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ORTHOSTATIC HYPOTENSION AND ITS ASSOCIATION WITH FAMILY SCAPEGOATING ABUSE IN POSTPARTUM WOMEN OF NDOLA, ZAMBIA

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Abstract:
This cross-sectional study investigated the prevalence of orthostatic hypotension (OH) and its association with family scapegoating abuse (FSA) and mental health symptoms among postpartum women aged 20–30 years in Ndola, Zambia. A total of 666 postpartum women stratified by parity (one or three) were assessed using standardized standing blood pressure measurements to identify OH, defined by ≥20 mm Hg systolic or ≥10 mm Hg diastolic drop within 3 minutes of standing. Psychosocial variables were evaluated using the Family Scapegoating Abuse Questionnaire (FSA-25) and the Depression Anxiety Stress Scale (DASS-21). The overall prevalence of OH was 13.96%. Family

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scapegoating abuse affected 25% of participants, classified as mild (4.2%), moderate (13.2%), and severe (7.2%). A statistically significant association existed between OH and higher levels of FSA ($\chi^2(3) = 223.72$, $p < 0.001$), with women experiencing OH more likely to report moderate to severe abuse. Body mass index (BMI) showed a strong relationship with both conditions: obese women had over nine times the odds of OH (OR = 9.19, 95% CI: 4.46–18.92) compared to normal/underweight counterparts, and higher obesity rates were observed in women reporting moderate and severe abuse. Sociodemographic factors such as education level, employment status, and marital status were characterized but showed less direct association with OH. These findings reinforce the complex interplay of physiological and psychosocial stressors in postpartum cardiovascular regulation. The study highlights the importance of integrated postpartum care approaches in low-resource settings that address physiological and mental health dimensions, particularly family dynamics and social support. Future longitudinal studies are recommended to clarify causal pathways and optimize interventions to improve maternal cardiovascular outcomes in Zambia.

Keywords: orthostatic hypotension, postpartum women, family scapegoating abuse, mental health, BMI, Zambia

1. Introduction

Orthostatic hypotension (OH) is defined as a significant drop in blood pressure upon standing. Specifically, a systolic decrease of ≥20 mm Hg or a diastolic decrease of ≥10 mm Hg within three minutes that can result in dizziness, fainting, and increased cardiovascular risk (Freeman et al. 2011). Postpartum women may be particularly vulnerable due to physiological changes during pregnancy and delivery, compounded by psychosocial stress and mental health disorders, including depression, anxiety, and stress (Cheng et al. 2011). Family scapegoating abuse (FSA) involves blame, exclusion, or psychological maltreatment within the family system and may heighten distress and autonomic dysregulation, exacerbating conditions like OH (Hamilton-Giachritsis and Browne 2005). Despite the growing recognition of the impact of psychosocial factors on cardiovascular health, the intersection of OH, mental health symptoms, and family scapegoating abuse in postpartum women has been understudied, particularly in resource-limited contexts such as Ndola. To date, no study has examined this in the Zambian context. This study aims to fill this gap by examining the prevalence of OH among postpartum women and its association with family scapegoating abuse and mental health symptoms, thereby contributing valuable insights for holistic postpartum care.

2. Methods

A cross-sectional study design was employed in Ndola, Zambia, recruiting 666 postpartum women aged 20 to 30 years from community health centers and local outreach programs. Participants were stratified by parity: parity one (n = 305) and parity three (n = 361). Sociodemographic data, including age, education, employment, marital status, and body mass index (BMI), were recorded. OH was measured using standardized standing blood pressure protocols, with criteria defined as a drop in systolic blood pressure ≥20 mm Hg or diastolic blood pressure ≥10 mm Hg within three minutes of standing (Campos Munoz et al. 2023). Family scapegoating abuse was assessed using the validated Family Scapegoating Abuse Questionnaire (FSA-25) (Balapala et al. 2024), and mental health symptoms were evaluated with the Depression Anxiety Stress Scale (DASS-21) (Lovibond and Lovibond 1995). Data analysis utilized descriptive statistics and chi-square tests to evaluate associations, with significance set at $p < 0.05$.

