ORIGINAL ARTICLE

Experiences of Emergency Medical Service Staff on Delivery of Emergency Medical Services in Chobe District, Botswana

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ABSTRACT

Background: Emergency Medical Services (EMS) personnel in Chobe, Botswana, operate in a remote region with limited infrastructure. They face challenges such as geographical isolation, wildlife risks, like encounters with elephants or lions during emergency calls and shortages of equipment and staff. These stressors can impact the effectiveness of emergency care provision and the well-being of EMS staff.

Objectives: To explore lived experiences of EMS staff in Chobe, on the delivery of emergency medical services in Chobe District of Botswana.

Methods: A qualitative case study design was employed to explore the lived experiences of EMS staff. This design enabled an in-depth understanding of participants' perspectives within their real-life context. Data were collected through in-depth, semi-structured interviews with eight EMS staff members selected using purposive sampling, ensuring the inclusion of participants with relevant knowledge and experience.

Thematic analysis was used to analyze the data, following Braun and Clarke's updated reflexive approach [1]. This involved six iterative steps: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. This method allowed for the systematic identification and interpretation of key themes that emerged from the data.

Results: Four key themes emerged from the data, reflecting the lived experiences of Emergency Medical Services (EMS) staff in the Chobe region: (1) operational challenges, (2) Psychosocial strain and coping, (3) professional identity and team dynamics , and (4) environmental and safety risks.

1. **Operational Challenges:** Participants reported persistent shortages of essential resources, including ambulances, medical equipment, and staff. These constraints often resulted in delayed response times and hindered the delivery of effective emergency care.
2. **Psychosocial strain and Coping:** EMS personnel described experiencing significant physical exhaustion and emotional strain. Exposure to traumatic scenes, extended shifts, and lack of psychosocial support contributed to

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burnout. Coping strategies were mainly informal—such as peer debriefing and emotional withdrawal—and were perceived as inadequate.

3. **Professional Identity and team dynamics:** Respondents expressed frustration over limited training opportunities, unclear career progression, and a perceived lack of appreciation for their work. These factors negatively impacted morale and professional development.
4. **Environmental and Safety Risks:** The Chobe environment presented unique hazards, including encounters with wild animals, poor road infrastructure, and vast distances between emergency sites and healthcare facilities. These risks compromised both the safety of EMS staff and the quality of emergency response.

Discussion

This study highlights that the delivery of Emergency Medical Services (EMS) in the Chobe region is significantly affected by a combination of operational limitations, professional challenges, staff well-being concerns, and environmental risks. These interconnected issues compromise the effectiveness and safety of EMS delivery. To address these challenges, it is essential to implement clear policies, allocate adequate resources, provide structured mental health support, and offer ongoing professional training. Such measures would improve both service delivery and the overall well-being of EMS personnel in remote and high-risk settings like Chobe.

INTRODUCTION

Emergency Medical Services (EMS) serves as a critical component of the healthcare system, providing pre-hospital care to individuals experiencing acute medical and traumatic emergencies. This role is particularly vital in rural and remote regions, where delayed access to hospital care, due to long travel distances, limited infrastructure, and geographic isolation, can significantly impact patient outcomes.[1,2] EMS personnel often operate in unpredictable, high-pressure environments and serve as the first point of contact for emergency care, placing immense responsibility on their shoulders.

In Botswana, the EMS system is still in its infancy, with formal services only established in 2012. Most EMS staff are drawn from general nursing backgrounds and is expected to operate in emergency contexts with minimal additional training.[3] Chobe, situated in the northern region of Botswana, represents a unique EMS setting due to its proximity to national borders, extensive wildlife presence, and growing tourism industry. EMS personnel in this region often respond to emergencies in remote, wildlife-populated areas and face risks not typically encountered in urban centres.[4]

