

Summary of the Relationship between Postpartum Depression Symptoms, Perceived Social Support, Sleep Quality, and Postpartum Stress in Elderly Parturient Women

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Abstract: Objective: To analyze the relationship between postpartum depression symptoms, perceived social support, sleep quality, and postpartum stress in elderly parturient women. Methods: 76 elderly parturient women who were admitted to the hospital for delivery between January 2023 and January 2025 were selected. Based on the Edinburgh Postnatal Depression Scale (EPDS) score, 21 cases with a score of ≥ 10 were identified as having postpartum depression symptoms, while 55 cases with a score of < 10 were identified as not having postpartum depression symptoms. The Perceived Social Support Scale (PSSS) score, Pittsburgh Sleep Quality Index (PSQI) score, and Maternal Postpartum Stress Scale (MPSS) score were compared between the two groups. The correlation between each score and postpartum depression symptoms was evaluated, and logistic regression analysis was performed to assess the influencing factors of postpartum depression symptoms. Results: The PSSS score of those with postpartum depression symptoms was lower than those without, while the PSQI score and MPSS score were higher ($P < 0.05$). Pearson linear correlation showed a negative correlation between postpartum depression symptoms and PSSS total score and dimension scores, a negative correlation with PSQI score, and a positive correlation with MPSS total score and dimension scores ($P < 0.05$). Logistic regression analysis showed that PSSS score, PSQI score, and MPSS score were all influencing factors of postpartum depression symptoms ($P < 0.05$). Conclusion: Postpartum depression symptoms in elderly parturient women are closely related to perceived social support, sleep quality, and postpartum stress. Targeted intervention for elderly parturient women is necessary to effectively prevent postpartum depression.

Keywords: Elderly parturient women; Postpartum depression symptoms; Perceived social support; Sleep quality; Postpartum stress

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1. Introduction

The age of advanced maternal age women is ≥ 35 years old, and their risk of childbirth is relatively high. They have poor psychological endurance and are prone to postpartum depression symptoms such as emotional fluctuations or sleep disorders, with an incidence rate of 10–30%. This can lead to mental disorders among puerperas, and in severe cases, there may be a tendency for self-harm and suicide, which can affect the physical and mental health of puerperas in the long term ^[1]. Therefore, it is necessary to comprehensively evaluate the negative psychology of puerperas and screen for risk factors of postpartum depression. Perceived social support refers to the ability of puerperas to resist negative psychology. During the postpartum susceptible period, positive social support can reduce the risk of postpartum depression. Insufficient sleep can increase the fatigue of advanced maternal age women, cause emotional fluctuations, and reduce their psychological adjustment ability ^[2]. Additionally, excessive postpartum stress can easily trigger depressive symptoms, keeping advanced maternal age women in a state of psychological stress for a long time, which is not conducive to postpartum recovery. Based on this, this study selected 76 advanced maternal age women to evaluate the correlation between postpartum depression and multiple factors.

2. Materials and methods

2.1. General information

76 advanced maternal age women who were admitted to the hospital for childbirth between January 2023 and January 2025 were selected. The inclusion criteria were: (1) puerperas aged ≥ 35 years old; (2) postpartum 30–42 days; (3) full-term delivery; (4) complete basic information; (5) normal cognitive and communication abilities. Exclusion criteria: (1) combined with neonatal malformations or neonatal complications; (2) puerperas with a history of mental illness; (3) combined with malignant tumors and other diseases; (4) withdrawal from the study midway.

2.2. Methods

Basic information of elderly parturient women was collected, including age, past delivery history, complications during pregnancy, delivery method, number of abortions, feeding method, and mastitis. The EPDS scale consists of 10 items, with each item scored from 0 to 3, where 0 indicates “never” and 3 indicates “always”. The total score is 30, and there is a positive correlation between depressive symptoms and scores. A score of ≥ 10 indicates the presence of depressive symptoms. The PSSS scale contains 12 items, evaluating perceived support from friends, family, and others. Each item is scored from 1 to 7, where 1 indicates “strongly disagree” and 7 indicates “strongly agree.” The total score is 84, and there is a positive correlation between perceived social support and scores. The PSQI scale includes 18 items, covering 7 aspects such as sleep latency, use of sleep medications, and sleep efficiency. Each item is scored from 0 to 3, with a total score of 21. There is a negative correlation between sleep quality and scores. The MPSS scale comprises 22 items, including infant care, personal needs and fatigue, bodily changes, and sexuality. Each item is scored from 0 to 4, where 0 represents “no stress at all” and 4 represents “extreme stress.” The total score is 88, and there is a positive correlation between postpartum stress level and scores.

