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Health Behaviors Related to Hemorrhoids and Influencing Factors among Postpartum Women

Shuqi Xie[1,a], Qiumu Tang[1,b], Anyun Lin[1,c,*]

[1]Department of Obstetrics, The Second Affiliated Hospital of Guangzhou Medical University, Guangzhou, China
[a]xsq2534723532@163.com, [b]349032422@qq.com, [c]Lay201201@163.com
[*]Corresponding author

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Abstract: In the current context where women's health during the perinatal period is highly concerned, the details of postpartum women's physical recovery have become a research focus. This study focuses on the health behaviors related to hemorrhoids in postpartum women and delves into the underlying influencing factors and thoroughly identified the underlying influencing factors. During the research process, a comprehensive and detailed evaluation of postpartum hemorrhoid women was conducted through rigorous design and the use of various targeted questionnaires. Postpartum women with haemorrhoids were assessed using various questionnaires. Data analysis showed that health behaviour were generally low and correlated with age, haemorrhoid severity, pain, bleeding, and prolapse symptoms. Positive correlations were found between health behaviours, proactive coping strategies, and psychological. Haemorrhoid severity and proactive coping were significant predictors of health behaviours, with psychological resilience playing a mediating role. Clinical interventions that promote proactive coping and resilience are crucial for improving symptoms in postpartum women.

1. Background

Haemorrhoids are the most common anorectal disease during pregnancy and the postpartum period, with an incidence rate of 64.06% [1](Cheng et al., 2022). Various factors contribute to this condition, including hormonal changes, increased blood volume, elevated abdominal pressure during pregnancy, prolonged second-stage labour, and traumatic delivery [2-4]. Pregnancy and childbirth can increase the risk of haemorrhoids nearly eightfold[5]. Improper dietary supplementation and nutritional imbalances during the perinatal period can disrupt the digestive system, leading to diarrhoea or constipation, thereby increasing the likelihood of developing haemorrhoids[6].

Postpartum haemorrhoid symptoms, such as anal swelling, pain, and acute or chronic bleeding, significantly affect daily activities like urination, defaecation, postpartum uterine contraction, sleep, and breastfeeding. These symptoms ultimately lower the postpartum quality of life [7]. As a chronic condition that severely impacts patients' quality of life, haemorrhoids have broader implications for women during pregnancy, affecting their experiences of diagnosis, acute episodes, and treatment.

Additionally, due to the sensitive nature of anorectal diseases and the associated privacy concerns, many individuals hesitate to discuss their condition with others, resulting in feelings of anxiety, shame, and social avoidance[8].

Patients often face physical, psychological, and self-esteem challenges throughout the onset and treatment of haemorrhoids. However, adopting healthy behaviours can alleviate symptoms and improve overall quality of life [9-11]. According to the triadic influence (TTI) theory [12], behavioural, personal, and environmental factors are interrelated. Subjective factors, such as expectations, beliefs, and emotions, influence behaviour, while feedback from these behaviours, in turn, affects beliefs and emotions. This study, therefore, aimed to analyse the current state of health-related behaviours in postpartum women with haemorrhoids, identify influencing factors, and explore the correlation between psychological resilience and positive coping strategies. The findings provide a foundation for clinical interventions aimed at improving patient outcomes.

2. Methods

2.1. Study Design

This cross-sectional study was conducted between November 2023 and February 2024. The participants were postpartum women diagnosed with haemorrhoids at a hospital in Guangzhou, China. After explaining the research procedures and obtaining informed consent, participants completed a questionnaire, which took approximately 30 min and was collected on-site. The inclusion criteria were: (1) having received prenatal care and delivered at the hospital; (2) a singleton pregnancy without complications; (3) a diagnosis of haemorrhoids via postpartum analoscopy (including internal, external, and mixed haemorrhoids); (4) good cognitive and communication abilities; and (5) consent to participate in the study. Exclusion criteria included: (1) severe mental illness, cardiovascular disease, or kidney disease; and (2) adverse pregnancy outcomes. A total of 86 postpartum women participated in the study (mean age 30.8 ± 4.2 years), and there was no missing data.

