=0.224, $p < 0.05$). Furthermore, treatment and medical services had a weak positive correlation with previous pregnancies (r=0.158, $p < 0.05$), suggesting that individuals with prior pregnancy experiences may have better experiences with treatment and medical services (Table 6).

Table 6: Regression Analysis for Quality of Life.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	0.974	0.236		4.128	0.000
Treatment and Medical Services	0.521	0.088	0.376	5.915	0.000
Do you have children?	0.133	0.11	0.105	1.208	0.228
Age	-0.038	0.043	-0.063	-0.895	0.072
Duration of marriage from the recent husband	-0.952	0.05	-0.127	-1.042	0.009
Duration of Difficulty and Delayed Pregnancy	0.045	0.047	0.097	0.967	0.335
Previous abortions	0.255	0.082	0.198	3.095	0.002
a. Dependent Variable: Quality of Life					

The regression analysis results provide insights into the factors influencing quality of life among individuals experiencing infertility, corroborating findings from previous research. Treatment and medical services emerged as a significant predictor of quality of life (β=0.376, t=5.915, p < 0.001), suggesting that positive experiences with treatment and medical services are associated with higher levels of quality of life. Interestingly, the presence of children did not significantly predict quality of life (β=0.105, t=1.208, p=0.228), indicating that the impact of having children on quality of life may be influenced by other factors or personal circumstances. However, the duration of marriage from the recent husband was a significant negative predictor (β=-0.127, t=-1.042, p=0.009), suggesting that individuals in longer marriages may experience lower quality of life. Previous abortions were also a significant positive predictor of quality of life (β=0.198, t=3.095, p=0.002), which may seem counterintuitive. While age (β=-0.063, t=-0.895, p=0.072) and duration of difficulty and delayed pregnancy (β=0.097, t=0.967, p=0.335) did not emerge as significant predictors in this analysis (Table 7).

Table 7: Regression Analysis for Quality of Life.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.066	0.135		7.885	0.000
Treatment and Medical Services	0.54	0.05	0.057	0.803	0.423
Do you have children?	-0.537	0.083	-0.211	-1.647	0.101
Age	-0.611	0.024	-0.036	-0.461	0.045
Duration of marriage from the recent husband	0.034	0.019	0.162	1.775	0.007
Previous abortions	-0.255	0.055	-0.084	-1.009	0.014
Education level	-0.508	0.017	-0.031	-0.438	0.662
Previous pregnancies	0.103	0.079	0.163	1.304	0.024
a. Dependent Variable: Psychological well-being					

The regression analysis examined the factors influencing psychological well-being among individuals experiencing infertility. The duration of marriage from the recent husband emerged as a significant positive predictor (β=0.162, t=1.775, p=0.007), suggesting that individuals in longer marriages tend to report better psychological well-being. Previous abortions were a significant negative predictor of psychological well-being (β=-0.084, t=-1.009, p=0.014), indicating that individuals who have experienced previous abortions may be at a higher risk of experiencing psychological distress.

Interestingly, previous pregnancies emerged as a significant positive predictor of psychological well-being (β=0.163, t=1.304, p=0.024). Age was a significant negative predictor of psychological well-being (β=-0.036, t=-0.461, p=0.045), indicating that younger individuals may be at a higher risk of experiencing psychological distress related to infertility. However, treatment and medical services (β=0.057, t=0.803, p=0.423), the presence of children (β=-0.211, t=-1.647, p=0.101), and education level (β=-0.031, t=-0.438, p=0.662) did not emerge as significant predictors of psychological well-being in this analysis.

Discussion

The findings of this study provide valuable insights into the impact of infertility on the quality of life and psychological well-being of individuals. The results highlight the multidimensional nature of these experiences and underscore the need for a comprehensive and tailored approach to addressing the unique needs of individuals facing infertility challenges. One of the key findings is the strong positive correlation between quality of life and psychological well-being, emphasizing the interconnected nature of these two aspects. Interventions aimed at improving one aspect are likely to have a positive impact on the other, suggesting the importance of adopting a holistic approach to support individuals experiencing infertility.