2.3. Statistical analysis

Data processing was performed using SPSS 28.0 statistical software. Count data were expressed as ($n/\%$) and

compared using χ^2 test. Measurement data were tested for normal distribution using the Kolmogorov-Smirnov method and expressed as mean $\pm$ standard deviation (SD). Independent sample *t*-tests were used for comparisons between groups, and paired *t*-tests were used for comparisons within groups. Pearson linear correlation analysis was employed for correlation analysis, and logistic regression analysis was applied to investigate influencing factors. A *P*-value < 0.05 was considered statistically significant.

3. Results

3.1. Comparison of basic information between the two groups

There were no differences in the basic information of elderly parturient women between the two groups (*P* > 0.05) (Table 1).

Table 1. Comparison of basic information between the two groups (mean $\pm$ SD, *n*/%)

Group	n	Age (years)	Previous delivery history (times)		Gestational complications		Mode of delivery		
			0	≥ 1	Yes	No	Vaginal delivery	Episiotomy	Cesarean section
With Postpartum Depression Symptoms	21	38.52 $\pm$ 4.16	3 (14.29%)	18 (85.71%)	3 (14.29%)	18 (85.71%)	7 (33.33%)	5 (23.81%)	9 (42.86%)
Without Postpartum Depression Symptoms	55	38.41 $\pm$ 4.22	10 (18.18%)	45 (81.82%)	9 (16.36%)	46 (83.64%)	19 (34.55%)	18 (32.73%)	18 (32.73%)
<i>t</i> / χ^2		0.102		0.163		0.049		0.845	
<i>P</i>		0.919		0.687		0.824		0.655	

Group	n	Number of abortions (times)		Feeding method			Mastitis	
		0	≥ 1	Breastfeeding	Mixed feeding	Formula feeding	Yes	No
With Postpartum Depression Symptoms	21	16 (76.19)	5 (23.81)	5 (23.81)	10 (47.62)	6 (28.57)	6 (28.57)	15 (71.43)
Without Postpartum Depression Symptoms	55	42 (76.36)	13 (23.64)	18 (32.73)	23 (41.82)	14 (25.45)	16 (29.09)	39 (70.91)
χ^2			0.000		0.573			0.080
<i>P</i>			0.987		0.449			0.961

3.2. Comparison of scores between the two groups

Patients with comorbid postpartum depressive symptoms had lower PSSS scores and higher PSQI and MPSS scores than those without comorbid postpartum depressive symptoms (*P* < 0.05) (Table 2).

Table 2. Comparison of scores between the two groups (mean $\pm$ SD, scores)

Group	n	PSSS score				PSQI score	MPSS score			
		Friend support	Family support	Other support	Total score		Infant care	Personal needs & fatigue	Physical changes & sex	Total score
With PPD	21	22.92 $\pm$ 3.48	23.81 $\pm$ 2.87	22.51 $\pm$ 2.98	69.24 $\pm$ 6.22	7.35 $\pm$ 1.58	6.41 $\pm$ 1.58	6.29 $\pm$ 1.51	3.26 $\pm$ 0.59	15.96 $\pm$ 2.47
Without PPD	55	26.84 $\pm$ 3.74	28.45 $\pm$ 3.15	26.14 $\pm$ 3.06	81.43 $\pm$ 8.15	10.19 $\pm$ 1.61	4.51 $\pm$ 1.42	5.03 $\pm$ 1.43	2.94 $\pm$ 0.46	12.48 $\pm$ 2.15
t-value		4.162	5.879	4.657	6.191	6.911	5.056	3.383	2.503	6.054
P-value		0.000	0.000	0.000	0.000	0.000	00.000	0.000	0.015	0.000

3.3. Pearson correlation analysis

Pearson linear correlation showed a negative correlation between postpartum depressive symptoms and PSSS, PSQI scores, and a positive correlation with MPSS scores ($P < 0.05$) (Table 3).

Table 3. Pearson correlation analysis

EPDS score	PSSS score				PSQI score	MPSS score			
	Friend support	Family support	Other support	Total score		Infant care	Personal needs & fatigue	Physical changes & sexuality	Total score
r	-0.38	-0.45	-0.42	-0.48	0.48	0.36	0.52	0.39	0.48
P	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001

3.4. Logistics regression analysis

Using EPDS scores as the dependent variable, and PSSS, PSQI, and MPSS scores as independent variables, a stepwise forward method was implemented using multiple linear regression analysis. Substituting the scores into the regression equation revealed that lower PSSS scores, lower PSQI scores, and higher MPSS scores were associated with more severe postpartum depressive symptoms among older mothers ($P < 0.05$) (Table 4).

