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Postpartum Fatigue and Quality of Life: A Cross-Sectional Study in South Denpasar

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Abstract

Introduction: The postpartum period is a critical phase for women's physical and mental health, with postpartum fatigue (PPF) being one of the primary complaints that can impact quality of life (QoL). PPF not only affects maternal well-being but may also disrupt infant care. Various factors, including maternal age and postpartum duration, can influence fatigue levels. Therefore, this study aims to analyze the relationship between fatigue levels and quality of life in postpartum women in South Denpasar.

Methods: This quantitative study employed a cross-sectional design with a correlational analytical approach. A total of 64 postpartum women were selected using purposive sampling. Fatigue levels were assessed using the Postpartum Fatigue Scale (PFS), while quality of life was measured using the Short Form-12 (SF-12). Data analysis was performed using Spearman's rho test.

Results: Spearman's rho analysis revealed a significant negative correlation between postpartum fatigue levels and quality of life ($p = 0.000$; $r = -0.687$). Higher postpartum fatigue levels were associated with lower quality of life among respondents.

Conclusion: This study identified a significant negative relationship between postpartum fatigue and quality of life. However, study limitations, such as the small sample size and cross-sectional design, restrict the ability to establish causal relationships.

Keywords: Fatigue, Quality of Life, Postpartum Women

Introduction

The postpartum period is a crucial phase in a woman's life, characterized by various physical and psychological changes that can significantly impact maternal well-being.[1,2] One of the most common challenges faced during this period is postpartum fatigue (PPF).[3] PPF is defined as a decline in physical, mental, and cognitive activity capacity following childbirth, which cannot be fully alleviated by rest or sleep alone.[4,5] According to the World Health Organization (WHO), PPF affects 3–8% of the global population, with prevalence rates in Asia ranging from 26% to 85%.[6] Studies conducted in Indonesia have shown that approximately 60% of postpartum mothers in Yogyakarta experience fatigue. However, research investigating similar conditions in South Denpasar remains scarce.[7]

Postpartum fatigue can have a profound impact on maternal health, including disruptions in social interactions, decreased comfort in infant caregiving, and potential effects on breast milk production and breastfeeding practices.[2] Furthermore, previous studies, such as those conducted by Jeong et al. (2021) and Baattaiah et al. (2023), have highlighted that mothers experiencing high levels of postpartum fatigue are at greater risk of developing mental health disorders, including postpartum depression. Chronic postpartum fatigue has also been associated with impaired mother-infant bonding and delays in child development. An essential factor in assessing the impact of fatigue is the concept of quality of life (QoL).[8] The WHO defines QoL as an individual's perception of their position in life, influenced by physical, psychological, social, and environmental factors.[9] Previous studies have found a significant association between postpartum fatigue and reduced QoL. However, specific data on this relationship within the South Denpasar population remains limited.

South Denpasar has unique socio-cultural and economic factors that may influence postpartum experiences, including access to maternal healthcare, family support systems, and traditional postpartum recovery practices.[10] Understanding the relationship between postpartum fatigue and QoL in this specific population can provide valuable insights for tailored healthcare interventions.[11] Additionally, while several instruments are available to measure postpartum fatigue and quality of life, this study employs the Postpartum Fatigue Scale (PFS) and the Short Form-12 (SF-12), both of which have been validated in diverse populations and are widely used in maternal health research.[12] These instruments offer a comprehensive assessment of postpartum fatigue and its impact on overall well-being.

Given these findings, further investigation into the relationship between postpartum fatigue and quality of life is warranted, particularly within the South Denpasar population. Therefore, this study aims to analyze the correlation

between postpartum fatigue levels, assessed using the Postpartum Fatigue Scale (PFS), and quality of life, measured using the Short Form-12 (SF-12). The proposed hypothesis is that there is a significant negative correlation between postpartum fatigue levels and quality of life, indicating that higher levels of postpartum fatigue are associated with lower maternal QoL.

Methods

This study employed a correlational analytic method with a cross-sectional design. The cross-sectional design was chosen as it allows for the analysis of relationships between variables without intervention at a specific point in time. The study population comprised all postpartum women visiting Puskesmas II Denpasar Selatan between January and November 2024. A purposive sampling technique was used, where participants were selected based on predefined inclusion and exclusion criteria. This method ensures that the selected sample is relevant to the research objectives and provides in-depth insights into the experiences and conditions of postpartum women.

