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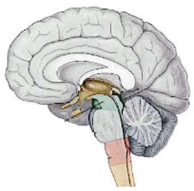

Psychological Factors and Quality of Life in Infertile Women : A Systematic Review

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ABSTRACT

Infertility is a significant issue that affects various aspects of life, particularly psychological well-being. Psychological factors associated with infertility can significantly impact the quality of life. This systematic review aims to analyze these psychological factors in infertile women. Ten quantitative journals with correlational designs using the PEOS framework were selected for review. The results indicate that resilience, coping strategies, and emotional self-disclosure positively associate with the quality of life in infertile women. Conversely, anxiety, depression, stress, problem-focused coping strategies, meaning-based coping strategies, and stigma negatively correlate with quality of life. In conclusion, this systematic review underscores the importance of addressing psychological factors to improve the quality of life in infertile women. Further research is needed to develop and implement effective interventions targeting these factors, ultimately supporting women through their infertility journey and enhancing their overall well-being.

INTRODUCTION

Infertility affects many parameters of societal life, both as individuals and as couples (Paraskevi et al., 2021). Society views having children as a sign of a prosperous life, whereas childless couples are often seen as barren and having an incomplete life. Infertility is more than just a medical issue as it impacts all aspects of life, most significantly psychological issues (Sharma & Shrivastava, 2022).

Infertility is considered a global health issue affecting 15% of couples (Barati et al., 2020). Approximately 50% of infertility causes in couples are related to female disorders (Akbaribazm et al., 2021). Worldwide, 48 million couples and 186 million individuals live with infertility (WHO, 2020). In Indonesia, the incidence of infertility is 10%-15% or 4-6 million couples out of 398 million couples of reproductive age (KEMENKES, 2022).

Infertility can impact various life aspects, such as social, mental, and physical, and can also lead to psychological stress and mental disorders (Tavousi et al., 2022). Psychological factors related to infertility include depression, anxiety, guilt, social isolation, and low self-esteem (Saif et al., 2021). The stigma associated with infertility can exacerbate these psychological issues, leading to feelings of inadequacy and

social exclusion. Couples, particularly women, may face societal pressure and judgment, further impacting their mental health and overall well-being.

Psychological status and pregnancy history can affect the quality of life (Mirparsa & Mirzaei, 2021). Quality of life is related to development, growth, and well-being, reflecting an individual's perception of their position in society, goals, expectations, standards, and priorities (Bakhtiyar et al., 2019). Higher levels of stress and anxiety correlate with lower quality of life. Women experience higher stress levels than men, impacting the quality of life in infertile women (Dourou et al., 2023). This stress can stem from multiple sources, including the emotional burden of infertility, the financial cost of treatments, and the physical demands of medical procedures.

Based on this, further studies are needed to analyze psychological factors associated with the quality of life in infertile women using a systematic review. Understanding these factors can inform the development of targeted interventions aimed at improving the well-being and quality of life for this population.

METHODS

This study uses a systematic review approach to analyze the relationship between stress and quality of life in infertile women. The article search and registration method followed a structured framework, keywords, and search engines.

The literature search was conducted from May to July 2023 using databases such as Google Scholar, PubMed, and ScienceDirect. Articles were searched using keywords and Boolean operators (and, or, and not) with the terms psychological factors AND quality of life infertility, psychological factors OR quality of life infertility, quality of life and infertility.

The strategy used to search for articles in this review followed the PEOS framework. The population or issue in this study is the quality of life in infertile women. The variables examined are psychological factors and the quality of life in infertile women. The review's outcome includes results on psychological factors related to the quality of life in infertile women. All reviewed articles used a quantitative research design.

RESULTS AND DISCUSSION

The article search was conducted using databases such as Google Scholar, PubMed, and Elsevier. The identification phase yielded 8,000 articles from Google Scholar, 200 articles from PubMed, and 138 articles from Elsevier. During the selection phase, 54 articles were found to be relevant based on titles, abstracts, and keywords. In the screening phase, 19 articles did not meet the inclusion criteria, and 12 were duplicates, leaving 23 articles that met the inclusion criteria. At the eligibility phase, 19 articles failed to meet the inclusion criteria, resulting in 16 relevant articles. Finally, 10 journal articles met the criteria for review.

