

**ORIGINAL RESEARCH ARTICLE****The Eye of Maternity: Nurse-Midwives' Perceptions of Obstetric Triage in Kiambu County, Kenya - A Phenomenological Study.**

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**ABSTRACT**

Obstetric triage (OT) is the brief, thorough, and systematic maternal and fetal assessment conducted on a pregnant woman who presents for care. Midwives are primarily responsible for conducting OT, making it important for them to have the requisite competence. This study sought to determine midwives' perceptions regarding OT in Kiambu County, Kenya. A phenomenological approach was employed. Data was collected from 10 purposively selected participants using a key informant interview guide, recorded, and field notes taken. Transcription was done, and analysis was done using NVIVO version 12. Data was coded, classified into themes, and meanings derived from the themes. The majority of the participants had a diploma in nursing (7, 70%) with a mean age of 32.9 years. The median duration worked in maternity was 36 months. The key themes that emerged were opportunities and challenges. The most frequently mentioned opportunities were the positive labor outcomes of triage and willingness to adopt structured triage models, while high workload and a lack of enough triage equipment and supplies were the most frequently mentioned challenges to OT. This study illustrates the complexities involved in implementing obstetric triage in resource-limited settings while revealing potential areas for intervention. Recommendations have been made to develop and implement structured triage training, promote teamwork, address staffing issues, enhance the provision of equipment and supplies, and improve adherence to referral protocols.

**Keywords:** Nurse-midwives, obstetric triage

**1.0 Introduction**

Obstetric triage is defined by The Association of Women's Health, Obstetric, and Neonatal Nurses (AWHONN) as the brief, thorough, and systematic maternal and fetal assessment performed when a pregnant woman presents for care to determine priority for full evaluation (Ruhl, 2018). Implementation of obstetric triage has demonstrated significant changes in the application of triage concepts to obstetric care, and the presence of structured frameworks for obstetric triage has been shown to significantly improve maternal and neonatal outcomes (Floyd et al., 2018; Forshaw et al., 2016; Goodman, Srofenyoh, Olufolabi, Kim, & Owen, 2017).

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The concept of obstetric triage, as a specialty within perinatal care, came of age in the 1980s–1990s in the United States and internationally and flourished during the early part of the 21st century (D. Angelini & Howard, 2014). Prior to 2007, there were no published obstetric triage acuity tools. Instead, standard emergency room acuity tools were relied on in the obstetric triage setting (D. J. Angelini & LaFontaine, 2013). This has since changed, and there is increased documentation on obstetric triage across the globe (Fakari, Simbar, Modares, & Majd, 2019). While SDG 3.1 aims to lower the global maternal mortality ratio to less than 70 per 100 000 live births, it is worth noting that Kenya's maternal mortality rate (MMR) has remained high at 362, with a neonatal mortality rate of 21 deaths per 1000 live births, indicating no statistical difference with the figures documented 10 years' prior (KNBS, 2022; KNBS et al., 2014).

The key bottlenecks contributing to the high maternal mortality have been described using the Three Delays Model, which, if appropriately addressed, would reduce the proportion of maternal mortality and morbidity. This includes the delay in making the decision to seek healthcare services (1<sup>st</sup>), the delay in identifying and reaching a healthcare facility (2<sup>nd</sup>), and the delay in receiving adequate and appropriate care once the client is in a healthcare facility (3<sup>rd</sup>) (Barnes-josiah, Myntti, & Augustin, 1998; MoH, 2021). While the first two delays are centered on the client, the third delay focuses on the response by the health care worker in initiating care once a client arrives at a health care facility.