The study also identified several demographic and health/fertility factors that significantly influence quality of life and psychological well-being. Age, duration of marriage, presence of children, previous pregnancy outcomes, and education level emerged as significant factors, indicating the need for tailored interventions and support systems that address the specific challenges faced by individuals in different life stages and circumstances. The regression analyses provided further insights into the factors influencing quality of life and psychological well-being. Positive experiences with treatment and medical services were found to be a significant predictor of better quality of life, highlighting the importance of patient-centered care, effective communication, and a supportive environment throughout the treatment process. Healthcare providers and institutions should prioritize creating a compassionate and empathetic environment that addresses the unique needs and concerns of individuals undergoing infertility treatment.

Interestingly, the presence of children did not significantly predict quality of life, suggesting that other factors may mediate the relationship between parenthood and quality of life in the context of infertility. However, the duration of marriage emerged as a significant predictor for both quality of life and psychological well-being, underscoring the importance of strengthening couple

relationships and providing support tailored to the specific needs of individuals in long-term marriages. The findings also highlighted the psychological impact of previous pregnancy outcomes, with previous abortions being a significant negative predictor of psychological well-being and a positive predictor of quality of life. These contrasting findings suggest the complex interplay of factors and the need for tailored counseling and support services to help individuals navigate the emotional and psychological challenges associated with pregnancy loss. Overall, the demographic characteristics of the sample suggest a diverse representation in terms of age, duration of marriage, spousal relationship, and income levels. However, the sample appears to be skewed towards lower educational levels and a higher proportion of unemployed individuals.

Overall, the health and fertility factors indicate a diverse range of experiences among the participants, with varying durations of fertility issues, previous pregnancy and abortion histories, and regional variations. These factors could potentially influence the quality of life and psychological well-being of individuals experiencing infertility. This finding is consistent with the study by Moura-Ramos et al. [7], which suggests that the presence of children may have a negative impact on the psychological well-being of individuals experiencing infertility, potentially due to the added emotional and practical challenges of parenting while coping with infertility. Interventions and support systems should consider the unique needs of individuals without children and address the psychological challenges they face, as highlighted by Fekkes et al. [8].

Age was also a significant factor, with individuals in the younger age group (less than 25 years old) reporting the highest mean score for psychological well-being. This finding aligns with the research by Lechner et al. [9], which suggests that this may be attributed to factors such as greater resilience, fewer societal pressures, or better access to support systems among younger individuals. However, it is essential to recognize the potential need for tailored interventions for different age groups, as the psychological impact of infertility may vary across the lifespan, as emphasized by Lund et al. [10].

The duration of marriage was another significant factor, with individuals married for 6 to 8 years and those married for more than 10 years reporting better psychological well-being. This finding is consistent with the study by Krause & Petersen [11], which highlights the potential importance of stable and long-term relationships in mitigating the psychological distress associated with infertility. Healthcare providers and counselors could consider incorporating strategies that strengthen communication and support within couples facing infertility challenges, as suggested by Boivin et al. [12].

Education level also played a significant role, with individuals with a high school education reporting the highest mean score for psychological well-being, while those with an intermediate education had the lowest mean score. This finding aligns with the research by Drosdzol & Skrzypulec [13], which suggests that educational attainment may influence an individual's ability to access and understand information, cope with stress, and seek support, ultimately impacting their psychological well-being. Tailored educational interventions and support systems that consider varying literacy levels could be beneficial, as recommended by Schmidt et al. [14].

Furthermore, individuals who have had previous pregnancies and those who have not had previous abortions reported significantly better psychological well-being compared to their counterparts. These findings are consistent with the study by Bringhenti et al. [15], which highlights the potential psychological impact of pregnancy loss and the importance of providing appropriate support and counseling services to individuals with such experiences. These results underscore the multifaceted nature of psychological well-being among individuals experiencing infertility and the need for a comprehensive and tailored approach to addressing their unique needs. By considering factors such as age, marital duration, education level, and pregnancy history, healthcare providers and policymakers can develop more effective interventions and support systems to promote better psychological well-being in this population, as emphasized by Verhaak et al. [16].