Operational challenges in this setting refer to the systemic and logistical barriers that hinder the efficient delivery of emergency care. These include shortages of ambulances and medical supplies, limited staffing, unreliable communication infrastructure, and the absence of a clear national EMS policy. Such challenges often lead to delayed emergency response times, uneven care delivery, and role confusion among personnel, which can undermine teamwork and decision-making.[5] Equally concerning are the psychological stresses EMS workers face, including chronic exposure to trauma, life-threatening situations, and emotional fatigue. This can manifest in conditions such as post-traumatic stress disorder (PTSD), burnout, and depression. For example, repeated exposure to high-intensity emergencies can erode emotional resilience, particularly in under-resourced settings.[6] Similarly, studying EMS staff in Ethiopia, found that lack of support systems and high workload contributed significantly to emotional exhaustion.[7] These findings resonate with the experiences of EMS staff in Kasane, where structural weaknesses

amplify the psychological demands of the job.

Despite these challenges, there is limited research focusing specifically on EMS personnel in Botswana. Existing studies often reflect perspectives from high-income countries[8] or hospital-based settings,[9] which may not capture the contextual complexities faced by rural African EMS workers. As such, the voices and lived realities of EMS professionals in Chobe remain underrepresented in the literature, hindering the development of context-specific interventions and policies.

This study aims to explore the lived experiences of EMS staff delivering emergency care in Chobe, Botswana. It focuses on operational challenges, psychological stressors, staffing issues, and coping mechanisms. By documenting these experiences, the study seeks to inform policy and practice improvements that enhance EMS delivery and safeguard the well-being of EMS personnel.

METHODS

Study design

This study employed a qualitative case study design using an interpretive phenomenological approach. This design is well-suited for exploring lived experiences, allowing participants to articulate their perceptions and realities in rich detail.[10] The approach aimed to capture the complex emotional, operational, and contextual factors that shape the work of EMS staff in Chobe, Botswana.

Study setting

The research was conducted at Chobe Emergency Medical Services (EMS), located in Kasane, Chobe District of northern Botswana. This setting is characterized by a large geographical coverage area, high volumes of tourism, and proximity to international borders with Namibia, Zambia, and Zimbabwe. Kasane EMS operates under Kasane Primary Hospital and covers both local and cross-border emergency cases. The EMS team comprises nurses, emergency medical technicians (EMTs), and other pre-hospital care providers.

Study population and sampling

The study population included all EMS staff members stationed at Chobe EMS who were directly involved in emergency response operations. A purposive sampling technique was used to select participants who had experience in delivering emergency medical services in the area. This method allowed for the inclusion of individuals with direct knowledge of the operational challenges and psychosocial stressors under investigation.[11] Saturation was determined when no new themes, insights, or codes emerged from the data, indicating that additional interviews were unlikely to yield novel information. This point was reached after conducting and analysing interviews with eight participants, consistent with established guidelines that suggest 6 to 12 participants are enough in phenomenological research.[12]

Inclusion and exclusion criteria

Participants who were eligible to participate in the study included active EMS staff at Chobe EMS with at least one year of experience in the field and who were available during the data collection period. The requirement of one year of experience was used to ensure that participants had adequate exposure to the operational, environmental, and psychological demands of EMS work, which allowed them to meaningfully reflect on and articulate their lived experiences.

Exclusion criteria applied to EMS personnel who were not directly involved in patient care (e.g., administrative or support staff). These individuals were excluded because the study focused on frontline EMS workers who are directly responsible for emergency response, clinical decision-making, and patient interaction—experiences central to the research objectives.

Data collection

Data were collected through in-depth, semi-structured interviews using a semi-flexible interview guide. The guide was designed to encourage open-ended responses and covered key themes such as perceptions of EMS delivery, sources of stress, coping mechanisms, and perceived support systems. Sample questions included:

- *" Tell me about your experience working in EMS in Kasane?"*
- *" Tell me about the challenges you face as Ems staff?"*
- *" What coping strategies and support systems do you use to improve your work experiences?"*

  Interviews were audio-recorded with participant consent, and field notes were taken to capture non-verbal cues and environmental context as recommended by Osborne [13].

Ethical considerations

Ethical clearance for the study was obtained from the University of Zambia Biomedical Research Ethics Committee (UNZABREC), the National Health Research Authority (NHRA) of Botswana, and the Chobe Institutional Review Board . Participation was voluntary, and informed consent was obtained from all participants. Anonymity and confidentiality were strictly maintained throughout the research process.

