Journal of Rural and Community Development

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Citation:
Stoneley, A., Anderson, J., & Sutton C. (2024). Logistical barriers in accessing emergency healthcare for rural asthmatics: A patient's perspective. *The Journal of Rural and Community Development*, *19*(2), 44–59.

Publisher:
Rural Development Institute, Brandon University.

Editor:
Dr. Doug Ramsey

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ISSN: 1712-8277 © Authors
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Logistical Barriers in Accessing Emergency Healthcare for Rural Asthma Patients: A Patient's Perspective

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Abstract

Australia has a high prevalence of asthma amongst its population. Literature shows rural asthma patients have a higher need to access emergency healthcare due to asthma-related emergencies than those living in metropolitan areas, and that underutilisation of ambulance resources is evident in rural areas. This study aims to explore the barriers preventing patients from accessing emergency healthcare resources during an asthma-related emergency in rural New South Wales (NSW)**.** A qualitative interpretative design comprising 12 semi-structured interviews was conducted between May and July 2021. Participants had accessed emergency healthcare in rural NSW during a moderate to severe asthma exacerbation in NSW within the last five years. Interviews were recorded and transcribed verbatim to allow thematic analysis, which produced four overarching themes. This paper explores two of those themes due to the depth and range of the data. The impact of healthcare logistics, including access and availability of emergency healthcare resources, response times, environmental concerns, and issues with transport home from the hospital, were identified as barriers. Additionally, financial cost, the presumed cost to healthcare workers and societal cost were also found to influence participants' decisions to access emergency healthcare. Overall, multiple factors were identified as potential barriers to asthma patients in rural NSW accessing emergency healthcare. Introducing improved mapping systems and mobile/radio reception, in addition to better staff resourcing in rural locations may help reduce the reluctance of asthma patients to access healthcare due to logistical concerns and fear of being a burden on the emergency healthcare system.

Keywords: asthma, emergency healthcare, health literacy, rural, self-management

Obstacles logistiques à l'accès aux soins de santé d'urgence pour les patients asthmatiques ruraux : Le point de vue d'un patient

Résumé

L'Australie a une prévalence élevée d'asthme parmi sa population. La littérature montre que les patients asthmatiques ruraux ont plus besoin d'accéder à des soins de santé d'urgence en raison d'urgences liées à l'asthme que ceux vivant dans les zones métropolitaines, et que la sous-utilisation des ressources ambulancières est évidente dans les zones rurales. Cette étude vise à explorer les obstacles empêchant les patients d'accéder aux ressources de soins de santé d'urgence lors d'une urgence liée à l'asthme dans les zones rurales de la Nouvelle-Galles du Sud (NGS). Une conception interprétative qualitative comprenant 12 entretiens semi-structurés a été menée entre mai et juillet 2021. Les participants avaient eu accès à des soins de santé d'urgence dans les zones rurales de la NGS lors d'une exacerbation de l'asthme modérée à sévère en NGS au cours des cinq dernières années. Les entretiens ont été enregistrés et transcrits textuellement pour permettre une analyse thématique, qui a produit quatre thèmes généraux. Cet article explore deux de ces thèmes en raison de la profondeur et de la portée des données. L'impact de la logistique des soins de santé, notamment l'accès et la disponibilité des ressources de soins de santé d'urgence, les délais de réponse, les préoccupations environnementales et les problèmes de transport depuis l'hôpital vers le domicile, ont été identifiés comme des obstacles. De plus, il a été constaté que le coût financier, le coût présumé pour les travailleurs de la santé et le coût sociétal influencent également les décisions des participants d'accéder aux soins de santé d'urgence. Dans l'ensemble, plusieurs facteurs ont été identifiés comme obstacles potentiels à l'accès des patients asthmatiques des zones rurales de la NGS aux soins de santé d'urgence. L'introduction de systèmes de cartographie améliorés et d'une réception mobile/radio, ainsi qu'une meilleure dotation en personnel dans les zones rurales, pourraient contribuer à réduire la réticence des patients asthmatiques à accéder aux soins de santé en raison de problèmes logistiques et de la peur de constituer un fardeau pour le système de soins de santé d'urgence.