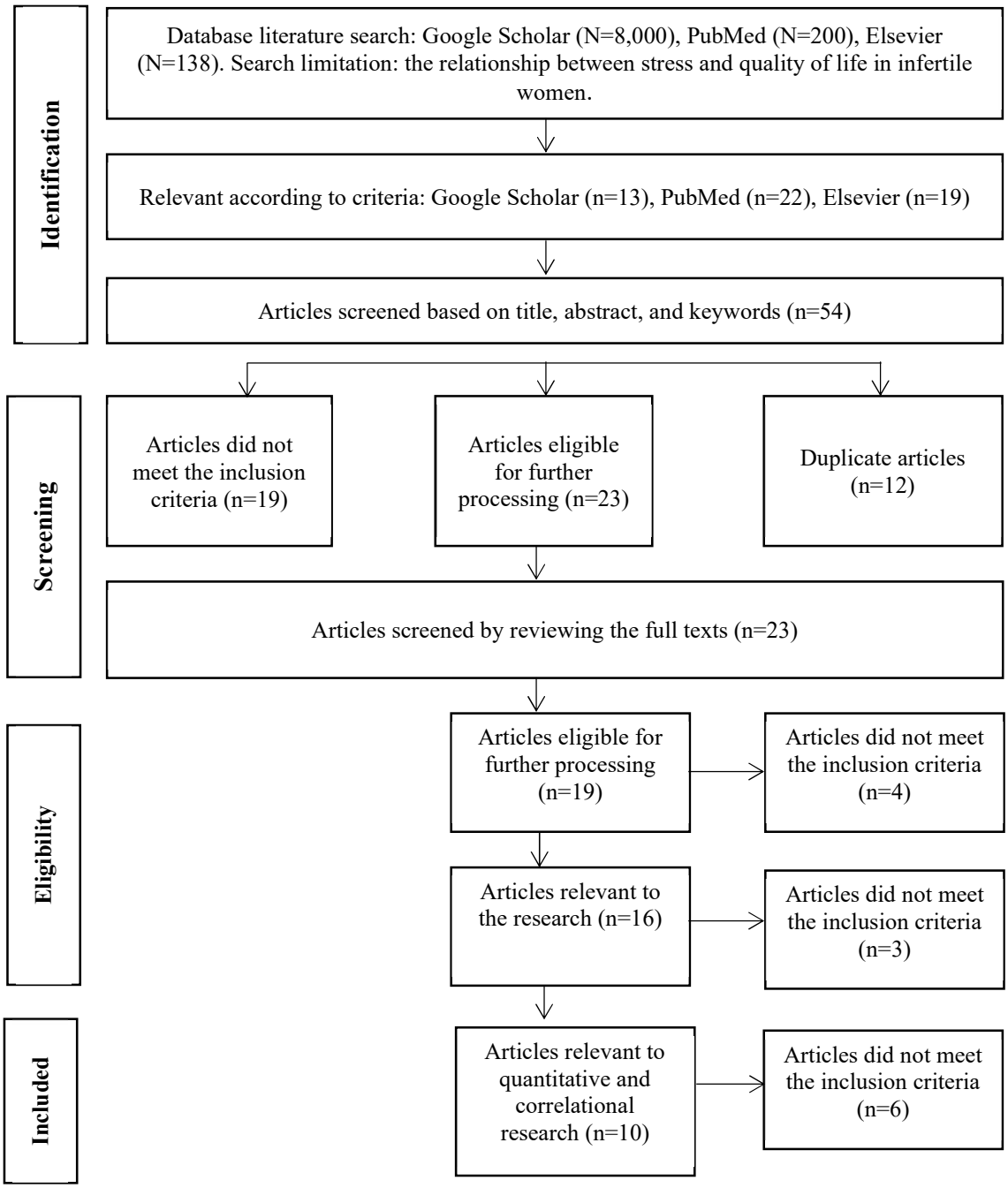

Diagram 1 *Flow Systematic Review*: Analysis of Psychological Factors Related to the Quality of Life in Infertile Women