Data analysis

Thematic analysis was conducted using Braun and Clarke's updated reflexive approach.[1] This involved six recursive phases: familiarization with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes, and producing the final report. The process was deeply reflective and interpretative, emphasizing the active role of the researcher in theme development. Initial codes were manually developed from meaningful segments of the transcripts, which were thoroughly read and re-read to ensure immersion. Themes were constructed through iterative engagement with the data and were not simply discovered but generated through the researcher's interpretive lens. The analysis was carried out without the use of qualitative data analysis software. Analytical rigor was enhanced through practices such as reflective journaling and peer debriefing, helping to critically examine the researcher's assumptions and maintain reflexivity throughout the process.

Researcher Reflexivity

The researcher acknowledged their professional background in health and emergency medical services, which could shape how data were interpreted. Reflexive journaling was employed throughout the research process to monitor personal biases, assumptions, and emotional reactions. Peer consultations were also conducted during analysis to ensure that findings were grounded in the participants' narratives rather than the researcher's perspectives.

RESULTS

A total of eight Emergency Medical Services (EMS) personnel from Chobe EMS were interviewed, comprising both male and female participants, including registered nurses and emergency medical technicians (EMTs). Their experience in EMS ranged from two to over ten years. Thematic analysis of the interviews revealed four interconnected but distinct themes that reflected the lived experiences of EMS staff in Chobe: (1) operational challenges, (2) psychosocial strain and coping, (3) professional identity and team dynamics, and (4) environmental and safety risks.

Table X: Themes, Subthemes, and Illustrative Quotes from EMS Staff in Chobe District, Botswana

Theme	Subtheme	Quote
Operational Challenges	Absence of formal EMS policy	"Sometimes we don't know who should take the lead —me or the nurse... that causes tension when things go wrong." (P3)
	Communication system failures	"The whole issue with the communication line has caused a lot of tension... The community doesn't trust that we're able to reach them quickly." (P2)
	Shortage of ambulances and supplies	"We might have a call, but the ambulance is busy at the hospital... we have to wait—even in emergencies." (P7)
	Role confusion and decision-making tension	"There is no clear policy on who makes what decisions when we're on the ground—it's confusing." (Implied)
Psychosocial Strain and Coping	Exposure to trauma and emotional exhaustion	"You see so many bad thi ngs—burns, deaths, accidents. It piles up in your mind. Sometimes I feel numb." (P1)
	Lack of tailored mental health support	"The counselling is for everyone… But no one really understands what we go through in the field." (P4)
	Informal coping mechanisms	"Having a gym at the station helps, but it's not enough… the pressure is always there…" (P2)
Professional Identity and Team Dynamics	Long shifts and fatigue	"We don't have enough people, so we have to work long shifts… It's draining…" (P3)
	Interprofessional tensions	"There's a lot of tension between nurses and the technical assistants… it feels like there's favouritism…" (P7)
	Lack of appreciation and career progression	"Sometimes I feel like our efforts go unnoticed. There's no real progression or recognition." (Implied)
	EMS vs hospital care mindset	"In the hospital, we have more time to think, but in EMS, we have to act fast…" (P8)
Environmental and Safety Risks	Wildlife threats and night shift risks	"Nighttime calls are always scary… I'm always worried about what could happen to us." (P5)
	Community interference	"People rush to help… but it's not always safe… they don't stabilize them properly…" (P4)
	Geographic isolation	"We drive long distances through the bush, sometimes without proper maps or signals." (Implied)
	Autonomy and field decision-making	"In EMS, I get to decide what needs to be done right away. That independence is something I value." (P3)

Operational challenges

Participants reported confusion and inefficiencies resulting from the absence of a formal EMS policy. Without clear guidelines, role ambiguity arose between nurses and EMTs, especially during emergency situations. Staff expressed uncertainty about authority during operations and decision-making hierarchies.