Mots clés : Asthme, soins de santé d'urgence, littératie en santé, milieu rural, autogestion

1.0 Introduction

Asthma has a high prevalence in Australia, affecting 11% of the population (Australian Bureau of Statistics, 2020-21). The Australian Institute of Health and Welfare (2019) data reveals a higher occurrence of asthma and higher hospitalisation rates in regional and remote areas than in major cities. There is limited Australian literature exploring the effect of rurality on accessing emergency healthcare during an asthma-related emergency. However, a recent study in the United States indicated that rural asthma patients are likely to have more hospital or Emergency Department (ED) visits than urban asthma patients (Fecho et al., 2022) and that asthma patients typically have worse health outcomes and less access to healthcare than patients in urban areas (Pate et al., 2021).

Furthermore, it is known that ambulance utilisation in Australia is lower in rural areas, with Reed and Bendall (2015) reporting people residing in non-urban areas are significantly less likely to access emergency healthcare via ambulance than those in urban areas. This can be interpreted as a cause for concern when considering the increased prevalence and hospitalisation rates for Australian asthma patients in rural areas (Australian Institute of Health and Welfare, 2019).

The literature makes a clear statement on the underutilisation of ambulance resources as well as highlights the need to access emergency healthcare more frequently due to asthma-related emergencies than patients in metropolitan areas (Stoneley et al., 2022). This reinforces the importance of further investigation to identify barriers to accessing emergency healthcare and utilizing ambulance resources. The objectives of this study were to enhance the understanding of the patient's perspective and to inform recommendations on further resources that may benefit rural areas. The objectives of this study were addressed by exploring the experiences of asthma patients when utilising emergency healthcare in rural New South Wales (NSW) and describing what influences rural asthma patients to call/not call for an ambulance during an exacerbation.

2.0 Methods

This study utilised a qualitative interpretative design, collecting data through semi-structured interviews. This method allowed for an overall interpretation of the multiple perspectives that exist to understand how participants made decisions regarding their emergency healthcare (Thorne, 2016). Purposive sampling was used for the recruitment of participants who met the inclusion criteria. This included participants who were a minimum of 18 years old and who needed to access emergency healthcare for an asthma exacerbation of a moderate to severe intensity. The event must have occurred within the last five years to ensure participants could accurately recall events and emotions from their experiences. Additionally, only participants whose event occurred in postcodes which were located in NSW and scored an MM3 (large rural town) or above on the Modified Monash Model (an Australian model which defines an area based on remoteness ranging from major cities [MM1] to very remote locations [MM7]) were included in this study (Australian Government Department of Health, 2019). The study was open to people who lived in these areas or who were travelling through the area when the exacerbation occurred. It was also open to the patients themselves or family members and carers who were involved in the decision regarding when and how to access emergency healthcare.

Participants were asked to discuss how they utilised emergency healthcare, and what influenced their decision on whether to call an ambulance.

Advertisements on social media platforms were utilised to recruit participants, allowing them to register their interests and be provided with a participant information sheet and consent form. Both written and verbal consent was gained, and a total of 12 participants were recruited. An interview guide consisting of five main questions as well as prompt questions was used to encourage participants to elaborate and provide examples to expand on their responses. Interviews lasted approximately one hour in duration, with recordings transcribed verbatim. Debrief statements were distributed to participants at the cessation of the interview in case any distress was experienced from sharing their stories. However, no participants indicated any distress. Prior to analysis, transcripts were deidentified, and pseudonyms were assigned to participants. The analysis took place whilst concurrent interviews were being conducted.

Interviewing was ceased after no new themes were identified within the last two interviews indicating that data saturation was reached (Braun & Clarke, 2019).

The data was reviewed (managed with NVivo) to determine codes which were of significance. They were then merged into general themes to capture the important concepts from the data. Themes were then further refined and defined to determine the four overarching themes (Braun & Clarke, 2023). The steps which were utilised can be found in Table 1.