Table 1. Selection Results

No	*Authors, Title, Journal*	*Research Method*	*Results*
1.	(Zurlo et al., 2019)	Design : Cross-sectional Subjects : 266 women undergoing infertility treatment Variables : Stress in life, quality of life of women undergoing infertility treatment Instruments : FLS, COPE, DAS, FertiQoL Analysis : Logistic regression	Family-related stress events, positive attitude, avoidance, and dyadic adjustment are significantly positively correlated based on age, education level, diagnosis, type of treatment, and infertility duration having a lower quality of life (OR=0.45, 95% CI 0.32-0.98; OR=2.98, 95% CI 1.76-5.83; OR=2.57, 95% CI 1.84-6.33; OR=2.56, 95% CI 1.61-6.89)
2.	(Dourou et al., 2023)	Design : Cross-sectional Subjects : 101 infertile couples (202 respondents) Variables : Quality of life of infertile couples Instruments : COMPI *Questionnaire* and FertiQoL Analysis : Pearson, Spearman rho, multiple linear regression	State anxiety, trait anxiety, and depression are significantly negatively correlated with fertility quality of life (r=-0.049, p<0.001; r=-0.42, p<0.001; r=-0.36, p<0.001)
3.	(Bai et al., 2022)	Design : Cross-sectional Subjects : 715 IVF patients Variables : Psychological distress, quality of life of infertile couples Instruments : K6, DCI, FertilQoL Analysis : K-S Test, Pearson correlation, regression analysis	1. Psychological distress is significantly negatively correlated with fertility quality of life (r=-0.589, p<0.01). 2. Dyadic coping is significantly positively correlated with fertility quality of life (r=0.375, p<0.01)
4.	(Li et al., 2019)	Design : Cross-sectional Subjects : 559 women receiving outpatient infertility treatment Variables : Infertility stress, fertility quality of life Instruments : FPI, CD-RISC Analysis : Hierarchical multiple regression and simple slope analysis	1. Infertility-related stress is significantly negatively correlated with fertility quality of life (r=-0.575, p<0.01). 2. Resilience is significantly positively correlated with fertility quality of life (r=0.535, p<0.01)
5.	(Saif et al., 2021)	Design : Cross-sectional Subjects : 150 women (primary infertility n=76, secondary infertility n=74) Variables : Quality of life, coping strategies, psychological distress Instruments : BC, PD, QoL Analysis : Correlation and mediation analysis, descriptive analysis	Coping strategies are significantly positively correlated with fertility quality of life (r=0.26, p<0.05)
6.	(Swift et al., 2021)	Design : Cross-sectional Subjects : 230 infertile women Variables :	1. Personal stress, marital stress, and social stress are significantly negatively correlated with

No	*Authors, Title, Journal*	*Research Method*			*Results*
				Infertility stress, cortisol, coping, quality of life	fertility quality of life (r=-0.059, p<0.05; r=-0.50, p<0.05; r=-0.48, p<0.05).
		Instruments	:	COMPI-FPSS, COMPI-CSS, FertiQoL, Hair cortisol	2. Active and passive avoidance coping strategies are significantly negatively correlated with fertility quality of life (r=-0.053, p<0.05; r=-0.11, p<0.05).
		Analysis	:	Pearson correlation, hierarchical regression analysis	3. Confrontation coping and meaning-based coping strategies are significantly positively correlated with fertility quality of life (r=0.05, p<0.05; r=0.35, p<0.05)
7.	(Ni et al., 2021)	Design	:	Cross-sectional	Anxiety and depression are significantly negatively correlated with fertility quality of life (r=-0.503, p<0.01; r=-0.548, p<0.01)
		Subjects	:	137 infertile women with repeated implantation failure (RIF)	
		Variables	:	Quality of life, factors influencing repeated implantation failure	
		Instruments	:	FertiQoL, PSSS, SAS, SDS	
		Analysis	:	Pearson correlation, independent t-test, one-way factor analysis	
8.	(Jing et al., 2021)	Design	:	Cross-sectional	Stigma, active avoidance coping strategies, active confrontation coping strategies, and meaning-based coping strategies are significantly negatively correlated with fertility quality of life (r=-0.686, p<0.01; r=-0.611, p<0.01; r=-0.409, p<0.01; r=-0.406, p<0.01; r=-0.124, p<0.01)
		Subjects	:	768 infertile women	
		Variables	:	Coping strategies, stigma, and quality of life in infertile women	
		Instruments	:	ISS, COMPI, FertiQoL	
		Analysis	:	Pearson correlation	
9.	(Y. M. Kim & Nho, 2020)	Design	:	Cross-sectional	Depression is significantly negatively correlated with fertility quality of life (r=-0.56, p<0.001)
		Subjects	:	140 infertile women	
		Variables	:	Factors influencing quality of life in infertile women	
		Instruments	:	FSS, DASS-21, FertiQoL	
		Analysis	:	Pearson correlation, t-test, ANOVA	
10.	(M. Kim et al., 2021)	Design	:	Cross-sectional	1. Depression is significantly negatively correlated with fertility quality of life (r=-0.532, p<0.001).
		Subjects	:	169 infertile women	
		Variables	:	Emotional self-disclosure, depression, quality of life in women undergoing IVF	2. Emotional self-disclosure is significantly positively correlated with fertility quality of life (r=0.259, p<0.001)
		Instruments	:	CES-D, FertiQoL, DDI	
		Analysis	:	Pearson correlation	