"Sometimes we don't know who should take the lead—me or the nurse. It depends on the situation, and that causes tension when things go wrong." (Participant 3)

Compounding this was the unreliability of the EMS communication system. The 997-emergency line, which was initially operated through the hospital, resulted in delayed responses and frustration from the community. Although later shifted to EMS control, network failures and accessibility issues persisted.

"The whole issue with the communication line has caused a lot of tension. Even when the line is working, people are already upset because of the past delays and now the line issues still persist. The community doesn't trust that we're able to reach them quickly when it matters." (Participant no. 2)

Participants highlighted a shortage of medical supplies and occasional shortage of ambulances. Ambulances are often shared with other departments, causing delays in reaching emergency scenes. Additionally, the absence of on-scene doctors increased the pressure on EMS personnel to make high-stakes clinical decisions.

"We might have a call, but the ambulance is busy at the hospital. Since we share it with them, we have to wait-even in emergencies." (Participant 7)

Psychosocial Strain and coping

High levels of emotional and psychological distress were reported, including symptoms of burnout, anxiety, and emotional exhaustion. These were linked to prolonged shifts, exposure to traumatic incidents, and lack of mental health support.

"You see so many bad things—burns, deaths, accidents. It piles up in your mind. Sometimes I feel numb." (Participant 1)

While the hospital offered general counselling services, none were tailored specifically for EMS staff. Consequently, most personnel relied on informal self-care strategies such as exercise, rest on slow days, and peer support. However, these coping strategies were often described as insufficient in managing ongoing stress.

"The counselling is for everyone—nurses, cleaners, doctors. But no one really understands what we go through in the field." (Participant 4)

"Having a gym at the station helps, but it's not enough. Sometimes it feels like no matter what we do, the pressure is always there, especially when we're understaffed." (Participant no. 2)

Professional Identity and Team Dynamics

Due to understaffing, EMS workers reported working long shifts- often 12 hours which led to fatigue and reduced performance. Furthermore, hierarchical tensions between general nurses and EMTs created friction in team dynamics. Participants reported that unclear role boundaries and perceived favouritism affected teamwork and job satisfaction.

"We don't have enough people, so we have to work long shifts. 12 hours every day—it's draining, especially when we're not getting enough rest or support." (Participant no. 3)

"There's a lot of tension between nurses and the technical assistants. Nurses are in charge, but sometimes they don't understand the pressure we're under. It feels like there's favouritism, and that creates a bad work environment." (Participant no. 7)

"Handling emergencies requires a different mindset. In the hospital, we have more time to think, but in EMS, we have to act fast, and that's hard when you're used to routine care." (Participant no. 8)

Environmental and safety risks

Chobe's unique setting introduced additional challenges. Staff expressed fear about responding to night-time emergencies in wildlife-populated areas. Risks of encountering elephants, lions, or other wild animals created significant safety concerns. In addition, well-meaning community members often intervened at scenes, especially in wildlife attacks, sometimes worsening patient conditions.

"Nighttime calls are always scary. You never know what to expect, and with the wildlife around here, it's even more dangerous. I'm always worried about what could happen to us." (Participant no. 5)

"People rush to help before we get there, and while it's well-meaning, it's not always safe. Sometimes they move patients around too much, or they don't stabilize them properly, and that could make things worse." (Participant no. 4)

Despite these challenges, some staff noted positives such as autonomy in decision-making and the opportunity to work in a less hectic environment compared to hospitals. Access to recreational spaces like a gym within the EMS compound was also appreciated and used as a stress-relief outlet.

"Here, I feel like I have more control over what happens. In the hospital, we always have to wait for the doctor to make the call, but in EMS, I get to decide what needs to be done right away. That independence is something I value." (Participant no. 3)

DISCUSSION

This study explored the lived experiences of Emergency Medical Services (EMS) personnel in Chobe, Botswana, revealing operational, psychological, and environmental challenges that hinder service delivery and affect staff well-being. While several findings align with broader trends in low- and middle-income countries (LMICs), others reflect unique contextual influences related to Chobe's geography, infrastructure, and institutional arrangements.

