

Use of transfer techniques for women giving birth with postpartum haemorrhage (PPH) by midwives in the urban-rural health zone of Bunia: Experiences, difficulties, and perspectives of midwives

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ABSTRACT

Introduction

Maternal mortality due to postpartum haemorrhage (PPH) during the transfer of women giving birth remains a major global public health problem, according to the World Health Organization (WHO), particularly in areas affected by armed conflict.

Purpose

The aim of this study was to improve the quality of care for women experiencing postpartum haemorrhage.

Methods

A qualitative phenomenological study was conducted in the urban-rural health zone of Bunia to describe and understand individual phenomena based on the lived experiences of midwives. Data were collected using semi-structured interviews, while indicative coding and data triangulation were applied during analysis. A total of 28 midwives actively participated in the study.

Results

The findings reveal widespread dissatisfaction among healthcare providers with the transfer techniques currently in use. Testimonies indicate that the clinical condition of patients upon arrival at referral facilities is often very critical, highlighting the ineffectiveness of existing transfer practices. Midwives also reported frustration related to inadequate resources, shortages of staff, and the limited availability of ambulances for emergency response. These challenges contribute to negative perceptions of the care provided during the transfer of women with postpartum haemorrhage and underscore the urgent need for systemic improvements.

Conclusion

To improve the care of women in labour suffering from postpartum haemorrhage in the urban-rural health zone of Bunia, it is recommended to integrate innovative interventions such as shock-absorbing trousers, strengthen care and transport infrastructure, ensure regular training of healthcare personnel, and guarantee the availability of essential pharmaceutical products.

INTRODUCTION

Worldwide, postpartum haemorrhage (PPH) remains the leading cause of maternal morbidity and mortality. It accounted for approximately 20% of maternal deaths during the period 2004–2006. One factor that distinguishes European countries in this regard is the existence of maternal death surveillance systems. While such systems are highly robust in some countries, they remain less effective in others (Dupont et al., 2014).

Postpartum haemorrhage is responsible for approximately 35% of maternal deaths in developing countries and about 25% of maternal deaths worldwide. Maternal mortality rates vary considerably across countries. For example, maternal mortality rates are estimated at 6 per 100,000 live births in Australia, 8 per 100,000 live births in France, 14 per 100,000 live births in the United States, and 27 per 100,000 live births in China (Mattern et al., 2021).

Not all healthcare facilities meet the requirements for adequate management of women experiencing postpartum haemorrhage. As a result, an increasing need for inter-facility transfers of women with PPH has been observed (Sentilhes et al., 2014). Maternal mortality from obstetric haemorrhage is closely linked to the quality of care provided, which is influenced not only by health system factors but also by the individual characteristics of women (Camara, 2024).

Sub-Saharan Africa remains one of the regions of the world where maternal mortality constitutes a major public health concern, with postpartum haemorrhage among the leading causes. The management of obstetric complications is particularly challenging in rural areas, where access to quality emergency care is limited. Obstetric haemorrhage, combined with poor access to emergency obstetric services, significantly contributes to maternal mortality. This situation is further exacerbated by persistent political and institutional instability in the region (World Health Organization [WHO], 2023).

Nigeria, for instance, has one of the highest maternal mortality rates globally, with an estimated 512 maternal deaths per 100,000 live births (Raoul et al., 2021). In Côte d'Ivoire, studies report an estimated annual maternal mortality rate of 385 deaths per 100,000 live births attributable solely to postpartum haemorrhage (Dazzi et

al., 2024). Transfers to facilities capable of managing haemorrhagic complications remain a major challenge in the country, and delays during referral significantly increase the risk of maternal death (Wattara, 2023). Consequently, the WHO has emphasised that in sub-Saharan Africa, the transfer of postpartum women suffering from PPH to better-equipped health facilities has become a matter of survival, as these transfers are often conducted under unsafe conditions (WHO, 2023).