Table 2 in this study identifies that the first psychological factor related to the quality of life in infertile women is stress. Factors such as age, education level, diagnosis, type of treatment, and duration of infertility are likely to influence quality of life (Zurlo et al., 2019). Higher levels of psychological pressure, infertility-related stress, personal stress, marital stress, and social stress are associated with a lower quality of life in infertile women (Bai et al., 2022); (Li et al., 2019); (Swift et al., 2021).

The second psychological factor related to the quality of life in infertile women is a positive attitude. A higher positive attitude, influenced by age, education level, diagnosis, type of treatment, and duration of infertility, is likely to correlate with better quality of life in infertile women (Zurlo et al., 2019).

The third psychological factor is coping strategies. Couples who can adjust are likely to have a better quality of life regarding infertility. Avoidance coping strategies are also related to the quality of life in infertile women (Zurlo et al., 2019). The higher the use of various coping strategies, the better the quality of life in infertile women (Saif et al., 2021). Couples who employ coping strategies tend to experience higher quality of life related to infertility (Bai et al., 2022). A higher quality of life is observed in infertile women who have lower levels of both active and passive problem-avoidance coping strategies (Swift et al., 2021); (Bai et al., 2022). Infertile women who use problem-focused and meaning-based coping strategies tend to have a higher quality of life (Swift et al., 2021). However, higher levels of problem-focused and meaning-based coping strategies are associated with a lower quality of life in infertile women (Jing et al., 2021).

The fourth psychological factor related to the quality of life in infertile women is anxiety. Higher levels of anxiety correlate with a lower quality of life in infertile women (Ni et al., 2021). There are two types of anxiety: situational anxiety and trait anxiety. The higher the levels of situational and trait anxiety, the lower the quality of life (Dourou et al., 2023).

The fifth psychological factor is depression. Higher levels of depression are associated with a lower quality of life in infertile women. Various studies have demonstrated this negative correlation, highlighting that as depression levels increase, the quality of life significantly decreases (Dourou et al., 2023); (Ni et al., 2021); (Y. M. Kim & Nho, 2020); (M. Kim et al., 2021).

Another important psychological factor is stigma. Higher levels of stigma are associated with a lower quality of life in infertile women. Stigma can lead to feelings of shame, social isolation, and reduced self-esteem, all of which negatively impact overall well-being (Jing et al., 2021).

Emotional self-disclosure also plays a crucial role. Women who are able to openly express their emotional struggles tend to have a better quality of life. This ability helps reduce internal stress and fosters better social support and understanding (M. Kim et al., 2021).

Resilience significantly affects the quality of life. Women with a higher ability to cope with and overcome challenges report improved life satisfaction. Resilience allows them to manage the emotional and psychological strains of infertility more effectively, leading to greater overall well-being (Li et al., 2019).

Table 2. Identified Psychological Factors Related To The Quality Of Life In Infertile Women

No	*Empirical Source*	*Quality of Life (r)*	*P value*
1.	(Zurlo et al., 2019)		
	a. Family-related stress events	OR=0,45	<0.05
	b. Positive attitude	OR=2,98	<0.05
	c. Avoidance	OR=2,57	<0.05
	d. Dyadic adjustment	OR=2,56	<0.05
2.	(Dourou et al., 2023)		
	a. State anxiety	-0.049	<0.001
	b. Trait anxiety	-0,42	<0.001
	c. Depression	-0,36	<0.001
3.	(Bai et al., 2022)		
	a. Psychological distress	-0,589	<0,01
	b. Dyadic coping	0,375	<0,01
4.	(Li et al., 2019)		
	a. Infertility-related stress	-0,575	<0.01
	b. Resilience	0,535	<0.01
5.	(Saif et al., 2021)		
	a. Coping strategies	0,26	<0,05
6.	(Swift et al., 2021)		
	a. Personal stress	-0,059	<0,05
	b. Marital stress	-0,50	<0,05
	c. Social stress	-0,48	<0,05
	d. Active avoidance coping	-0,053	<0,05
	e. Passive avoidance coping	-0,11	<0,05
	f. Confrontation coping	0,05	<0,05
	g. Meaning-based coping	0,35	<0,05
7.	(Ni et al., 2021)		
	a. Anxiety	-0,503	<0,01
	b. Depression	-0,548	<0,01
8.	(Jing et al., 2021)		
	a. Stigma	-0,686	<0,01
	b. Active avoidance coping	-0,611	<0,01
	c. Active confrontation coping	-0,409	<0,01
	d. Passive avoidance coping	-0,406	<0,01
	e. Meaning-based coping	-0,124	<0,01
9.	(Y. M. Kim & Nho, 2020)		
	Depression	-0,56	<0,001
10.	(M. Kim et al., 2021)		
	a. Depression	-0,532	<0,001
	b. Emotional self-disclosure	0,259	<0,001