Table 1: Thematic Analysis

Step	**Description**	**Example**
1. Familiarising yourself with your data	Interviews were transcribed and transcripts were reviewed to gain a better understanding of the data collected.	"Unless I felt completely incapacitated, I wouldn't call an ambulance." (Jason)
2. Generating initial codes	Production of initial codes from the interview data highlighting areas that appeared significant.	Still able to breathe/ambulate.
3. Searching for themes	Collating the codes to develop overarching themes expressed throughout the data.	Still able to mobilise to the Emergency Department.
4. Reviewing themes	Refining themes to ensure the coded extracts formed a coherent patten (level 1) and the validity of the themes were considered (level 2) creating a thematic 'map' of the analysis.	Level 1 theme: Ability to self-mobilise with safety. Level 2 theme: Still able to mobilise to the Emergency Department.
5. Defining and naming themes	Refining the contents of each theme, providing clear definitions, and naming each theme.	Healthcare logistics included availability of resources, impact of response time, impact of distance, complications associated with getting home, technology and the ability to self-mobilise to the Emergency Department
6. Producing the report	Analysis was finalised and a report was written up in a concise, logical, and non-repetitive manner where everything was related back to the research question and the literature.	The theme of healthcare logistics was a major theme in the final document providing significant insight into the decision-making of participants.

Note: Guided by Braun & Clarke, 2006.

Ethical considerations were addressed to assure the confidentiality of information. Participants all indicated that they were pleased to have the opportunity to share their stories. Both written and verbal consent was gained from participants and this project was granted ethics approval by the Charles Sturt University Human Research Ethics Committee, approval number: H21044.

3.0 Results

Participant details including approximate age and geographical location are summarised in Table 2. From the 12 interviews, data saturation was reached and four overarching themes were identified (Braun & Clarke, 2019). Themes included the impact of healthcare logistics, the cost of accessing emergency healthcare, past experiences as education, and the impact of self-management strategies. Due to the diverse range and depth of data, this paper discusses the results from two overarching themes: the impact of healthcare logistics and the cost of accessing emergency healthcare.

Table 2: *Participant Details*

Participant name (pseudonym)	**Level of rurality** (Modified Monash number) (Australian Government Department of Health, 2019)	**Age**
Suzie	MM4	41-50
Tracey	MM3	51-60
Jessica	MM5	31-40
Mel	MM3	31-40
Kylie	MM4	31-40
Kevin	MM3	51-60
Joseph	MM5	61-70
Briony	MM3	51-60
Jason	MM5	51-60
Lisa	MM3	41-50
Jen	MM4	31-40
Cecilia	MM3	51-60

4.0 Healthcare Logistics

Several logistical considerations were associated with the participant's decision to access emergency healthcare for an asthma exacerbation. Considerations included the participant's access to and availability of emergency healthcare resources and their anticipated response time. Participants also reported issues related to environmental concerns as well as challenges associated with getting home from the hospital if transported by ambulance or transferred to another hospital. In the end, these considerations were used by participants to justify whether they would access emergency healthcare via ambulance or self-present to the ED.

4.1 Availability of Resources

Access to and availability of resources were reported to impact participant's access to emergency healthcare. The absence of resources and difficultly accessing them led to concerns that resources, specifically ambulance resources, were insufficient. This perception discouraged some participants from calling an ambulance for fear they would be taking up a valuable resource that may be needed by someone else. It was not uncommon for participants to arrange for other people to take them to the ED or attempt to drive themselves.

Cecilia was one of several participants who discussed how the reduction of services (including ambulance resources) over time had impacted her decision-making and how her concerns that someone else may have greater need of that limited resource, acted as a barrier discouraging her from calling an ambulance during an exacerbation. The result was the decision to self-present to the ED rather than call 000 (emergency phone number) where possible.

> We've just seen less and less ambos (ambulance vehicles) in towns. The small towns are losing their ambulances, and everybody is so aware of that, that they're worried about using such a dwindling resource. We don't want to be using something that someone else could need (Cecilia, personal communication, June 21, 2021).

Although some participants described a permanent reduction of ambulance services, others felt this reduction fluctuated over time. Jessica described the situation in her local community where ambulance resources were reduced due to being utilised for other purposes, such as sporting events. She was aware of what sporting events were occurring in her community and surrounding areas and knew that the limited resources of her community had been further reduced to accommodate these events. She explained how this impacted her decision-making, motivating her to self-present to the ED in the event of an asthma exacerbation.