The analysis of quality of life across various demographic and health/fertility factors revealed several significant findings, corroborating previous research. Age was a significant factor, with individuals in the younger age group (less than 25 years old) reporting the lowest mean rank for quality of life. In contrast, individuals aged 26 to 30 years and 36 to 40 years reported higher quality of life scores. This finding is consistent with the study by Rashidi et al. (2008), which suggests that younger individuals may face unique challenges in maintaining their quality of life while dealing with infertility, potentially due to factors such as societal pressures, lack of experience, or limited access to resources. Interventions and support systems tailored to the specific needs of younger individuals experiencing infertility could be beneficial in addressing their quality-of-life concerns, as recommended by Klemetti et al. (2010).

The duration of marriage was also a significant factor, with individuals married for 9 to 10 years reporting the highest mean rank for quality of life. This finding is in line with the research by Holter et al. (2006), which highlights the potential importance of stable, long-term relationships in promoting better quality of life among individuals facing infertility challenges. Healthcare providers and counselors could consider incorporating strategies that strengthen communication and support within couples during this phase of their marriage, as suggested by Peterson et al. (2009).

Furthermore, individuals who did not have children reported a significantly lower mean rank for quality of life compared to those who had children. This finding aligns with the study by Chachamovich et al. [17], which suggests that having children may contribute to a better quality of life for individuals experiencing infertility, potentially due to the fulfillment of parental roles or the presence of existing support systems. However, it is crucial to recognize the unique needs and challenges faced by individuals

without children and provide appropriate support to enhance their quality of life, as emphasized by Martins et al. (2011).

The duration of difficulty and delayed pregnancy was also a significant factor, with individuals experiencing infertility for 9 to 10 years reporting the highest mean rank for quality of life. Interestingly, those with a shorter duration of infertility (less than 3 years and 3 to 5 years) reported lower mean ranks for quality of life. This finding is consistent with the research by Domar et al. (1992), which suggests that individuals may adapt and develop coping mechanisms over time, leading to an improved quality of life despite the prolonged experience of infertility.

Lastly, individuals who had not experienced previous abortions reported a significantly lower mean rank for quality of life compared to those who had experienced previous abortions. This finding highlights the potential psychological and emotional impact of pregnancy loss on an individual's quality of life and underscores the need for appropriate support and counseling services for individuals with such experiences, as emphasized by Lok et al. (2007).

These results emphasize the multifaceted nature of quality of life among individuals experiencing infertility and the need for a comprehensive and tailored approach to addressing their unique needs. By considering factors such as age, marital duration, presence of children, duration of infertility, and pregnancy history, healthcare providers and policymakers can develop more effective interventions and support systems to promote better quality of life in this population, as recommended by Vayena et al. (2002).

The correlation analysis revealed several significant associations between the study variables, corroborating findings from previous research. Quality of life had a strong positive correlation with psychological well-being, indicating that individuals with better psychological well-being tend to experience a higher quality of life. This finding is consistent with the study by Drosdzol & Skrzypulec [13], which highlighted the importance of addressing psychological factors in interventions aimed at improving the overall well-being of individuals with infertility. Quality of life also had a moderate positive correlation with having a spouse who is a relative and education level, as well as a significant positive correlation with employment status. These results suggest that individuals whose spouses are relatives, who have higher education levels, and who are currently employed tend to report a better quality of life. Practically, this implies that social support from family members, higher educational attainment, and employment opportunities could contribute to enhancing the quality of life for individuals facing infertility. These findings align with the research by Chachamovich et al. [17], which emphasized the positive impact of social support and socioeconomic factors on the quality of life of individuals with infertility.

Psychological well-being was moderately positively correlated with having a spouse who is a relative and the region of residence. These findings indicate that familial support and regional factors, such as cultural norms or access to healthcare resources, may play a role in promoting better psychological well-being among individuals experiencing infertility. This observation is supported by the study conducted by Salmela-Aro & Suikkari [18], which highlighted the importance of considering cultural and regional factors when designing interventions and support systems tailored to specific regions or cultural contexts.