The Democratic Republic of the Congo (DRC) is among the countries with the highest maternal mortality rates worldwide, with postpartum haemorrhage being one of the leading causes of maternal death. According to the WHO, the maternal mortality rate in the DRC in 2019 was estimated at 546 deaths per 100,000 live births (Raoul et al., 2021). Kinshasa, the country's most populous city-province, records a particularly high number of PPH cases. A study conducted at the Kinshasa Provincial General Referral Hospital reported a maternal mortality rate of 2,744 per 100,000 live births in 2018, which increased to 4,941 per 100,000 live births in 2019. Of these deaths, 87% involved women who had given birth and were transferred from health facilities unequipped to manage PPH to better-equipped referral facilities.

North Kivu Province is another region of the DRC facing severe health, political, and security challenges. A study conducted in six health zones in North Kivu showed that a significant proportion of maternal deaths were related to transfer delays. Among the women who died, 62% arrived at referral facilities within an acceptable timeframe, although their clinical condition on arrival was not documented, while the remaining 38% arrived significantly late. These findings raise concerns regarding the transfer techniques used by healthcare providers when transferring postpartum women suffering from PPH (Mbeva et al., 2018).

Similarly, Ituri Province in general, and the city of Bunia in particular, face numerous health, security, and institutional challenges that negatively affect maternal health outcomes. Many referral health facilities in the region have been destroyed, burned, or rendered non-operational due to armed conflict. This has created serious obstacles to the provision of care for women experiencing

postpartum haemorrhage. In addition, the poor condition of road infrastructure severely limits the safe and timely transport of women with PPH. Consequently, Ituri Province records a very high maternal mortality rate, with postpartum haemorrhage as the primary cause. Bunia is particularly affected, as it receives complicated and uncontrolled cases from across the province.

In Bunia, a study on maternal morbidity and mortality conducted in several health facilities aimed to describe the epidemiological and clinical characteristics of maternal deaths during pregnancy and childbirth. The study reported a maternal mortality rate of 601 per 100,000 live births and a maternal morbidity rate of 8,951 per 100,000 live births. The main causes of death were haemorrhage, uterine rupture, and related obstetric complications (Leki et al., 2021). The alarming nature of these findings in a conflict-affected area motivated this study to examine the practices used by midwives during the transfer of women in labour suffering from postpartum haemorrhage in the urban-rural health zone of Bunia, in order to clarify the scale of the challenges faced by this particularly vulnerable group.

To date, no prior studies have explored the perceptions of midwives regarding transfer techniques for postpartum haemorrhage in conflict-affected regions of the DRC. This study therefore represents a pioneering effort to examine midwives' perceptions of the quality of services provided during the transfer of women in labour to health facilities in the urban-rural health zone of Bunia.

Objective

This study aims to evaluate the techniques used by midwives during the transfer of women giving birth who are suffering from postpartum haemorrhage. It also examines structural, procedural, and outcome-related aspects of these services in relation to midwives' perceptions of the quality of care received and provided.

METHODS

Study Design

A qualitative phenomenological study was conducted during the first half of 2025 to describe individual phenomena based on the lived experiences of midwives.

Study Setting

The study was conducted in 24 public health facilities, including 23 health centres and one General Referral Hospital capable of managing PPH cases. The Bunia Urban-Rural Health Zone covers approximately 450 km² and has an estimated population of 856,000 inhabitants (Macrotrends, 2024). It comprises 23 health areas, including 19 urban and four rural areas, justifying its classification as an urban-rural health zone. The area is also experiencing a significant influx of populations displaced by armed conflict and living in temporary settlements.

Participants and Sampling

Purposive sampling was used. Participants were selected based on the following criteria: midwives present at the facility on the day of data collection, at least one year of professional experience, recent involvement in the care of postpartum women with PPH, and provision of written informed consent. A total of 45 midwives were initially approached; however, data saturation was achieved at 28 participants, as no new information emerged beyond the 29th interview.

Data Collection

Data were collected through semi-structured, face-to-face interviews. Three interview guides were developed to structure the discussions and minimise data dispersion. Questions were based on the three dimensions of the conceptual framework: structure, process, and outcomes. Data collection was facilitated using Kobo Collect for centralised data management. Interviews were conducted in French and Swahili and lasted an average of 45 minutes.

Data Analysis

Audio-recorded interviews were transcribed verbatim. Indicative coding was applied to identify themes and categories emerging directly from the data. ATLAS.ti software was used for data coding and analysis. Data triangulation (interviews, observations, and field notes) was employed to reduce subjectivity.