3. Results

Participants were balanced by age groups, with 53.8% aged 20–25 years and 46.2% aged 26–30 years. Most had attained diplomas (53%) or bachelor's degrees (20%), and 65.6% were unemployed. The majority were married (55.4%), with BMI categories distributed as 53.5% underweight, 41% normal weight, and 5.6% overweight. The overall prevalence of OH was 13.96% (n = 93). Family scapegoating abuse was reported in 25% of women: 4.2% mild, 13.2% moderate, and 7.2% severe. There was a significant association between OH and FSA categories ($\chi^2(3) = 223.72$, $p < 0.001$), with women experiencing OH more likely to report moderate (FSA = 2) or severe abuse (FSA = 3). BMI was also strongly linked to both conditions: obese women had over nine times the odds of OH compared to normal/underweight women (OR = 9.19, 95% CI 4.46–18.92). Higher obesity rates were observed among women with moderate to severe FSA, indicating a compounding relationship between physiological and psychosocial stressors postpartum.

Table 1: Prevalence of Orthostatic Hypotension (OH), Family Scapegoating Abuse (FSA G), and BMI in Postpartum Women

Variable	Category	Frequency (n)	Percent (%)
Orthostatic Hypotension (OH)	0 (No OH)	573	86.04
	1 (OH)	93	13.96
Family Scapegoating Abuse (FSA G)	0 (None)	502	75.38
	1	28	4.2
	2	88	13.21
	3	48	7.21
BMI Categories	0 (Normal/Underweight)	-	53.45
	1 (Overweight)	-	40.99
	2 (Obese)	-	5.56

The above table shows that while most postpartum women in this study did not have OH or experience FSA, a notable minority of 13.96% did have OH. Additionally, a combined 46.55% of the women were classified as either overweight or obese, indicating a significant portion of the population with elevated BMI.

Table 2: BMI Distribution by Orthostatic Hypotension Status and Family Scapegoating Abuse Grades

BMI Category	OH = 0 (n=573)	OH = 1 (n=93)	Total (n=666)	FSA G = 0 (n=502)	FSA G = 1 (n=28)	FSA G = 2 (n=88)	FSA G = 3 (n=48)	Total (n=666)
Normal/ Underweight (0)	53.58%	52.69%	53.45%	49.60%	89.29%	61.36%	58.33%	53.45%
Overweight (1)	43.80%	23.66%	40.99%	47.61%	7.14%	25.00%	20.83%	40.99%
Obese (2)	2.62%	23.66%	5.56%	2.79%	3.57%	13.64%	20.83%	5.56%

This table clearly shows the percent distributions of BMI categories for participants without and with OH, as well as across FSA grades from none to severe, within the total sample of 666 postpartum women.

4. Discussion

The finding of a 13.96% OH prevalence in postpartum women aligns with rates reported in adult populations, which can range from 5% in younger individuals to over 30% in older populations and underscores its clinical significance (Freeman, R., et al. 2011). The robust association between family scapegoating abuse and OH suggests that psychological stress from family dysfunction may contribute to autonomic dysregulation in postpartum cardiovascular health (Ebong et al. 2024). The role of obesity as a strong risk factor for OH and severe scapegoating abuse highlights the importance of considering BMI in postpartum care, though the family scapegoating abuse grades show a mixed pattern with BMI.. These data reinforce the need for integrated health care approaches addressing both physiological and psychosocial factors, particularly in settings where mental health stigma and family dynamics influence health outcomes (Ahad et al. 2023). The cross-sectional design limits causal inference, and potential reporting bias in FSA assessment warrants cautious interpretation; longitudinal research is needed to explore temporal relationships.

5. Conclusion

This study provides evidence of a notable prevalence of orthostatic hypotension among postpartum women in Ndola and reveals a significant correlation between OH and family scapegoating abuse. Given the critical interplay of physiological and psychosocial factors, postpartum care programs should incorporate mental health and family support interventions alongside cardiovascular screening to reduce adverse outcomes. These findings advocate for comprehensive, culturally sensitive maternal health services in Zambia aimed at improving both physical and psychological well-being.

Ethical Approval Statement
The study was conducted after getting approval from the National Health Research Authority, Lusaka, in 2025, with Ref No: NHRA2066/22/03/2025

Declaration of Patient Consent
The authors certify that they have obtained all appropriate patient consent.

Financial Support and Sponsorship Statement
Nil.

Data Availability
The datasets analysed during the current study are available from the corresponding author on reasonable request

Use of Artificial Intelligence (AI)-assisted Technology for Manuscript Preparation
The authors confirm that there was no use of artificial intelligence (AI)-assisted technology for assisting in the writing or editing of the manuscript, and no images were manipulated using AI.

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Conflict of Interest Statement
The authors declare no conflicts of interest.

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