Primary data were collected directly from the participants through interviews and questionnaires. This approach was chosen to minimize bias and enhance the validity of the research findings. A total of 64 participants were selected based on the inclusion and exclusion criteria. The inclusion criteria were as follows: postpartum women between two weeks and six months postpartum; aged 20–35 years; living with their baby, husband, or family; and willing to participate in the study. The exclusion criteria included postpartum women reliant on medical technology (mechanical ventilation, oxygen therapy, or nutritional and pharmacological interventions); those with childbirth complications (e.g., hemorrhage, uterine inversion, amniotic fluid embolism, or eclampsia); women with pre-existing psychological disorders before childbirth; nulliparous women; and women who gave birth to twins. The sample size was calculated using the Laneshow formula, adapted from the study conducted by Pane & Purba in 2020, which used a proportion value of 0.8 derived from the journal "Postpartum Fatigue Among Primiparous and Multiparous Mothers in the Working Area of Puskesmas Piyungan, Bantul Regency: A Comparative Study."

Purposive sampling was conducted by interviewing potential respondents to ensure they met the inclusion criteria. Those eligible were provided with a detailed explanation of the study, signed informed consent forms, and subsequently completed the questionnaire.

Quality of life (QoL) was assessed using the Short Form-12 (SF-12) questionnaire, published by John E. Ware Jr. and Sherbourne CD in 1996. This questionnaire is a shorter version of the SF-36, with QoL scores classified as poor (12–24), moderate (25–36), and good (37–48).20 Postpartum fatigue levels were measured using the Postpartum Fatigue Scale (PFS), developed by Milligan in 1997, consisting of 10 items with classifications as mild fatigue (10–14), moderate fatigue (15–20), and severe fatigue (21–40). Scores were determined based on participants' responses, and total scores were calculated according to the predefined classifications.

The study variables included postpartum fatigue level as the independent variable, quality of life (QoL) as the dependent variable, and age as the control variable. Several strategies were implemented to minimize bias. First, researchers ensured that the selected sample had relevant information, enhancing the meaningfulness and validity of the data. Second, clear exclusion criteria were established, such as excluding women with psychological disorders, as these conditions could influence fatigue levels both physically and mentally. Psychological disorders can lead to physiological changes that deplete energy levels, with stress hormones like cortisol affecting metabolism and causing fatigue. A persistent "alert" state can result in physical and emotional exhaustion. Additionally, fatigue stemming from psychological disorders may impact cognitive functions such as concentration, memory, and decision-making. To verify participants' mental health status, medical records from secondary data sources were reviewed. Nulliparous women and those who gave birth to twins were also excluded, as the interventions received by these groups may differ, potentially influencing proportional fatigue levels and affecting the physical and emotional adaptation that impacts maternal quality of life.

Data processing was conducted using IBM Statistical Package for the Social Sciences (SPSS) version 26, following several stages, including univariate and bivariate analyses. Univariate analysis involved descriptive statistics for each variable, examining the distribution and percentage of research outcomes. This study's univariate analysis included demographic characteristics (maternal age) and obstetric characteristics (postpartum period). Bivariate analysis examined the relationship between the independent variable (postpartum fatigue level) and the dependent variable (QoL). The Spearman's rho test was used for bivariate analysis, yielding a Spearman correlation coefficient (ρ) ranging from -1 to 1. Interpretation of the Spearman's rho test results is as follows: a ρ value approaching 1 indicates a strong positive correlation, a ρ value nearing -1 indicates a strong negative correlation and a ρ value close to 0 indicates no significant correlation. The p-value was used to determine the significance of the relationship, with $p<0.05$ indicating a statistically significant association between postpartum fatigue levels and QoL. In contrast, $p>0.05$ indicated no significant relationship.

This study received ethical approval from the Denpasar City Health Office under letter 070/14088/Dikes and was approved by the Research Ethics Committee of the Faculty of Medicine, Udayana University. Ethical clearance was granted under letter number 1029/UN14.2.2.VII.14/LT/2024 and protocol number 2024.01.1.0415, confirming that ethical research standards could conduct the study.

Results

The respondents in this study were postpartum women aged 20–35 years who visited Puskesmas II Denpasar Selatan and met the inclusion and exclusion criteria. A total of 64 postpartum women were included in the sample, selected using purposive sampling, as illustrated in Figure 1. Subsequently, univariate and bivariate data analyses were conducted to examine the correlations between variables, and the results are presented in Table 1.