Anecdotal evidence suggests that obstetric triage, though unstructured, is conducted in the majority of the public hospitals in Kenya and is dependent on the judgment and critical thinking skills of the individual triage nurse. There is no formal framework for the triage of obstetric clients in Kenyan public hospitals, including guidelines and frameworks. A study conducted earlier in the same facilities to assess midwives knowledge regarding obstetric triage revealed that only 20.0% of the respondents were knowledgeable about the goals of obstetric triage, and 42.5% lacked knowledge of any triage model (Nyariki, Mbuthia, Yegon, & Magangi, 2023). This study therefore sought to explore nurse-midwives' perceptions regarding obstetric triage in two high-volume county referral facilities in Kenya. This was done as part of an exploratory phase aimed at developing a novel structured integrated model that can be used by nurses and midwives to conduct obstetric triage in public health facilities in Kenya.

## 2.0 Materials & methods

The study employed a phenomenological approach. This approach was selected to allow the research team to gain a better understanding of the nurse-midwives perceptions regarding obstetric triage through in-depth interviews. The study was conducted in Kiambu County, which has two county referral hospitals: Kiambu County Referral Hospital (KCRH) and Thika Level 5 Hospital (TL5H). Both facilities offer Comprehensive Emergency Obstetric and Neonatal Care (CEmONC) services and attend to clients from the county and other neighboring counties like Nairobi, Machakos, and Garissa. The labor ward in KCRH admits approximately 28 women daily and recorded 8557 deliveries in the year 2022 (Ministry of Health (MOH), 2022). It has 22 nurse-midwives. Similarly, the labor ward at TL5H admits approximately 20 women daily and reported 9073 deliveries in the year 2022 (Ministry of Health (MOH), 2022), for a total of 24 nurse-



midwives. Obstetric triage in both facilities is primarily conducted by the nurse-midwives. The target population for the study was midwives working in the labor ward units of the two county referral hospitals. The total target population was 46. The inclusion criteria for the study were licensed nurses and midwives working at the County Referral Hospital's labor ward, involved in the triage of obstetric clients, and having worked in the same labor ward for longer than one month at the onset of data collection. Key informant interviews were conducted among midwives who met the inclusion criteria. The participants were purposively selected, focusing on those that were actively involved in obstetric triage during the data collection period. All midwives working in the labor ward and involved in the triage of obstetric clients were potential participants.

A week prior to data collection, the researcher visited the labor wards and explained to the unit in charge the nature of the study, clarifying the eligibility and availability of participants. During data collection, midwives on duty were physically reached out to, informed consent was sought, and interviews were conducted in accordance with the study's inclusion criteria. Data collection was done using a Key Informant Interview (KII) guide. The interviews were conducted among ten (10) nurse-midwives involved in obstetric triage in the two hospitals, five from each hospital. The KII guide had a total of seven semi-structured questions that guided data collection on their experiences, allocation of triage duties, what guided their triage decisions, characteristics about their units that were favorable or challenging while conducting triage, and what they thought could be done to improve triage in their facilities. The interviews lasted between 8.22 minutes and 18.45 minutes. They were audio recorded, and field notes were taken to corroborate the audio recordings. Data saturation was attained by the 10<sup>th</sup> interview. Prior to data collection, 2 KII were conducted as a pretest at Mama Lucy Kibaki Hospital in Nairobi County to determine the flow and clarity of questions, as well as the duration taken to conduct the interview. No changes were made to the tool following the pretest. The audio recordings from interviews were transcribed verbatim using standard transcription techniques, and random checks of the transcription were conducted to monitor the quality. Field notes were compared with the audio recordings for validity. Transcription of the interviews was performed continuously throughout the data collection process, and the transcripts were reviewed. The transcribed data was loaded on N-Vivo 12 and analyzed with the application of Colaizzi's seven-step process for phenomenological approaches (Morrow, Student, Alison, & Senior, 2015). Codes were created based on the emerging themes, transferred into emerging matrices, and then reviewed. Analysis was conducted to assign meaning to the emerging themes and explore patterns of similarities across different interviews. The analyzed interview data was described in verbatim statements.

### 3.0 Results

#### 3.1 Demographic characteristics

Majority of the participants were female, and an equal majority had a diploma in nursing (7, 70%). The mean age was 32.9 years, with a minimum of 23 and a maximum of 48. The duration worked in maternity ranged from 2 months to about 14 years, with a median duration of 36 months. This is indicated in Table 1.