2.2. Measurement Tools

2.2.1. General Information

This section included patient details such as name, age, residency, number of pregnancies, delivery method, haemorrhoid grade, and symptoms like pain, bleeding, and prolapse of the hemorrhoidal tissue.

2.2.2. Health-related Behaviours Assessment

The *Haemorrhoid-Related Health Behaviour Scale* [9] was used to evaluate health behaviours. The scale consists of 26 items covering five dimensions: diet, exercise, hygiene and defaecation, stress coping, and learning. Each item was scored on a 5-point Likert scale (1–5). The scale demonstrated good reliability (Cronbach's $\alpha = 0.78$) and strong content validity (average content validity = 0.91).

2.2.3. Coping Strategies Assessment

The *Simplified Coping Style Questionnaire* [12] was used to assess positive coping strategies. This scale includes 12 self-assessment items, with responses on a 4-point scale (0–3 points). In this study, the Cronbach's α reliability for the positive coping subscale was 0.87.

2.2.4. Resilience Assessment

Resilience, a form of psychological adaptation, has been shown to positively influence coping strategies and quality of life [13]. The *Chinese version of the Connor-Davidson Resilience Scale* (CD-RISC-10) [14] was employed to assess psychological resilience. Items were scored on a 5-point Likert scale (0–4), and the scale exhibited high reliability (Cronbach's α= 0.9), with higher scores indicating greater resilience.

2.3. Statistical Analysis

The participants' characteristics were described using both quantitative and qualitative methods. Quantitative variables are reported as means and standard deviations (SD), while qualitative variables are presented as absolute numbers and percentages. The Shapiro-Wilk test was used to assess the normality of quantitative variables. Factors influencing haemorrhoid-related health behaviours were analysed using a one-way ANOVA and logistic regression analysis. Mediation analysis was conducted to test the hypotheses within the proposed conceptual framework, exploring the mediating role of psychological resilience between positive coping strategies and haemorrhoid-related health behaviours. Statistical significance was defined as $p < 0.05$.

3. Results

3.1. Preliminary Analyses

Descriptive statistics and correlations among the variables are presented in Table 1 and Table 2. Haemorrhoid-related health behaviour scores were found to be significantly associated with age, haemorrhoid grade, pain, bleeding, and prolapse (P<0.05). Pearson's correlation analysis revealed that health behaviour scores were positively correlated with both positive coping strategies and psychological resilience levels (all P<0.05).

Table 1. Descriptive statistics

Variables	Mean (z±s)
Haemorrhoid-related health behaviours	88.6±6.7
Diet	19.7±1.6
Exercise	14.7±2.0
Hygiene and bowel movement	31.6±1.9
Stress coping	16.6±2.3
Learning	5.8±1.9
Positive coping styling	28.9±4.0
Psychological resilience	32.9±2.49

Table 2. Bivariate correlations and descriptive statistics

	Variables	F|t	P
Haemorrhoid-related health behaviours	Age	1.995	0.034
	Pregnancy number	0.441	0.778
	Mode of delivery	1.64	0.204
	Haemorrhoid's grade	37.2	<0.001
	Pain	25.24	<0.05
	Bleeding	25.71	<0.001

3.2. Binary Logistic Analysis

Haemorrhoid-related health behaviour scores were categorised into binary dependent variables

based on their average levels. The binary logistic regression analysis identified haemorrhoid grade and positive coping strategies as significant predictors, Coefficients of the regression analysis for haemorrhoid-related health behaviours are shown in Table 3. Both variables were entered into the regression model, yielding a statistically significant result (F = 66.796, P < 0.001, R2 = 0.54).

Table 3. Coefficients of the regression analysis for haemorrhoid-related health behaviours

	Variable	coefficient	SE	t	p	Exp(b)	95% C.I.	
Haemorrhoid-related health behaviours	Haemorrhoids grade	1.941	0.707	7.54	0.006	6.965	1.743	27.83
	Coping style	0.699	0.197	12.56	<0.001	2.011	1.367	2.959

3.3. Mediation Testing

The path coefficients for model 1 are presented in Figure 1. As hypothesised, psychological resilience partially mediated the relationship between coping style and haemorrhoid-related health behaviours, as indicated by a significant indirect effect (β = 0.147, p < 0.05). The direct effect was also significant (β = 0.895, SE = 0.115,p<0.05), confirming partial mediation. No significant effects were observed for the covariates. Psychological resilience explained a significant amount of variance in the model (R^2 = 0.702, p < 0.01), further supporting its mediating role.