One central finding was the absence of a formal EMS policy, which led to confusion around roles, responsibilities, and decision-making hierarchies. Similar policy gaps have been reported in other LMIC contexts.[3] However, unlike South Africa where provincial EMS policies have been introduced to guide operations,[14] Botswana lacks a national EMS-specific framework. This divergence may stem from differences in health governance, decentralization efforts, or budgetary prioritization. The hospital-based control of EMS in Chobe, without dedicated oversight from a pre-hospital care directorate, may be reinforcing institutional inertia.[15]

Resource constraints such as the shortage of ambulances, equipment, and essential medications, were also prominent in this study. These findings are consistent with previous reports on rural EMS systems in sub-Saharan Africa.[16] However, studies in Kenya noted improvements in equipment availability due to donor-funded projects and decentralized procurement strategies.[17] Chobe's challenges may be compounded by its border location, increased tourist inflows, and logistical difficulties associated with transporting supplies across vast and occasionally inaccessible terrain.

Psychological distress among EMS personnel, manifesting as trauma exposure, emotional fatigue, and lack of support, was a dominant theme. This is in line with global studies indicating high rates of PTSD and burnout among EMS workers.[18] However, in contrast, a study in Rwanda by Habimana *et al.* found that consistent peer support structures and access to trained mental health officers significantly reduced psychological stress among EMS teams.[19] Botswana's limited investment in emergency-specific mental health resources may explain this variation.[20]

The Job Demands–Resources (JD-R) Model provided a useful lens to interpret how high demands, such as long shifts, trauma exposure, and inadequate supplies, contribute to burnout when not counterbalanced by sufficient job resources. In Chobe, the lack of resources was clear, yet the

presence of team support, decision-making autonomy, and recreational access helped buffer stress.[21] Interestingly, a study in Namibia found that even when equipment and staffing were adequate, poor team dynamics still led to disengagement,[22] highlighting the importance of interpersonal and organisational factors.

Interprofessional tensions between nurses and EMTs also emerged, rooted in unclear role definitions and perceived status imbalances. While these findings are echoed in other LMIC EMS systems,[23] research from Zambia shows that strong leadership and interprofessional education programmes have helped reduce such conflicts.[24] The lack of defined supervisory structures in Botswana's rural EMS settings may be a contributing factor.

Environmental factors specific to Chobe, such as risks from wild animals during night calls and interference from local communities in wildlife-related emergencies, added a distinct dimension not typically encountered in urban EMS systems. While these hazards are not unique to Botswana, similar studies in Tanzania's Serengeti region show that environmental risk protocols and community sensitization have helped mitigate disruptions to emergency response.[25] The absence of such tailored risk protocols in Botswana may be increasing frontline exposure to harm.

Despite the adversities, participants reported elements of their work that sustained morale and resilience, such as field-level decision-making and access to gym facilities. While these factors were limited, they positively influenced job satisfaction and retention. In comparison, a Ugandan study found that providing staff with housing and transport allowances had an even greater impact on motivation.[26] This suggests that practical incentives, combined with emotional and structural supports, could enhance workforce stability.

Even with the valuable insights gained, this study has several limitations. First, it was conducted at a single EMS site in Chobe District, which may limit the transferability of findings to other regions in Botswana or sub-Saharan Africa with different operational and environmental contexts. Second, the sample size, though appropriate for phenomenological research, involved only eight participants, which may not capture the full diversity of EMS experiences. Third, the researcher's prior professional affiliation with the EMS site may have introduced bias during data collection and interpretation. Although reflexivity measures such as journaling and peer debriefing were employed to mitigate this, complete elimination of subjectivity is challenging in qualitative research.

In summary, while many of this study's findings reflect broader regional trends, Chobe's experience underscores the importance of tailoring EMS strategies to specific geographic, ecological, and administrative contexts. Contrasting evidence from other countries highlights how institutional capacity, funding, and community factors shape EMS outcomes differently. Framing these insights within the JD-R model provides a basis for targeted reform aimed at strengthening resilience, improving service quality, and promoting sustainable workforce development.