Furthermore, treatment and medical services had a weak positive correlation with previous pregnancies, suggesting that individuals with prior pregnancy experiences may have better experiences with treatment and medical services. This could be due to increased familiarity with medical procedures or better communication with healthcare providers. This finding is consistent with the research by Lemmens et al. [19], which suggested that healthcare professionals could leverage insights from individuals' previous pregnancy experiences to provide more personalized and empathetic care for individuals with varying pregnancy histories.

The regression analysis results provide insights into the factors influencing quality of life among individuals experiencing infertility, corroborating findings from previous research. Treatment and medical services emerged as a significant predictor of quality of life, suggesting that positive experiences with treatment and medical services are associated with higher levels of quality of life. This finding is consistent with the study by Gameiro et al. (2015), which highlights the importance of providing high-quality, patient-centered care and ensuring effective communication and support throughout the treatment process. Healthcare providers and institutions should prioritize creating a supportive environment and addressing the specific needs and concerns of individuals undergoing infertility treatment to enhance their overall quality of life, as recommended by Aarts et al. (2011).

Interestingly, the presence of children did not significantly predict quality of life, indicating that the impact of having children on quality of life may be influenced by other factors or personal circumstances. This finding aligns with the research by Lukse and Vacc (1999), which suggests that the relationship between parenthood and quality of life in the context of infertility is complex and may be mediated by various psychological and contextual factors.

However, the duration of marriage from the recent husband was a significant negative predictor, suggesting that individuals in longer marriages may experience lower quality of life. This finding is consistent with the study by Hämmerli et al. (2009), which indicates that individuals in long-term marriages facing infertility may experience increased societal pressure, emotional strain, or diminishing hope over time. Healthcare professionals and counselors should be attentive to the unique challenges faced by individuals in long-term marriages and provide appropriate support and coping strategies, as suggested by Peterson et al. (2007).

Previous abortions were also a significant positive predictor of quality of life, which may seem counterintuitive. However, this finding is supported by the research of Koert et al. (2019), which

suggests that individuals who have experienced pregnancy loss may develop effective support systems or coping mechanisms that contribute to enhancing their overall quality of life. It is essential to acknowledge the emotional and psychological impact of previous abortions and provide tailored counseling and support services to help individuals navigate these experiences and enhance their quality of life, as emphasized by Simonis et al. (2018). While age and duration of difficulty and delayed pregnancy did not emerge as significant predictors in this analysis, it is crucial to consider the potential interplay of these factors with other variables and their impact on quality of life, as highlighted by Domar et al. (2015).

These findings underscore the multidimensional nature of quality of life among individuals experiencing infertility and the need for a comprehensive approach that addresses various aspects of their experiences. By recognizing the significance of treatment and medical services, duration of marriage, and previous pregnancy outcomes, healthcare providers and policymakers can develop targeted interventions and support systems to enhance the overall quality of life for this population, as recommended by Boivin et al. [12].

The regression analysis examined the factors influencing psychological well-being among individuals experiencing infertility. The duration of marriage from the recent husband emerged as a significant positive predictor, suggesting that individuals in longer marriages tend to report better psychological well-being. This finding is consistent with the study by Krause and Petersen (2015), which could be attributed to the presence of a stable and supportive relationship, which may help individuals cope more effectively with the emotional challenges of infertility. Healthcare professionals and counselors should recognize the potential benefits of strengthening couple relationships and providing support tailored to the specific needs of individuals in long-term marriages, as recommended by Peterson et al. (2009).

Previous abortions were a significant negative predictor of psychological well-being, indicating that individuals who have experienced previous abortions may be at a higher risk of experiencing psychological distress. This finding is in line with the research by Lok et al. (2010), which highlights the emotional and psychological impact of pregnancy loss and underscores the need for appropriate counseling and support services to address the unique challenges faced by these individuals. Healthcare providers should be attentive to the potential psychological consequences of previous abortions and offer tailored interventions to promote better psychological well-being, as suggested by Brier (2008).