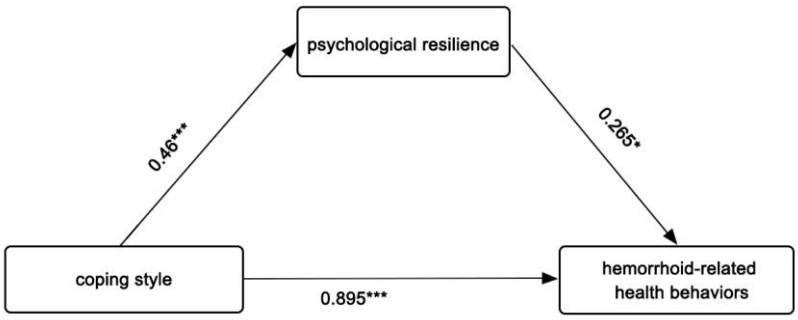

Figure 1: The path coefficients for model 1

4. Discussion

4.1. The Risk of Haemorrhoids in Postpartum Women Compared to General Women

Pregnancy and childbirth are complex physiological processes that require extensive adaptive changes in a woman's body to create an optimal environment for foetal growth and development. [15] As pregnancy progresses, the uterus expands, blood volume increases significantly, and intra-abdominal pressure rises. These factors collectively impede venous return from the haemorrhoidal plexus, causing an increase in capillary pressure. Additionally, during pregnancy, progesterone levels can reach 25–40 times those of the normal population[2]. Elevated progesterone relaxes intestinal smooth muscles, reducing their motility and impairing normal rectal and anal functions [16]. Changes in dietary habits and reduced physical activity further disrupt bowel movements, leading to hard stools and straining during defaecation, which can cause haemorrhoid's [17].

During the second stage of labour, when the mother holds her breath and pushes, intrarectal and anal canal pressures sharply increase. Anal dilation and mucosal eversion can be observed at this stage, while excessive stretching or tearing can damage the supportive tissues and elastic fibres of the anal cushions. Coupled with direct pressure from the foetal head, these weakened cushions are

more likely to become displaced [3]. Haemorrhoids often exacerbate during labour or after immediately after vaginal delivery, causing severe pain and bleeding, which significantly affects the quality of life for postpartum women. Research shows a direct correlation between the number of pregnancies and deliveries and the risk of developing haemorrhoids[18]. As pregnancies and childbirths increase, so does the prevalence of haemorrhoids, and rectal symptoms tend to worsen. While haemorrhoids are not life-threatening, they have considerable impact on postpartum women's comfort and quality of life, making this a significant public health concern that requires urgent attention [11].

4.2. Insufficient Attention from Healthcare Providers and Postpartum Patients Regarding Haemorrhoids

The present study found that postpartum women with haemorrhoids generally had low health behaviour scores. This may be due to the role transition that occurs after childbirth, where mothers focus primarily on breastfeeding and the growth and development of their infants, often neglecting their own health. This finding is consistent with previous research by Yuan et al. (2001)[19], which highlighted the challenges first-time mothers face during this transition. The lack of excessive reinforcement of their new role can negatively affect their physical and mental health. In an interventional study by Åhlund et al. (2018)[20], women expressed that haemorrhoid symptoms are often considered private and sensitive, leading to feelings of isolation and helplessness.

Furthermore, discussions regarding haemorrhoid care are rare in studies focusing on postpartum diseases and the continuity of care for postpartum women. Although hemorrhoids are common in this population, there is a lack of comprehensive care and risk factor intervention throughout the perinatal period. Despite the high incidence and numerous risk factors, healthcare providers and patients alike have not given this issue the attention it deserves.