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*Table 1: Participants' Demographic Characteristics*

Variable	Category	Freq	%
Gender	Male	3	30
	Female	7	70
	Total	10	100
Level of Education	Diploma	7	70
	Degree	2	20
	masters	1	10
	Total	10	100
Age	Mean	32.9	
	Min	23	
	Max	48	
	Median	31	
Duration worked in maternity (Months)	Mean	47.975	
	Min	2	
	Max	174	
	Std	48.8207	
	Median	36	

### 3.2 Perceptions Regarding Obstetric Triage

Two major themes arose from the key informant interviews regarding the nurse-midwives' obstetric triage perceptions, as shown in Table 2. These further generated nine sub-themes: five on the opportunities and four on the challenges.

*Table 2: Emerging themes on perceptions and experiences regarding obstetric triage among nurse-midwives*

Themes	Sub-Themes	Frequency of Mention
Opportunities	Prioritization of clients	3
	Outcomes of structured obstetric triage	7
	Teamwork and mentorship	6
	Adoption of evidence-informed triage models	8
	Obstetric triage training	6
Challenges	High workload and staff shortage	8
	Triage equipment and supplies	6
	Adherence to MoH referral protocols	4
	Lack of obstetric triage guidelines	3

### 3.3 Opportunities

The first theme that emerged from the participants' interviews was opportunities for obstetric triage. This was further classified into subthemes including prioritization of clients, outcomes of labor following the triage, teamwork and mentorship of nurse-midwives, adoption of evidence-informed models for conducting obstetric triage, and availing of training opportunities for triage. These are further discussed as follows:

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### 3.3.1 Prioritization of clients

The participants expressed that triage was important because it helped with the prioritization of clients for care. Specifically, they expressed that they had knowledge of what was to be done during obstetric triage, especially if the client presented with emergency signs and symptoms. The obstetric warning signs were stated as the basis for which the triage was conducted.

*“So when the mothers come in labour ward, you have to prioritise them. We can get conditions like antepartum hemorrhage, cord prolapse, reduced fetal movements, pre-eclampsia and you have to prioritize them. Then you have to explain to the mothers the reason why you are leaving her and giving priority to a different one.” (Participant 7).*

Another participant expressed the following about prioritization.

*“I believe that triage is very important because it helps you to understand and prioritize the patients as they come in.... and prevents some missed opportunities where a patient came early but due to the queue, you are not able to attend to them early” (Participant 2).*

### 3.3.2 Outcomes of structured obstetric triage

Participants stated that when triage was conducted well, it resulted in better prioritization of clients for care, improved prioritization of work in maternity, reduced missed opportunities, and better labour outcomes. Other participants expressed that triage was important because it influenced the workflow in the entire maternity.

*“My experience is that you have to be keen with what goes on at the triage because it is the eye of the maternity” (Participant 8).*

Several participants also expressed the satisfaction that came with positive labour outcomes following successful obstetric triage.

*“The interesting part of triage is when a mother comes in labour walking, in a lot of pain and then they go home holding their baby. When you see the smile on those mothers’ faces, you get excited” (Participant 7).*

### 3.3.3 Teamwork and mentorship

One of the subthemes that emerged from the participants was their teamwork and mentorship by senior nurse-midwives. It was noted that nurse-midwives who were more experienced were often the ones who manned the triage areas, and would sometimes be allocated a less-experienced nurse-midwife to orient and mentor on obstetric triage.

*“When you have a new team like us now (we have been here like for six months), it's more of orientation so there will be a team leader... you'll be assisting during orientation so that the next time, you are the one who is left in charge of triage” (Participant 1)*

The participants also shared that triage was a team effort, and that they could consult with other colleagues whenever the need arose.