CONCLUSION AND RECOMMENDATION

This study highlights the complex and demanding nature of emergency medical service delivery in Kasane, Botswana. EMS personnel face multifaceted challenges, including systemic gaps such as the absence of a formal EMS policy, resource constraints, insufficient mental health support, and significant safety risks. These operational and environmental stressors are further intensified by interprofessional tensions, long shifts, and psychological strain. Despite these obstacles, EMS staff continues to serve their community with resilience and dedication, often employing informal and personal coping mechanisms in the absence of structured support.

The findings suggest that without strategic intervention, the quality of emergency care and the well-being of EMS personnel in Chobe will remain compromised. The challenges observed are not unique to Kasane but reflect broader issues within Botswana's pre-hospital emergency care system. Addressing them requires systemic reforms, resource investment, and policy alignment.

RECOMMENDATIONS

1. Develop and implement a national EMS policy

The absence of a formal EMS policy contributed to operational confusion, unclear decision-making hierarchies, and role overlap among EMS staff in Chobe. Establishing a clear policy framework would define responsibilities and streamline communication structures, which could mitigate professional tensions and improve service delivery.[27]

Feasibility: A national EMS task team could lead the drafting process, starting with a localized pilot policy.

Stakeholder engagement: EMS personnel should be directly involved to ensure policies are operationally grounded and contextually relevant.

2. Strengthen mental health support systems

Participants reported high emotional stress, burnout, and a lack of EMS-specific mental health services. Introducing targeted psychological support, including trauma debriefing and routine mental wellness assessments, could alleviate the psychological burden.[20]
Feasibility: Initial steps could include peer-led support circles and tele-counselling services in partnership with mental health NGOs.

Stakeholder engagement: EMS workers should help design the wellness programs based on their unique coping needs.

3. Invest in EMS infrastructure and communication systems

Shortages of ambulances, essential medical equipment, and unstable emergency communication systems (e.g., the 997 line) severely hampered response capacity in Chobe. Investment in robust EMS infrastructure would reduce delays and improve care quality.[28]

Feasibility: Resource allocation could be phased, starting with mobile clinics and regional redistribution of underutilized equipment.

Stakeholder engagement: EMS staff should participate in identifying priority equipment needs and evaluating communication upgrades.

4. Implement targeted recruitment and retention strategies

Staffing shortages led to 12-hour shifts, fatigue, and low morale. Recruitment drives, rural service incentives, and structured career progression could reduce attrition and increase job satisfaction.[29]

Feasibility: Partnering with local training institutions and offering bonded scholarships can facilitate a pipeline of EMS professionals.

Stakeholder engagement: EMS staff should guide the design of retention programs to ensure they are responsive to frontline challenges.

5. Develop contextual safety protocols for high-risk zones

Working in wildlife-populated areas, especially at night, exposed EMS personnel to physical danger. Collaborative safety protocols involving wildlife authorities and local police are critical for safeguarding responders.[25]

Feasibility: Measures like animal-safety training, GPS tracking, and mobile alerts can be implemented with minimal investment.

Stakeholder engagement: Protocols should be co-created with EMS staff to reflect field realities and site-specific risks.

6. Enhance capacity building and continuous professional development

Participants noted limited training access and lack of formal professional development. Offering regular

refresher courses in trauma care, teamwork, and prehospital leadership would build competence and boost confidence.[11]

Feasibility: Short-term courses and online modules could be introduced via partnerships with health colleges or NGOs.

Stakeholder engagement: EMS staff should help identify training gaps and co-develop the curriculum content.

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AUTHORS' CONTRIBUTIONS

Leatile Gareitse (LG): Conceived and designed the study, conducted data collection and analysis, and drafted the initial manuscript.

Mr. Fabian Chapima (FC): Provided co-supervision, offered scholarly support throughout the research process, and reviewed and approved the final manuscript.

Professor Lonia Mwape (LM): Supervised the overall research process, provided academic guidance, and approved the final version of the manuscript.

All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work.

CONFLICT OF INTEREST

The author discloses a potential conflict of interest, having previously worked at EMS Chobe. This professional affiliation may have influenced access to participants and familiarity with the study setting. However, every effort was made to ensure objectivity and maintain ethical standards throughout the research project.

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