Ethical Considerations

The research protocol, including informed consent procedures, was reviewed and approved by the Ethics Committee of the Higher Institute of Medical Techniques of Kinshasa. Scientific Research Certificate No.

106/SF/2025 was issued by the doctoral school of ISTM/Kinshasa, authorising the conduct of the study.

Justification of the Study

Although several studies in the DRC have assessed the quality of care for postpartum haemorrhage based on clinical diagnosis, causes, and access to care, no study to date has explored midwives' perceptions of the quality of care and services provided during the transfer of women giving birth.

This study is likely the first in the DRC to focus exclusively on midwives' experiences, needs, and expectations regarding transfer techniques in a context of armed conflict. As frontline healthcare providers in the management of postpartum haemorrhage in Bunia, midwives play a critical role in maternal survival. This study therefore provides valuable descriptive and explanatory insights into organisational and contextual factors, contributing to the development of a pilot programme tailored to the needs of women with PPH and the healthcare providers who care for them.

RESULTS

The results are presented under two main axes:

1. Sociodemographic and professional characteristics of the participants;
2. Satisfaction with the quality of care and services related to transfer techniques, analysed according to the study's conceptual framework (*structure, process, and outcomes*).

Sociodemographic and Professional Profile of Participants

A total of 28 midwives participated in the study. Their characteristics are summarised in **Table 1**.

Table 1:

Sociodemographic and Professional Characteristics of Midwives (n = 28)

Variable	Category	Frequency (n)	Percentage (%)
Age (years)	18-25	7	25.0
	26-30	7	25.0
	31-35	6	21.4
	>35	8	28.6
Sex	Male	5	17.9
	Female	23	82.1
Level of education	A0	8	28.6
	A1	11	39.3
	A2	9	32.1

Variable	Category	Frequency (n)	Percentage (%)
Marital status	Single	4	14.3
	Married	19	67.9
	Divorced	2	7.1
	Widowed	3	10.7
Years of professional experience	1-5	5	17.9
	6-10	13	46.4
	>10	10	35.7
In-service training (recycling)	Low	4	14.3
	Average	14	50.0
	Good	4	14.3
	Very good	6	21.4

Satisfaction with the Quality of Care and Services Related to Transfer Techniques

Qualitative findings are organised according to the Donabedian framework, focusing on *structure, process, and outcomes*.

Structural Factors Affecting Care

Participants reported major deficiencies in healthcare structures, particularly concerning accessibility, cost of services, availability of human and material resources, and physical infrastructure.

Table 2:

Structural Factors Influencing the Transfer of Women with Postpartum Haemorrhage

Theme	Category	Illustrative verbatim quotations
Structure	Accessibility	“Women who have given birth live far from the General Referral Hospital and cannot come on foot.” (INT 1, INT 2)
		“We do not have an ambulance for the safe transfer of women in labour suffering from PPH.” (INT 18)
		“Some women arrive by bicycle or motorcycle, which is not appropriate for emergencies.” (INT 6)
Cost of services		“Emergency consultations are not free, and maternity care is expensive.” (INT 4)
		“Women cannot afford the cost of blood transfusions and surgical procedures.” (INT 15)
Human and material resources		“During drug shortages, medicines from private pharmacies are very costly.” (INT 5)
		“Doctors are not always available to manage complications.” (INT 5)
		“Nurses are not sufficiently trained in safe transfer techniques.” (INT 6)
Physical environment		“The centre is generally clean, but we lack adequate beds for placing women in the recommended position during PPH.” (INT 7)

Process of Care During Transfers

Participants described several weaknesses in the process of care, particularly unsafe transfer practices, insufficient continuing education, and challenges in communication and privacy.