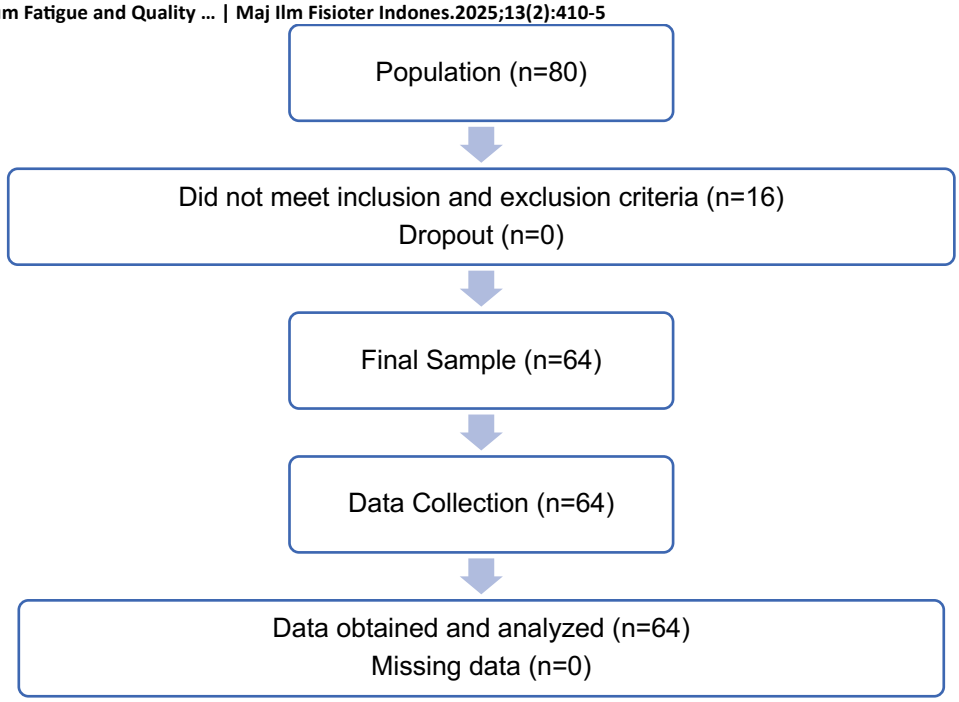

Figure 1. Flowchart of Sample Selection

Figure 1 shows that 64 postpartum women aged 20–35 years who visited Puskesmas II Denpasar Selatan were included in this study.

Table 1. Frequency Distribution of Sample Age

Characteristics	Frequency (n)	Percentage (%)
Maternal age (Mean ± SD)	28.09 ± 3.584	
20–25 years	20	31.3
26–30 years	29	45.3
31–35 years	15	23.4

Table 1 presents the age distribution of the study sample, ranging from 20 to 35 years. The majority of participants were aged 26–30 years (n = 29, 45.3%), followed by those aged 20–25 years (n = 20, 31.3%), and finally, those aged 31–35 years (n = 15, 23.4%). The frequency distribution of the postpartum period among the sample is detailed in Table 2.

Table 2. Frequency Distribution of Postpartum Period

Characteristics	Frequency (n)	Percentage (%)
≤ 2 months	23	35.9
≤ 4 months	24	37.5
≤ 6 months	17	26.6

Table 2 presents the distribution of the postpartum period among the sample, categorized into three groups: ≤ 2 months, ≤ 4 months, and ≤ 6 months. The majority of participants were in the ≤ 4 months postpartum period (n = 24, 37.5%), followed by ≤ 2 months (n = 23, 35.9%), and the ≤ 6 months group was the smallest (n = 17, 26.6%). The analysis of the relationship between fatigue levels and quality of life in postpartum women is presented in Table 3.

Table 3. Spearman-Rho Correlation and Crosstabulation Analysis

Fatigue Level	Quality of Life						Correlation	p-Value
	Poor		Moderate		Good			
	n	%	n	%	n	%		
Mild	0	0	9	34.6	17	65.4		
Moderate	2	9.5	17	81	2	9.5	-0.687	0.000
Severe	7	41.2	10	58.8	0	0		

Table 3 presents the results of the Spearman-rho correlation test, indicating a p-value of 0.000 ($p < 0.05$), which confirms a significant negative correlation between fatigue levels and quality of life in postpartum women in Denpasar Selatan. The negative correlation suggests that as fatigue levels increase, reported quality of life decreases. The correlation strength falls within the strong category, as it ranges between 0.60 and 0.79.