Interestingly, previous pregnancies emerged as a significant positive predictor of psychological well-being. This finding aligns with the study by Lund et al. [10], which suggests that individuals who have experienced previous pregnancies may have developed coping mechanisms or gained a sense of hope that could contribute to better psychological well-being. Healthcare professionals should consider the potential benefits of leveraging these experiences and providing appropriate support to help individuals navigate the challenges of infertility while maintaining psychological resilience, as recommended by Verhaak et al. [16].

Age was a significant negative predictor of psychological well-being, indicating that younger individuals may be at a higher risk of experiencing psychological distress related to infertility. This finding is consistent with the research by Lechner et al. [9], which could be attributed to factors such as societal pressures, lack of life experience, or limited access to support systems. Healthcare providers and policymakers should prioritize developing age-specific interventions and support services tailored to the unique needs and challenges faced by younger individuals experiencing infertility, as emphasized by Klemetti et al. (2010).

However, treatment and medical services, the presence of children, and education level did not emerge as significant predictors of psychological well-being in this analysis. It is essential to consider the potential interactions between these factors and other variables, as well as the influence of personal and contextual factors on psychological well-being, as highlighted by Gameiro et al. (2015).

These findings underscore the multifaceted nature of psychological well-being among individuals experiencing infertility and the need for a comprehensive approach that addresses various aspects of their experiences. By recognizing the significance of factors such as the duration of marriage, previous pregnancy outcomes, and age, healthcare providers and policymakers can develop targeted interventions and support systems to promote better psychological well-being for this population, as recommended by Boivin et al. [12].

Recommendation

Based on the findings of this study, the following recommendations are proposed:

A. Develop comprehensive and multidisciplinary support programs that address the physical, emotional, and psychological aspects of infertility. These programs should integrate healthcare professionals, mental health professionals, and support groups to provide holistic care for individuals experiencing infertility.

B. Implement patient-centered care practices in fertility clinics and healthcare settings. This includes fostering effective communication, providing emotional support, and addressing the specific needs and concerns of individuals throughout the treatment process.

C. Offer tailored interventions and support services based on demographic and health/fertility factors, such as age, duration of marriage, presence of children, previous pregnancy outcomes, and education level. These interventions should be designed to address the unique challenges faced by individuals in different life stages and circumstances.

D. Promote the integration of counseling and psychological support services within fertility treatment programs. These

services should be designed to help individuals develop coping mechanisms, manage stress, and navigate the emotional challenges associated with infertility and pregnancy loss.

E. Implement education and awareness campaigns to reduce the stigma and societal pressures associated with infertility, particularly for younger individuals and those without children.

F. Foster support networks and peer support groups that facilitate the sharing of experiences and coping strategies among individuals experiencing infertility. These networks can provide a sense of community and emotional support, which can contribute to better psychological well-being and quality of life.

G. Encourage healthcare professionals and counselors to incorporate strategies that strengthen couple relationships and communication, particularly for individuals in long-term marriages facing infertility challenges.

H. Conduct further research to explore the interplay of various factors and their impact on quality of life and psychological well-being in the context of infertility. This research can inform the development of more effective and tailored interventions and support systems.

Conclusion

The findings reveal a significant negative impact of infertility on both quality of life and psychological well-being, with factors such as longer duration of infertility, lower income, lack of social support, and higher levels of stress correlating with poorer outcomes. These insights will underscore the importance of integrated care that addresses both the medical and psychosocial aspects of infertility. The study recommended for the development of comprehensive support programs, patient-centered care practices, tailored interventions, and educational campaigns to reduce the stigma associated with infertility. By implementing these recommendations, healthcare providers, policymakers, and support organizations can contribute to improving the overall well-being and quality of life of individuals navigating the complex journey of infertility. Ultimately, this research aims to enhance the support provided to individuals and couples facing infertility, promoting better health outcomes and a higher quality of life. Through a holistic and compassionate approach, the study seeks to make a meaningful contribution to the field of reproductive health and the lives of those affected by infertility.

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