> It's really hard to get an ambulance if there's a lot of sport on. I know it's really hard to access the ambulance at that time because there are not many ambulances … I was here at work, and I needed help like three times here and I've had to go to hospital and three times people from here have taken me instead of calling an ambulance, because everyone knows there's a bit of a shortage of ambulances (Jessica, personal communication, May 26, 2021).

Overall, participants described ambulance resources as insufficient and difficult to access and highlighted how this problem had worsened over time. This lack of availability was due to a combination of chronic shortages (when resources were reduced permanently) and fluctuating shortages (when resources were moved to cover planned events for a fixed period of time). Limited access to and availability of these resources, or the perception of absent resources, resulted in participants making the decision not to access them.

4.2 Impact of Response Time on Decision-Making

The long distances ambulances must travel may delay response times, and these anticipated delays influenced participants' decisions on how to access emergency healthcare. Participants were more likely to self-present to the ED if their location was closer to the hospital than the ambulance station. Furthermore, participants reported their caution in calling an ambulance for fear that the ambulance resources had been called to other towns far away. When response times were assumed to be lengthy, participants preferred to self-present to the ED where possible rather than call an ambulance to receive prompt emergency healthcare.

Cecilia explained that sharing ambulance resources with other towns influenced her decision not to access this resource due to the fear that the ambulance would be far away making it faster to try to get to the ED on her own.

> Our ambulance would be called into (MM3 town), which is 70-80 kms away and often they'd be in (MM3 town) when we'd put in a call. And so you know that you could get into town quicker – even when they've got the blues and twos on ... So there have been times where you've met an ambulance halfway along the road (Cecilia, personal communication, June 21, 2021).

Joseph's experiences also illustrate how patients take the potential response time into consideration when deciding how to access emergency healthcare. By getting his partner to drive him to the ED, he tried to avoid delays in accessing emergency healthcare.

> It's more than 20 minutes from town to here so we actually decided to drive in and if I became really bad, just phone triple 0 (000) while we're driving, and we could have met them on the road. So it was purely a time frame thing (Joseph, personal communication, May 27, 2021.

Overall, participants made it clear that paramedic response times were a consideration which influenced their decision on how to access emergency healthcare. In cases where there were large distances to be travelled, participants believed it to be faster to start making their own way to the hospital and arranging to meet the ambulance on the way or were more inclined to find alternative pathways, including self-presenting to the ED. Distance also created complications for participants after their exacerbations had been resolved, and they needed to return home due to living in environments where alternative transport, including taxis, Ubers and other modes of community transport are limited or non-existent.

4.3 Complications Associated With Getting Home From the Hospital

Another issue discussed in the interviews was how participants were going to get home from the hospital if they arrived via ambulance. This was reported to be concerning, particularly when participants lived long distances from the hospital, as there was limited transport to get them back home.

Tracey explained her fear of being stranded leading to the decision to drive to the ED rather than calling an ambulance. Tracey indicated this had led to a poor

decision at least once which could potentially have resulted in harm to herself and other road users.

> I really should have called an ambulance, but I drove because I knew I was going to be discharged in the middle of the night and I wanted to be able to get back home without disturbing my family. But I should have called an ambulance because I had to pull over (Tracey, personal communication, June 10, 2021).

Several participants, including Jason, described a similar decision-making process to the one that Tracey discussed, but not all decided to act differently in the future.

> We have actually been in for different things at different times [and] decided we can't be bothered waiting and have left. So, in my recent experience, I drove myself in … I didn't want to get stuck in (MM5 town), stuck in the emergency system … We're relatively new to the area, so we don't have a lot of old friends that we could call on to give us a lift home. We're well out of the way for everybody. I'm sure there's community transport options, but if they're as slow as emergency then that would just make it into a whole weekend ordeal. So, yeah, a big part of the thinking, is that we're not stuck at the other end (Jason, personal communication, May 15, 2021)

Although Jason discussed other options, such as community transport, he admitted to having a lack of knowledge regarding these options which impacted on his decision-making.

Overall, the complication of being 'stuck' and not having a way home from the hospital acted as a barrier to accessing ambulance resources for emergency healthcare. This suggested the importance of advocating for more accessible and better-publicised community transport services so that decisions regarding access to emergency healthcare are based on need and not influenced by fear of later consequences. Another issue related to logistics involved concerns regarding the environment.