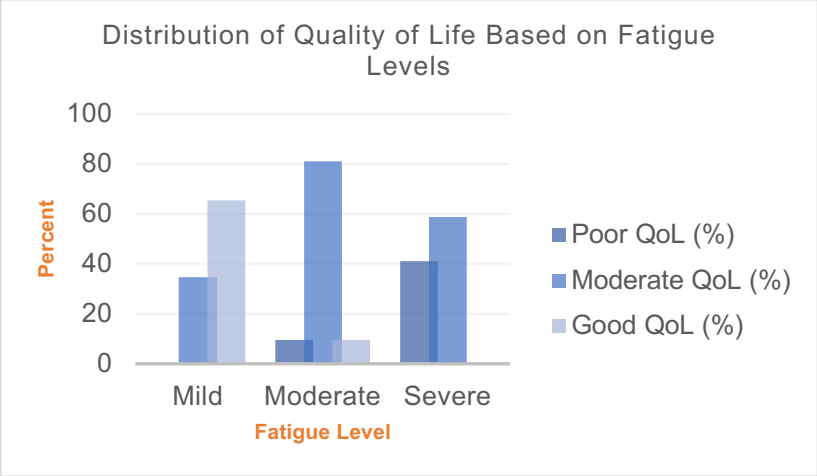

Figure 2. Bar Chart Distribution of Quality of Life Levels Based on Fatigue Levels

Discussion

Characteristics of the Research Sample

The study sample that met the inclusion and exclusion criteria consisted of 64 individuals, with an age range of 20–35 years. The mean age of the respondents was 28.09 years, with a standard deviation of 3.584. The majority of respondents were aged 26–30 years (29 respondents, 45.3%), followed by those aged 20–25 years (20 respondents, 31.3%), and finally those aged 31–35 years (15 respondents, 23.4%). This age range was selected based on research indicating that the reproductive age within this range is considered ideal for supporting reproductive health. Optimal reproductive age can reduce risks associated with childbirth and enhance physical and mental readiness for child-rearing, ultimately positively impacting maternal quality of life. Maternal readiness for motherhood also affects postpartum quality of life. A lack of preparedness for childbirth, anxiety over the ability to care for an infant, and risks associated with pregnancy, labor, and the postpartum period are more frequently observed in women under the age of 20, which negatively impacts postpartum quality of life.[9]

Regarding the postpartum period covered in this study, ranging from 2 weeks to 6 months, most respondents were within the first 4 months, predominantly in the second month. This period falls within the subacute and delayed postpartum phases. In the subacute phase, increased emotional changes and maternal attachment to the baby can contribute to greater mental and physical exhaustion. Additionally, during the delayed phase, mothers may still face challenges in adapting to their new roles, exacerbating fatigue if not met with adequate support.[13]

The Relationship Between Fatigue and Quality of Life

The Spearman's rho non-parametric analysis revealed a significant negative correlation between fatigue levels and quality of life among postpartum women in South Denpasar, with a p-value of 0.000 ($p < 0.05$) and a correlation coefficient of -0.687. The negative correlation indicates an inverse relationship: the lower the fatigue levels, the higher the quality of life. The correlation strength falls within the strong category, as it lies within the 0.60–0.79 range.

Quality of Life (QoL) refers to an individual's overall life satisfaction. According to the World Health Organization (WHO), QoL is defined as an individual's perception of their lifestyle and their assessment of life goals, expectations, standards, and concerns.[14] QoL is a multidimensional concept that affects physical, psychological, social, and spiritual aspects of an individual's performance.[15] It has been widely accepted as a key indicator of health.[16] A decline in QoL among postpartum women is influenced by various factors, including fatigue.[9]

Postpartum fatigue (PPF) is one of the most commonly reported concerns during the postpartum period. It is defined as a decline in physical, mental, and cognitive capacity after childbirth, characterized by persistent energy depletion and concentration difficulties that are not resolved merely by rest or sleep.[5] A study by Jeong-Suk Kim (2018) found a significant negative correlation between fatigue and QoL. This study involved 113 women in metropolitan areas of Korea, 6–8 weeks postpartum, with a majority of subjects aged 30 years. The results indicated that higher maternal fatigue levels were associated with lower QoL. It was suggested that maternal fatigue varies depending on infant sleep patterns, feeding routines, and feeding quality. Intervention programs are believed to be necessary to assist mothers in establishing consistent infant feeding and sleep patterns through proper maternal support. Additionally, postpartum mothers are more likely to experience fatigue when experiencing emotional mood changes, such as feelings of emptiness or postpartum depression. This highlights the need for greater attention to and education on postpartum physical and mental health management.[17]

These findings are supported by a study conducted by Jeong et al. (2021), which also reported a significant negative correlation between postpartum fatigue (PPF) and QoL among postpartum women. This study included 179 postpartum women aged over 20 years, recruited from four healthcare centers in South Korea. The study found that fatigue increases the risk of postpartum depression, exacerbates anxiety symptoms, and affects breast milk production, impacting the mother's ability to breastfeed. Fatigue also impairs maternal adaptation to the new maternal role and heightens stress related to new responsibilities.[18]