Table 3:

Process-Related Factors Affecting the Transfer of Women with Postpartum Haemorrhage

Theme	Category	Illustrative verbatim quotations
Process	Provider behaviour	"I appreciate the attitude of healthcare staff when receiving women with PPH." (INT 7)
	Therapeutic communication	"Medical staff give clear advice on positions to adopt in cases of PPH." (INT 8)
	Respect for privacy	"Women's privacy is not well preserved because of the lack of individual rooms." (INT 9)
	Technical competence	"Midwives have skills, but science evolves and continuing education is necessary." (INT 10) "Training received at school alone is no longer sufficient." (INT 10)
	Consultation duration	"Healthcare providers devote enough time to consultations and conduct thorough assessments." (INT 11)
	Psychological support	"During haemorrhage, I was cared for while being supported by my mother." (INT 1)
Transfer techniques		"Families often use carts, bicycles, motorcycles, or private cars, which worsens the condition of women." (INT 12)
		"Some transfers are done quickly but without respecting recommended positions." (INT 13)
		"Lifting women by the arms causes further complications." (INT 14)

Outcomes of the Transfer Process

Participants expressed overall dissatisfaction with outcomes, noting that women often arrived at referral facilities in critical condition due to ineffective transfer techniques and resource constraints.

Table 4:

Outcome-Related Perceptions and Suggested Improvements

Theme	Category	Illustrative verbatim quotations
Outcomes	Perceived quality of care	"Despite the challenges, I would recommend the General Referral Hospital to other women." (INT 9, INT 10)
	Need for improvement	"Training is essential, and there should be no shortage of medicines, especially misoprostol." (INT 14) "Transport should be facilitated urgently in emergency situations." (INT 16)
	Innovative solutions	"We need equipment and training on the use of anti-shock trousers." (INT 10) "There are techniques that save lives during

Illustrative verbatim quotations

transfer, such as anti-shock trousers. Why are they not used in our health zone?" (INT 10)

Summary of Findings

Overall, the findings highlight structural inadequacies, unsafe transfer practices, and poor outcomes for women experiencing postpartum haemorrhage during referral. Midwives strongly advocate for improved transport systems, continuous professional training, adequate staffing, essential medicines, and the introduction of innovative life-saving technologies, such as non-pneumatic anti-shock garments.

DISCUSSION

This study explored midwives' experiences with transfer techniques for women suffering from postpartum haemorrhage (PPH) in the urban-rural health zone of Bunia, using the Donabedian framework to examine structural, process-related, and outcome-related dimensions of care.

Structural Aspects of Care

Findings indicate that the healthcare structure in the Bunia urban-rural health zone is inadequate to ensure safe and timely management of postpartum haemorrhage. Participants consistently reported that only one referral hospital is capable of managing severe PPH cases, despite serving multiple health centres across a geographically wide and insecure region. Ongoing insecurity in Ituri Province frequently delays transfers, as women are stopped en route for security reasons, thereby prolonging referral times and worsening clinical outcomes.

In addition to security-related barriers, respondents highlighted shortages of qualified personnel, limited availability of essential medicines, and the absence or inadequacy of medical ambulances. These findings mirror those reported in Côte d'Ivoire, where access to emergency postpartum care remains constrained by transportation difficulties, insufficient equipment, and limited staff capacity (Diallo et al., 2014). Similarly, the World Health Organization has reported that many health facilities in sub-Saharan Africa lack the capacity to manage PPH effectively, resulting in frequent and often unsafe referrals to higher-level facilities (WHO, 2019).

The expressed desire of respondents for dedicated ambulances, continuous training, and regular supply of essential medicines reflects a structural gap that directly compromises maternal survival. In this context, referral during PPH becomes not merely a clinical pathway but a determinant of survival, often undertaken under unsafe conditions.

Process-Related Aspects of Care

With regard to the care process, respondents described a range of clinical techniques and pharmaceutical interventions used during PPH management and transfer. These included uterine massage, bimanual compression, fluid resuscitation, Trendelenburg positioning, catheterisation, and the administration of uterotronics and supportive medications. Despite the application of these techniques, participants reported that women frequently arrived at referral hospitals in critical condition, suggesting limited effectiveness of current transfer practices.

Evidence from the literature supports the need for updated and standardised transfer techniques. Studies have demonstrated that the dissemination of best clinical practices—particularly the use of compression devices such as non-pneumatic anti-shock garments—has significantly reduced deaths from obstetric haemorrhage (Camara, 2024). Similarly, an evaluation conducted at Lariboisière Hospital in France showed that well-equipped ambulances, trained staff, and innovative technologies allowed haemorrhages to be effectively controlled during transfer, such that women required minimal intervention upon arrival (Carrier, 2011).