4.4 Environment

Participants also identified issues associated with environmental conditions. These included issues related to online mapping systems and poor radio and phone signals, which made it difficult to locate patients in rural environments. It was also noted that environmental conditions such as cold nights led to asthma being more unpredictable and difficult to manage.

Like many other participants, Jason highlighted the complications associated with living in a rural environment where online maps are unreliable, and phone signals are suboptimal, making it much harder for him to access emergency healthcare via ambulance. This influenced his decision-making on how to access emergency healthcare, resulting in him choosing to self-present to the ED.

> Where I live, I can actually get to hospital quicker than an ambulance can get to me, because people like ambulances, or anybody seems to rely on google maps. It will send you off for whatever reason, it will take you right past my place, two kilometres down the road where you'll get stuck, in an area that you can't contact me … invariably people end up turning around, driving back and sort of on their way back, they'll be trying to contact me to find out where they went wrong … I could drive to the local hospital, be there in 15 to 20 minutes, but if I called an ambulance there's a good chance, if they left immediately, they still probably wouldn't be here for 25 minutes to half an hour (Jason, personal communication, May 15, 2021).

Jessica also explained how her environment influenced her decision on how best to access emergency healthcare due to her ability to better self-manage her condition in a more conducive environment, such as a warm day.

> I used to play [sports] at night in the cold, and I would more likely call an ambulance if I was having an asthma attack at night-time than in the day where it was warm, and I felt like I could self-regulate more or help myself more (Jessica, personal communication, May 26, 2021).

Many participants discussed the negative impact of their rural environment which created technological complications and issues associated with mobile reception that influenced their decisions on how to access emergency healthcare. The importance of the environment was further highlighted by the impact on participants having to manage their own condition. Although healthcare logistics often had a negative impact on participants calling emergency services, participants demonstrated their resilience in living in this environment and making their own decisions regarding their ability to mobilise themselves to the ED.

4.5 Safe to Mobilise to the Emergency Department

This focuses on participants' assessments of their own condition. Several participants said that if they were having a severe asthma attack, they would consider their ability to self-mobilise safely to get to the ED rather than wait for an ambulance. This demonstrated how the assessment of their own condition, particularly the ability to self-mobilise, impacted their decisions on how to access emergency healthcare.

Jason shared several concerns, as discussed previously, which informed his decision to self-present to the ED, "Unless I felt completely incapacitated, I wouldn't call an ambulance" (Jason, personal communication, May 15, 2021).

Jen shared a similar point of view in that she felt able to determine when her asthma was getting severe and would attempt to self-present to the ED rather than call an ambulance, "I didn't feel like I was in a life-threatening situation, I was pretty bad, but I just, I knew I could get myself to the hospital, so I didn't call an ambulance" (Jen, personal communication, June 18, 2021).

Overall, it was a common theme that if participants felt they could safely get to the ED on their own rather than needing to call an ambulance, this would be their preference. However, it should be noted that this behaviour is not without risks as each participant was describing moderate or severe asthma exacerbations only, and asthma severity can increase rapidly, creating the potential for other hazards if participants were to drive themselves, particularly in isolated rural environments.

In conclusion, participants identified several healthcare logistical issues associated with accessing emergency healthcare for their asthma. Several barriers regarding accessing ambulance resources were discussed, such as the availability of resources leading to lengthy response times, complications associated with getting back home from the hospital, as well as environmental issues related to technology and the ability to self-manage their asthma. Participants were more likely to avoid calling an ambulance if they felt they could still mobilise to the ED themselves. Another significant impact on their decision-making was their assessment of the cost of accessing emergency health care.

5.0 Cost

The cost of accessing emergency healthcare was another theme that influenced the participants' decision-making. These 'costs' included the burden on healthcare workers, the cost to society of utilising limited resources and the financial cost to the individual.

5.1 Cost to Healthcare Workers

Participants shared concerns about being a burden on healthcare workers, particularly paramedics when accessing emergency care for their asthma, which led to feelings of guilt for some participants. Mel explained how she would always try to manage her son's asthma on her own where possible to avoid burdening healthcare staff, "It's a bit of a burden … he's had quite horrific attacks, but I have always just been able to control it. But honestly if I felt out of my depth I would 100% call an ambulance."