Additionally, research by S. Grylka-Baeschlin et al. (2018) identified fatigue as a crucial component of the "physical well-being" domain reported by postpartum mothers. The study highlighted fatigue as one of the most common

complaints negatively affecting overall QoL. Fatigue contributes to declines in physical health, such as prolonged pain, as well as mental health issues, including stress, anxiety, and depression. Furthermore, fatigue hinders a mother's ability to perform maternal roles and engage in social interactions, all of which negatively impact QoL.[19] Physiologically, fatigue is described as a decline in muscular and skeletal strength due to energy depletion and metabolic waste accumulation, such as carbon dioxide and lactic acid. Psychologically, fatigue manifests as a decrease in mental energy, characterized by reduced motivation, decreased problem-solving speed, and impaired accuracy.[20]

The results of this study demonstrated a significant negative correlation between postpartum fatigue and QoL ($r = -0.687$; $p = 0.000$). When compared to the findings of Jeong et al. (2021), who reported a correlation of $r = -0.760$ ($p < 0.01$), the correlation observed in this study was slightly lower. This discrepancy may be attributed to differences in sample characteristics and measurement methods.

The study focused solely on the relationship between fatigue levels and QoL among postpartum women, controlling only for maternal age, postpartum age, and cohabitation with the infant and spouse or family members. However, other variables, such as education level, occupation, income, delivery method, and parity, were not controlled. Additionally, potential biases were present, particularly selection bias, as the study employed purposive sampling, limiting the generalizability of the findings. Another limitation was the cross-sectional design, which prevented an assessment of changes in maternal QoL over time.

This study was conducted exclusively in South Denpasar, which limits its applicability to postpartum mothers from diverse social backgrounds and living conditions. Future research should involve a more diverse sample to validate these findings. Additionally, a longitudinal design is recommended to observe changes in maternal QoL over time and to understand how postpartum fatigue evolves in the long term. A mixed-method approach could also be utilized to explore mothers' subjective experiences with postpartum fatigue and the factors influencing their QoL in greater depth.

The findings of this study have important implications for policy and clinical practice, particularly in the development of postpartum education programs at community health centers. Such programs should focus on postpartum fatigue management, incorporating education on sleep patterns, nutrition, relaxation techniques, and the importance of physical activity for maintaining physical and mental health. Additionally, postpartum counseling services, both individual and group-based, facilitated by healthcare professionals such as midwives or psychologists, could be implemented. These services could help mothers manage stress, adapt to their new roles, and develop effective coping strategies to alleviate fatigue. The American College of Obstetricians and Gynecologists (ACOG) recommends that pregnant and postpartum women engage in moderate-to-vigorous physical activity for 20–30 minutes per session to maintain physical and mental well-being. Studies suggest that exercises such as Pilates and aerobics can reduce fatigue, improve sleep quality, and enhance metabolism, muscle function, and cardiovascular health. Beyond physical benefits, these activities also reduce the risk of depression and anxiety.[15]

Conclusion

Based on the study findings, it can be concluded that fatigue levels have a significant negative relationship with the quality of life in postpartum women in South Denpasar. This study highlights that higher levels of postpartum fatigue are associated with decreased physical health, an increased risk of stress and anxiety, as well as reduced participation in daily activities and social interactions, which may adversely affect maternal well-being and quality of life.

The implications of this relationship underscore the importance of managing, preventing, and minimizing postpartum fatigue to reduce the risk of prolonged exhaustion, which could impact both the physical and mental health of mothers, including the risk of postpartum depression. Further research with a longitudinal design is needed to understand changes in maternal quality of life over time. Additionally, education and interventions for postpartum fatigue management, such as psychosocial support and physical activity, should be prioritized in maternal and child healthcare services.

Author Contribution

Ni Komang Widya Aprilia: Conceptualization, methodology, data collection, data analysis, and manuscript drafting.
Ni Luh Nopi Andayani: Supervision, guidance on research design, and critical review of the manuscript.
Indah Pramita: Supervision, validation, and manuscript editing.
Putu Ayu Sita Saraswati: Supervision, methodological consultation, and final manuscript review.

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Conflict of Interest Statement

The authors declare that there are no conflicts of interest related to this study.

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Ethics Statement

This study was conducted in accordance with the ethical principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the Research Ethics Committee of the Faculty of Medicine, Universitas Udayana (Approval No. 1029/UN14.2.2.VII.14/LT/2024). All participants provided informed consent prior to data collection.

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