4.3. Health Behaviours Related to Haemorrhoids and Their Influencing Factors

Haemorrhoids are a condition that can be controlled and prevented through lifestyle adjustments [21]. Encouraging healthy behavioural habits is therefore crucial for symptom relief and prevention of recurrence [22]. In this study, all the participants exhibited symptoms such as hemorrhoidal prolapse, rectal bleeding, and varying degrees of pain. Notably, six participants were diagnosed with grade 4 haemorrhoids, characterised by severe perianal swelling, intense pain, and irreducible hemorrhoidal prolapse.

When examining haemorrhoid-related health behaviours across five dimensions, we found that the exercise dimension had a concerningly low average score of 14.7±2.0. Previous research has shown that exercises like anal contraction and pelvic floor lifting can effectively prevent haemorrhoids and reduce patient discomfort[23] (Chen & Zhang, 2023). The learning dimension also had a low average score (5.8±1.9), indicating a significant lack of knowledge about haemorrhoids among patients[24]. Further analysis revealed that haemorrhoid-related health behaviour scores were significantly associated with age, severity of haemorrhoids, pain, and bleeding, in line with the trend of increasing haemorrhoid incidence with age[25].

Patients with haemorrhoids often experience reduced self-concept and changes in social adaptability. Due to the sensitive nature of the condition, many patients find it difficult to discuss their symptoms, sometimes leading to avoidant social behaviours that negatively impact mental health. This study explored the role of psychological factors and coping strategies in shaping the health behaviours of postpartum women. Results indicated that positive coping strategies and psychological resilience were both positively correlated with health behaviour scores. The average score for positive coping strategies was 28.9±4.0, and the average score for psychological resilience

was 32.9±2.49, demonstrating that these factors promote the development of healthy behaviours.

Through binary logistic regression analysis, we found that the number of haemorrhoids and positive coping strategies were significant predictors of health behaviours. Positive coping strategies were more accurate in predicting health behaviour levels by enhancing psychological resilience, which played a partial mediating role in this process.

4.4. Effectively Controlling Risk Factors to Promote the Formation of Haemorrhoid-Related Health Behaviours

Research has shown that health-focused behavioural interventions targeting controllable risk factors can significantly reduce the incidence and recurrence of haemorrhoid's [26]. Clinical trials have demonstrated that prenatal health education combined with specific dietary and lifestyle modifications can reduce the occurrence of postpartum haemorrhoid's [27]. To this end, healthcare providers can utilise the "Internet +" service model to create personalised exercise prescriptions, healthcare guidelines, and dietary plans for pregnant women, aiming to mitigate unhealthy lifestyle habits and effectively manage haemorrhoid risk.

Obstetric outpatient clinics should establish offline workshops to provide one-on-one health guidance on haemorrhoid-related knowledge for postpartum woman. Dietary recommendations should include a light, fibre-rich diet with increased intake of fruits and vegetables while avoiding of excessive supplementation during pregnancy and the postpartum period to prevent constipation [28-31]. Additionally, patients should be advised on proper perineal and anal hygiene after bowel movements to reduce local irritation. For hemorrhoidal prolapse, it is recommended to gently press the prolapsed tissue back into the anal canalafter applying topical medication to alleviate oedema [23].

Healthcare providers play a crucial role in enhancing patient self-management skills and disease awareness. Comprehensive education on haemorrhoid management can foster the development of healthy behaviours, which is essential for improving the overall health of postpartum women with haemorrhoids. Medical professionals should guide patients toward seeking social support networks, building confidence, enhancing psychological resilience, and positively reshaping their self-image, thus laying a strong foundation for healthy behaviour development.

5. Conclusion

In summary, postpartum women with haemorrhoids generally exhibit low scores in health behaviour, and these scores are influenced by factors such as age, haemorrhoid grade, symptom severity, coping strategies, and psychological resilience. This study highlights a significant relationship between health behaviours, coping strategies, and psychological resilience in this population. Enhancing psychological resilience and encouraging positive coping strategies are essential for promoting healthier behavioural habits and reducing haemorrhoid symptoms. Targeted health education and clinical interventions are crucial for helping postpartum women effectively manage their health.

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