Other participants associated 'cost' with the impact that it would have on the individual healthcare provider. For example, Cecilia described her desire to protect paramedics from being woken up in the middle of the night when they were on call and how this influenced her decision to access emergency healthcare, which she was less likely to do at unsociable hours.

> Especially when somebody's on call, and they've done a 12-hour shift. Unless I'm dying, I'm not going to get somebody out of their bed … I know how it feels when the phone rings. And you just sit there and go what is it this time? (Cecilia, personal communication, June 21, 2021).

Overall, many participants shared a feeling of being a burden when calling for an ambulance particularly when this would cause fatigue for healthcare workers. This discouraged participants from accessing emergency healthcare for moderate to severe asthma or delaying such a call until they were in life-threatening circumstances.

5.2 Cost to Society

The cost to society of accessing emergency healthcare was another issue that impacted participants' decision-making. This included concerns about the limited ambulance resources in their area and fears that someone else's needs may be greater than theirs.

Jen worried that if she called an ambulance, she would be preventing others in her community from being able to access emergency healthcare. To avoid tying up valuable resources, she preferred to make her own way to the hospital, "I didn't want to take away the service from somebody else who might need it more than me."

Kevin highlighted his concerns that accessing emergency healthcare (particularly ambulance services) would result in higher health insurance premiums for everyone, so he chose to self-present where possible, "Indirectly the more that's [ambulance service] used unnecessarily the higher the premiums go for everybody."

The fear of having a negative impact on other members of the community by utilising limited ambulance resources motivated many participants to self-present to the ED rather than call for an ambulance when needing to access emergency healthcare for their asthma. The rationale was related to tying up limited resources as well as causing an increase in the cost of insurance premiums.

5.3 Cost to the Individual

Financial cost was not a concern for those who had insurance which included ambulance coverage or pension card holders, but for those who did not, it was a factor to consider due to the significant fee associated with accessing an ambulance in NSW. However, all participants emphasised the cost of an ambulance would not prevent them from accessing this form of emergency healthcare if they were in a life-threatening situation. It is important to note, however, that participants were only included in this study if they had been in a situation of a moderate to severe asthma exacerbation and that this was the focus for all interviews.

Lisa explained that the cost of an ambulance was not a factor in her decision-making as she had insurance, "We've got ambulance cover, so that – the monetary thing wasn't an issue."

In contrast, Mel discussed how the cost of accessing an ambulance impacted her decision to call for one and noted that she would not call if she could avoid it. However, she acknowledged that whilst the financial cost influenced her decision-making, she would call 000 if she were in an uncontrollable situation:

> It comes down to cost as well, like I don't have 4 or $500 for an ambulance drive, you know to the hospital, so unless it was really, really out of my control I probably would just opt to take us, go ourselves (Mel, personal communication, June 5, 2021)

Overall, the cost to the individual did influence the participants' decision-making on accessing emergency healthcare during moderate or severe asthma exacerbations but it did not stop them calling if they had insurance cover and all participants were agreed that in a life-threatening situation, they would call 000 regardless of cost.

In conclusion, participants explained how the different costs, actual and perceived, associated with accessing emergency healthcare impacted their decision-making. Participants were concerned about being a burden to healthcare workers and how their decisions might impact negatively on others in their community, as well as revealing concerns over the financial costs to themselves. All these factors were motivators for participants to self-present to ED.

6.0 Discussion

This study explored the participants' perspectives on decision-making when accessing emergency healthcare for moderate to severe asthma-related emergencies in rural NSW. Participants discussed how they experienced barriers in accessing emergency healthcare due to logistical issues in addition to perceptions related to cost. In some cases, these barriers discouraged participants from accessing ambulance services in an asthma-related emergency and encouraged them to self-present to the emergency department.

Healthcare logistics included challenges associated with access to resources, response times, environmental factors, the perception that the patient is well enough to self-present to the emergency department, and complications related to getting home from the hospital when transported by ambulance. These barriers were similarly expressed throughout the literature. When considering access to resources and response times it was evident that participants believed there were not enough ambulance resources in their town to serve the population. This was in addition to participants' concerns over the potential negative impact that increased response times would have on their clinical outcome.