*“Once you realize there's an emergency, you immediately shout for help because you cannot manage the situation all alone and since we normally have a good team work*

*here, we manage patients well. Like yesterday there was a cord prolapse so we called for help and we managed to take the patient within 10 minutes to theater” (Participant 10)*

### 3.3.4 Adoption of evidence-informed triage models

Most of the participants expressed the importance of having a structured model for conducting obstetric triage because it would help them prioritise clients better, know what to do next, and prevent missed opportunities. They further expressed that such a model would save time during obstetric triage and that the Ministry of Health (MoH) could have documentation of the same.

*“I think it will be a nice thing to have a structured model for triage, because you will know like I have encountered this, what am I supposed to do next? It will also save on time” (Participant 8)*

One participant further explained an example of a model that could be adopted for triage:

*“You can come up with a method where immediately the mother arrives, they can be given cards, depending on the urgency of the issue the patient has. I don't know whether color coding is possible in maternity, but something to tell you a patient has an urgent issue” (Participant 2).*

### 3.3.5 Obstetric triage training

Participants expressed the desire to undergo training on obstetric triage, stating that they had not had any training on the same. They expressed that this would provide an opportunity to get updates on evidence-based obstetric triage interventions that they may not have been conversant with, and that providing updates to the hospital management team would also improve obstetric triage.

*“I think we should have at least a training. I don't think we had a training pertaining triaging. This can help us to know much about triaging because even if you have worked in maternity for maybe a year, sometimes people overlook the triaging side and prioritize the patients who are already admitted so a training can help” (Participant 3).*

Another participant also expressed the need for updates on obstetric triage as follows:

*“You know a lot has been done on obstetric triage, and there are no updates. So we need updates...the management to organise for more updates because we cannot depend on what we did when we were in school” (Participant 5)*

## 3.4 Challenges

The second theme that emerged was the challenges that are encountered in the conduct of obstetric triage. The subthemes that emerged were high workload, lack of adequate triage equipment and supplies, poor adherence to MoH referral protocols, and lack of obstetric triage guidelines.

### 3.4.1 High workload and staff shortages

One of the comments that emerged as a limitation to conducting triage was the high workload and staffing challenges. The participants expressed that few nurses were allocated for obstetric



triage duties, despite that being a key determinant of labour outcomes. Some of the statements raised are as follows:

*“One of the challenges with triage is staff shortage, where you find yourself in triage alone so sometimes it becomes so overwhelming where you find yourself with more than 10 patients awaiting your service so maybe a patient had a fetal distress and is queuing, you may not know that the baby is compromised so we end up having poor scores” (Participant 3)*

Further, another participant expressed the following concerns while explaining that sometimes the triage nurse is the same person expected to support the women who are in the second stage of labour:

*“But if we are not enough staff, like now you may find in the labour ward we have around five deliveries. I cannot leave the delivery and go and triage. It even gets to a time you tell the women mwenye anataka kuzaa, ukiskia mtoto anataka kutoka, ukuje pande hii utupate uko. Translated: ‘anyone who wants to deliver, when you feel like the baby is about to be delivered, move to this side (delivery room) you will find us there’ (Participant 3).*

### 3.4.2 Triage equipment and supplies

The participants highlighted a lack of adequate triage equipment and supplies as a factor that hindered obstetric triage. Although they reported that they had enough examination couches, other essential equipment and supplies like examination lamps, cotton wool, and gauze were not available at the time of data collection. These sentiments are reflected below:

*“Sometimes you find that we don't have the resources for triage. There are times where we don't have cotton wool, mothers have to buy. So you can imagine telling a mother, ‘please go come with gauze, go come with cotton wool, so that I can take care of you’” (Participant 2)*

Another participant further stated as follows:

*“Probably what should be improved is the lighting, the examination lamp. At times you're doing a speculum exam, and you need to have somebody else to torch (hold a light) for you” (Participant 9).*

### 3.4.3 Adherence to Ministry of Health referral protocols

One of the key themes that emerged as a challenge to the implementation of obstetric triage was a lack of adherence to the Ministry of Health Referral Protocols. The participants were drawn from the referral hospitals in the county, and they felt that most referring facilities did not communicate with them prior to the referral of a patient, which in turn affected their triage process and labour outcomes. One of the participants stated the following:

*“Another challenge that we have, considering this is a referral facility for Kiambu County, you know there is a structured referral system that those facilities should adhere to. Other patients coming from neighboring counties, they won't follow that – They are referred just by word of mouth, “Go to Kiambu” (Participant 1)*

Concerns were also raised about facilities that referred clients even though they had the capacity to manage them, and that this increased the workload for the participants. This is expressed below:

*“With the kind of triage that we have here, getting more patients from facilities whereby they can get managed from but they are still coming here also becomes overwhelming”* (Participant 10).