The review results indicate that psychological factors positively related to the quality of life in infertile women include resilience, coping strategies, and emotional self-disclosure (Bai et al., 2022); (Li et al., 2019); (Saif et al., 2021); (Swift et al., 2021); (M. Kim et al., 2021). Conversely, psychological factors negatively correlated with the quality of life include anxiety, depression, stress, problem-focused coping strategies, meaning-based coping strategies, and stigma (Dourou et al., 2023); (Bai et al., 2022); (Li et al., 2019); (Swift et al., 2021); (Jing et al., 2021); (Y. M. Kim & Nho, 2020); (M. Kim et al., 2021).

Roy's Adaptation Theory explains that the level of adaptation an individual exhibits depends on the stimuli received and the individual's abilities. The response level among individuals is unique and varies based on previous experiences, health status, and given stressors (Nursalam, 2020).

This study finds that coping strategies have both positive and negative correlations with the quality of life. Low levels of problem-avoidance coping strategies are likely to result in a positive quality of life (Andrei et al., 2021). In contrast, problem-focused coping strategies are negatively correlated with anxiety

and tend to increase depression (Kazemi et al., 2021). Interestingly, while coping strategies that involve facing problems can potentially worsen the quality of life, some findings in this study suggest that higher levels of problem-focused coping strategies are associated with a better quality of life.

Low resilience levels in infertile couples are identified as a factor that can jeopardize their quality of life (Vatanparast et al., 2022). The resilience of infertile individuals plays a crucial role in their overall well-being; the higher the resilience, the better the quality of life (Ha & Ban, 2020). This finding is consistent with the results of this study, which show a positive correlation between resilience and the quality of life in infertile women.

High levels of emotional self-disclosure indicate better communication between partners (Tang et al., 2022). A strong relationship with a partner serves as a major protective factor against poor quality of life (Dadhwal et al., 2022). This aligns with the findings of this study, suggesting that greater emotional self-disclosure leads to a better quality of life.

Depression is negatively correlated with quality of life, meaning that higher levels of depression result in a lower quality of life (Bhamani et al., 2020). Women reporting anxiety and depression often face discrimination, receive low social acceptance, and have poor quality of life (Dadhwal et al., 2022). This is consistent with the findings of this study, which show a negative correlation between anxiety and depression and the quality of life in infertile women. The higher the levels of depression and anxiety experienced by infertile women, the lower their quality of life.

Additionally, fertility stress is a significant mediating factor that negatively correlates with the duration of marriage and quality of life (Bose et al., 2021). Infertility stress negatively impacts the quality of life in infertile women (Lee & Park, 2019). This finding is consistent with this study, indicating that higher levels of stress result in a lower quality of life for infertile women.

Stigma imposes a heavy mental burden and psychological pressure on infertile women, significantly impacting their quality of life (Xie et al., 2023). Stigma is negatively correlated with quality of life and can cause significant variability in the quality of life among infertile women (Zhao et al., 2022). This study also indicates that stigma negatively correlates with quality of life. The higher the level of stigma faced by infertile women, the lower their quality of life.

CONCLUSIONS AND RECOMMENDATIONS

The psychological factors related to the quality of life in infertile women include coping strategies, stress levels, resilience, self-disclosure, stigma, anxiety, and depression. These factors can have either a positive or negative impact on the quality of life. Positive psychological factors, such as low stigma, high resilience, effective coping strategies, low stress, low anxiety, and low levels of depression, contribute to positive adaptation. This, in turn, improves the quality of life for infertile women. Conversely, negative psychological factors like high stigma, high anxiety and depression, and low resilience lead to a lower quality of life in infertile women.

This study identifies the correlations between psychological factors and quality of life but does not provide interventions. Further research is needed to develop interventions that can enhance the quality of life for infertile women facing psychological issues. Such interventions can motivate infertile women to adhere to their treatment plans and complete the treatment successfully.

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