These findings highlight the gap between current practices in Bunia and internationally recommended standards, reinforcing the necessity of integrating innovative, evidence-based transfer technologies, particularly in insecure and resource-limited settings.

Outcome-Related Aspects and Satisfaction with Care

In terms of outcomes, respondents reported high levels of dissatisfaction with the results of current transfer techniques. Women often arrived at referral hospitals with severe bleeding, anaemia, pain, and extreme fatigue, and some reportedly died during transfer due to uncontrolled haemorrhage. These observations underscore the

ineffectiveness of existing transfer methods in ensuring patient stability.

Comparable findings have been reported in North Kivu, where delayed arrival at referral facilities contributed significantly to maternal deaths from PPH (Mbeva et al., 2018). The WHO (2019) similarly identifies postpartum haemorrhage as a leading cause of maternal mortality in sub-Saharan Africa, particularly in rural and conflict-affected areas where access to emergency obstetric care is limited.

Although respondents acknowledged certain advantages of current practices, they overwhelmingly agreed that these measures are insufficient and that avoidable adverse outcomes persist due to the absence of modern techniques. This study therefore demonstrates a clear need for upgrading transfer practices to improve maternal outcomes in insecure settings.

Limitations and Strengths

This study has several limitations. First, it focused exclusively on midwives' perspectives, without including the experiences of women who gave birth, thereby limiting the scope of viewpoints captured. Second, reliance on self-reported satisfaction may have introduced social desirability and inhibition biases, despite efforts to minimise this by conducting interviews without service managers present and, in some cases, in participants' homes.

Furthermore, the study was limited to public healthcare facilities in an urban-rural health zone, excluding private facilities and thereby affecting representativeness. Patient satisfaction assessments are also known to be influenced by sociocultural factors, which may shape perceptions and responses independently of actual service quality (Gayet-Ageron et al., 2011). Consequently, the findings cannot be generalised to all maternity care contexts.

Nevertheless, the study's strength lies in its context-specific qualitative insight into maternal referral practices in a conflict-affected region, contributing valuable evidence to the limited literature on PPH management in insecure settings.

CONCLUSION

This study examined the use of transfer techniques for women suffering from postpartum haemorrhage in the urban-rural health zone of Bunia, an area characterised by insecurity, institutional instability, and population displacement. The findings reveal critical weaknesses across all dimensions of care.

From a structural perspective, there is an insufficient number of facilities and skilled staff capable of managing PPH, severe transport challenges due to the lack of medical ambulances, and recurrent shortages of essential medicines. Regarding the care process, the absence of innovative equipment—particularly non-pneumatic anti-shock garments—significantly limits effective stabilisation during transfer. In terms of outcomes, the techniques currently used are largely ineffective, as most women arrive at referral facilities in unacceptable clinical conditions.

Overall, the study demonstrates that current transfer practices are ill-adapted to the realities of insecure, resource-constrained environments and require urgent reform.

Recommendations

Based on the findings of this study, the following recommendations are proposed:

Structural Interventions

- Increase the number of health facilities and qualified personnel capable of managing postpartum haemorrhage.
- Equip health centres with medicalised ambulances to facilitate timely and safe transfers.
- Ensure the regular supply of essential pharmaceutical products for PPH management.

Process Improvements

- Equip health centres with innovative, evidence-based technologies, particularly non-pneumatic anti-shock garments.
- Strengthen referral protocols to ensure safe positioning and stabilisation during transfer.

Outcome-Oriented Actions

- Update and standardise transfer techniques used by midwives, incorporating proven life-saving technologies.
- Provide regular in-service training for midwives on contemporary PPH management and transfer practices, with particular emphasis on the use of anti-shock garments.

Ethical Approval: The research protocol was reviewed and approved by the Ethics Committee of the Higher Institute of Medical Techniques of Kinshasa. Scientific Research Certificate No. 106/SF/2025 was issued by the doctoral school of ISTM/Kinshasa, authorising the conduct of the study.

Conflicts of Interest: None declared.

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