Several international studies have investigated the impact of the degree of rurality on the availability of prehospital care. Ashburn et al. (2022) investigated the differences in rural and urban prehospital response times for cardiac patients and identified that response times were twice as long in rural areas than in urban areas. Whilst the scene time was found to be similar, transport time in the rural cohort was significantly longer than in the urban cohort (Ashburn et al., 2022). Similarly, Alanazy et al. (2021) reported longer response and transport times in rural areas compared to the urban cohort. Furthermore, when considering the issues participants raised concerning geographical environment, Aftyka et al. (2014) identified numerous complications associated with this in rural areas, such as poor radio and phone signals in addition to muddy, rocky terrains with poor landmarks making it difficult to describe locations. Similarly, an Australian study reported an underutilisation of ambulances in rural areas compared to urban areas (Reed & Bendall, 2015).This literature supports the validity of the hesitation of participants in accessing emergency healthcare via ambulance and why there was such a push to self-present to the emergency department when participants felt safe to do so.

Furthermore, participants also shared concerns about being a burden on their communities or on individual healthcare workers if they were to access emergency healthcare via ambulance. Whilst these perceptions may be attributed to a number of reasons, it is recognised in the literature that healthcare services in rural areas are under-resourced and suffer chronic staff shortages. Cosgrave et al. (2018) explored the negative influences affecting job satisfaction in new mental health clinicians in rural Australia, and participants in their study discussed how working in a poorly resourced environment with a larger workload than those doing the same job in major cities negatively impacted their job satisfaction. Martin et al. (2020) explored the barriers in rural and metropolitan Australian health services, with rural paramedics identifying long

distances, poor hospital coordination and limited resources as barriers preventing them from providing adequate care to small communities.

The theme of cost also had financial implications for the individual in accessing emergency healthcare (i.e., the cost to access an ambulance) as well as the patient's perception that they were a burdensome cost to the healthcare worker and to society. Similarly, a project conducted in rural Western Australia (WA) showed that over 30% of the general population did not have a pension card or ambulance cover (Prosser et al., 2013). While participants interviewed in this study admitted they had considered the cost of an ambulance before calling for one, they all agreed cost would not have prevented them from calling an ambulance in a life-threatening situation, whereas 16% of the participants in the WA study avoided calling an ambulance due to the financial cost involved (Prosser et al., 2013). Additionally, Badenhorst et al. (2019) explore the perception of the management of catastrophic sporting injuries, including barriers to achieving optimal care in South Africa. It was shown that barriers to optimal care were more prevalent in rural areas, highlighting that these areas need more attention when addressing emergency healthcare. Overall, the literature supports the notion that there is a resource shortage in rural areas compared to urban areas, which is evident to patients residing in rural areas and impacts how they access emergency health care.

7.0 Limitations

A limitation of this study was that participants were only recruited from NSW. This was to enable greater insight, as asthma patients residing in different states may have different experiences of rural health due to the scope of practice and availability of services. It was not feasible to undertake a comparison of different healthcare systems within the constraints of this study. This topic would benefit from a larger-scale study across multiple Australian states and healthcare services.

8.0 Conclusion

Overall, this study has uncovered several factors which influence patients' decision-making to access emergency healthcare due to a moderate to severe asthma exacerbation in rural NSW. The main themes that emerged included the influence of logistical issues in accessing emergency healthcare, the patient's perception of the cost that resource utilisation has on individual healthcare workers and the rest of society, and the financial cost for themselves. The themes identified in this study have demonstrated a reluctance of patients to utilise ambulance services in rural NSW. Some of the issues identified have the potential to be mitigated with the introduction of improved mapping systems, and increased radio/mobile reception in addition to improvements in staff resourcing in rural locations, in the ambulance service to address the patient's perception that their healthcare is causing a burden on the emergency healthcare system. This study can be utilised to inform decisions on how paramedic access needs to be improved in rural NSW, and further research into this topic would be beneficial to determine ways to break down the barriers identified in this study which are preventing rural residents from accessing emergency healthcare during an asthma-related emergency.

Acknowledgements

The authors thank the participants in this study who generously volunteered their time to share their experiences.

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