#### **3.4.4 Lack of obstetric triage guidelines**

Participants expressed the lack of Ministry of Health obstetric triage guidelines as an aspect that hindered obstetric triage. One of the participants stated:

*“Okay, for a guideline, there is none, but the normal routine whereby you meet the patient for the first time of course you have to introduce yourself take the vitals then go ahead with the management”* (Participant 10)

### **4.0 Discussion**

This study sought to explore nurse-midwives' perceptions regarding obstetric triage in two high-volume facilities in Kenya. These findings highlight both opportunities and challenges that these professionals perceive and encounter while delivering obstetric triage services.

The opportunities' theme encompasses the sub-themes of prioritisation of clients, outcomes of structured obstetric triage, teamwork and mentorship, adoption of evidence-informed triage models, and obstetric triage training. Findings from this study echo existing literature, indicating that proper prioritisation of obstetric clients is crucial in enhancing timely interventions and leads to reduced waiting time and subsequently improved maternal and neonatal outcomes (Ramaswamy et al., 2023; Rebecca & Jariatu, 2020).

Structured obstetric triage plays a crucial role in enhancing positive maternal and foetal outcomes during labour and childbirth. Findings from this study highlighted these outcomes, resulting in better prioritisation of clients and a reduction in missed opportunities due to standardisation of care. This has also been reflected in facilities that implemented structured obstetric triage globally (Goodman et al., 2018; Ramaswamy et al., 2023; Smithson, Twohey, Watts, Pnc, & Gratton, 2016).

Effective teamwork and mentorship are integral to the continuity of care among midwives working in an obstetric unit and enhance the sustenance of good practices. Findings from this study described the role played by more experienced nurse-midwives in mentoring their juniors and the importance of teamwork in improving maternal outcomes. This highlights the findings by Ramaswamy et al. (2023) of sustained good obstetric triage practices and outcomes following the implementation of a structured triage system. However, it is noted that healthcare workers face challenges including accountability, conflict management, and decision-making, which must be addressed effectively to enhance good teamwork and mentorship (Zajac, Woods, Tannenbaum, Salas, & Holladay, 2021).





Participants' satisfaction with successful triage outcomes highlights the significant role of obstetric triage in enhancing patient satisfaction and care outcomes.

The expressed need for adopting evidence-informed triage models underscores the importance of standardising care to ensure consistency and effectiveness. Such models could enhance the prioritisation process, minimise missed opportunities, and reduce errors. (Smithson *et al.*, 2016; Lindroos *et al.*, 2021). This emphasises the value of continual training to improve obstetric care providers' competency, especially in emergency situations.

Importantly, findings revealed that participants sought more structured triage training. This aligns with earlier studies recommending the need for the development and implementation of evidence-informed triage models (Lindroos, Elden, Karlsson, & Sengpiel, 2021; McCarthy, Pollock, & McDonald, 2022; Oduro, Hillary Otchi, Coleman, Dodoo, & Srofenyoh, 2022; Smithson *et al.*, 2016; Tukisi, Temane, & Nolte, 2022).

Concerning challenges, participants raised issues related to high workloads and staff shortages, a lack of triage equipment and supplies, non-adherence to referral protocols, and the absence of obstetric triage guidelines. High workloads and staffing shortages have been recognised as common barriers to efficient obstetric triage in low-resource settings (Forshaw *et al.*, 2016; Goodman *et al.*, 2018). They could compromise the quality of care and lead to burnout among healthcare providers. Notably, these findings reveal a gap in resource allocation, with some facilities lacking essential triage supplies. This aligns with previous reports indicating that inadequate resources hinder effective healthcare delivery in low-income countries (Forshaw *et al.*, 2016; Goodman *et al.*, 2017).