Table 4. Logistics regression analysis

Variable	β	SE	OR	95% CI	P
PSSS Score	-0.132	0.024	0.876	0.836 - 0.919	<0.001
PSQI Score	0.445	0.073	1.560	1.352 - 1.801	<0.001
MPSS Score	0.146	0.026	1.157	1.100 - 1.218	<0.001

4. Discussion

After childbirth, multiple hormone levels in the bodies of older mothers decrease, which can easily induce neurological disorders in the brain, leading to excessive emotional excitation. Additionally, the hormone regulation ability and ovarian function of older mothers decline, resulting in a pronounced hormone withdrawal effect ^[3]. Furthermore, due to age limitations, older mothers have a slower postpartum recovery rate and face multiple

pressures, such as their own physical recovery and newborn care, which can lead to pronounced psychological states such as anxiety and depression. Considering these factors, older mothers are at a higher risk of developing postpartum depressive symptoms, requiring a comprehensive assessment of influencing factors to develop targeted intervention strategies ^[4].

The results showed that the PSSS scores of those with comorbid postpartum depressive symptoms were lower than those without, while the PSQI and MPSS scores were higher ($P < 0.05$). Pearson linear correlation analysis revealed a negative correlation between postpartum depressive symptoms and PSSS scores, as well as PSQI scores, and a positive correlation with MPSS scores ($P < 0.05$). Logistic regression analysis indicated that lower PSSS scores, lower PSQI scores, and higher MPSS scores were associated with more severe postpartum depressive symptoms among older mothers ($P < 0.05$). This may be because older mothers face changes in physical function after childbirth, leading to heightened sensitivity to the surrounding environment. Prolonged newborn care can reduce their external contacts, thereby decreasing perceived social support and causing feelings of loss or irritability, which may lead to postpartum depressive symptoms ^[5]. Nighttime newborn care after childbirth can also reduce the sleep quality of older mothers, and continuous decline in sleep quality and chronic sleep deprivation are major contributing factors to postpartum depressive symptoms, directly affecting emotional stability and potentially leading to more severe physical symptoms. Older mothers have a longer postpartum recovery period and face heavy parenting responsibilities and greater economic pressure, which can significantly increase their psychological burden. Additionally, postpartum hormonal changes can easily lead to emotional instability. Under the influence of these multiple factors, older mothers are prone to depressive symptoms ^[6].

Based on the above research findings, it is necessary to establish a coordinated support system for advanced-age mothers. This involves providing health education to the spouses of these mothers, emphasizing the importance of the husband's role in postpartum recovery and newborn care. By encouraging spouses to actively take on parenting responsibilities, listen patiently to the inner feelings of the mothers, and provide timely praise and encouragement, emotional support can be provided. Weekly family meetings should be organized to clearly delineate each member's parenting responsibilities, thereby reducing the intensity of childcare for the mother ^[7]. Community resources should be fully utilized to form support groups for advanced-age mothers, where offline exchange activities can be held irregularly. This encourages mothers to share experiences and express feelings, reducing postpartum loneliness or anxiety. Adjustments to sleep strategies for the mothers are also important. When the newborn sleeps during the day, mothers should be encouraged to take short naps, synchronizing their sleep with the baby. At night, a rotating newborn care schedule can be implemented to ensure that the mother can achieve more than 6 hours of sleep, thereby improving sleep quality. For those who have difficulty falling asleep, mindfulness meditation training, music therapy, or deep breathing exercises can be recommended to fully relax and shorten the time it takes to fall asleep ^[8]. Long-term psychological counseling should be provided for those who experience significant postpartum stress. Healthcare professionals can keep contact information for advanced-age mothers and conduct weekly phone calls or WeChat follow-ups to understand their current psychological state. By utilizing psychological knowledge or successful cases, negative emotions can be addressed and alleviated.

5. Conclusion

In summary, there are many influencing factors contributing to postpartum depressive symptoms among advanced-age mothers. It is essential to provide social support, sleep guidance, and psychological counseling to reduce the

incidence of depressive symptoms and ensure effective postpartum recovery.

Disclosure statement

The authors declare no conflict of interest.

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