Non-adherence to MoH referral protocols emerged as another significant challenge. This echoes previous research (Forshaw *et al.*, 2016; Goodman *et al.*, 2018; Tukisi *et al.*, 2022) pointing out the importance of functional referral systems in reducing maternal and neonatal mortality, particularly in low-resource settings. Lastly, the absence of obstetric triage guidelines reflects an urgent need for implementing evidence-based practice guidelines to ensure uniformity in service delivery. Standardisation of obstetric triage, which can be attained through guidelines, is vital for the successful implementation of structured triage and improved maternal and neonatal outcomes (Fakari *et al.*, 2019).

#### **4.1 Limitations**

The study was able to outline the perceptions of nurse-midwives regarding obstetric triage, describing them as opportunities and challenges. However, given the small number of participants, the findings of this study may not be generalizable, but they may provide further insight on obstetric triage in a region with limited documentation on the same and highlight potential areas of focus while introducing structured obstetric triage models.

## 5.0 Conclusion

This study illustrates the opportunities and complexities involved in implementing obstetric triage in resource-limited settings while revealing potential areas for intervention. Addressing these challenges necessitates a multifaceted approach, encompassing increasing healthcare staffing levels, resource allocation, adherence to referral protocols, and the formulation and adoption of clear triage guidelines. There is also a critical need for continuous, comprehensive training on obstetric triage.

## 6.0 Recommendations

From the findings, the following recommendations are derived:

- (i) Develop and implement structured triage training. Given the positive perception of structured obstetric triage, it would be beneficial to implement regular and structured training on obstetric triage for all nurse-midwives. This would not only help to standardize procedures but also ensure that all midwives are aware of current best practices.
- (ii) Promote Teamwork and Mentorship: Encourage a culture of teamwork and mentorship within obstetric units where less-experienced nurse-midwives can learn from their senior counterparts. This could enhance the effectiveness of the triage system.
- (iii) Adopt Evidence-Informed Triage Models: The use of structured and evidence-based triage models was viewed positively by the participants. Therefore, the adoption of such models should be encouraged and disseminated within healthcare facilities.
- (iv) Address Staffing Issues: High workloads and staff shortages were highlighted as major challenges. It is, therefore, recommended that healthcare facilities adequately staff their obstetric units to manage the workload effectively. This might involve lobbying for more resources or reallocating existing resources to ensure the staffing levels are optimal.
- (v) Enhance Equipment and Supply Provision: The lack of necessary equipment and supplies is a considerable hindrance to effective triage. It is essential that obstetric units are well-resourced with the necessary supplies and equipment for effective and efficient triage.
- (vi) Improved Adherence to Referral Protocols: The findings show that poor adherence to referral protocols presents a major challenge. There is a need for stronger coordination between healthcare facilities and stricter adherence to established referral protocols. This could involve additional training and the establishment of stronger monitoring systems.
- (vii) Develop and Implement Obstetric Triage Guidelines: The lack of specific obstetric triage guidelines was a notable finding. Developing and implementing clear, comprehensive, and evidence-based obstetric triage guidelines could significantly improve the efficiency and effectiveness of obstetric triage.

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### 7.1 Funding

None



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## 7.3 Ethical Considerations:

The study received ethical approval from the Jomo Kenyatta University of Agriculture and Technology Ethical Review Committee (JKUAT ERC, JKU/IERC/02316/0486); permission was granted by the National Commission for Science, Technology, and Innovation (NACOSTI/P/22/15682), the Kiambu County Department of Health, and the two county hospitals (KCRH and TL5H). Informed consent was sought from participants, and confidentiality and anonymity were upheld. The recorded interviews were handled only by the research team, and the recordings were deleted after transcription and review of the transcripts.

## 7.4 Conflict of interest

None.

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