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Contents

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ASSESSMENT OF ACCESSIBILITY AND SATISFACTION WITH PUBLIC AMBULANCE SERVICE IN MINNA METROPOLIS, NIGERIA

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Abstract

The present study investigates ambulance service accessibility and medical patients' satisfaction for public ambulance services in Minna. The study used a survey research design and purposefully distributed 150 questionnaires to the medical patients at Minna General Hospital through random sampling techniques. The study used descriptive statistics to analyze the data gathered, while correlational analysis was used to determine the relationship between ambulance service accessibility variables with residential areas. The study results show that ambulance accessibility is significantly affected by service cost, service frequency, and road infrastructure. Also, the study results indicate that medical patients are moderately satisfied with the overall service offered by the ambulance service in Minna. The study recommends, among others, that the Niger State government should subsidize ambulance service costs to enhance accessibility for all medical patients across different residential areas. This measure would also help increase service frequency, especially in underserved rural areas.

Keywords: Public Ambulance; Ambulance Service; Patients Satisfaction; Accessibility & service frequency

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Introduction

Throughout human history, emergencies and accidents have prompted the need for swift response services. To minimize delays in medical care and provide timely aid, ambulance services were introduced as a vital component of emergency healthcare. According to the World Health Organization (WHO, 2024), individuals with acute illnesses, injuries, and conditions like sepsis, heart attacks, strokes, asthma, and pregnancy complications require daily access to emergency services in both urban and rural settings. This highlights the necessity for efficient ambulance operations to improve healthcare access and enhance service standards.

Emergency ambulance services, also known as Emergency Medical Services (EMS), play a critical role in delivering pre-hospital care and transporting individuals facing medical emergencies. Operated by hospitals, government agencies, or private organizations, these services are designed to respond promptly to emergency calls. However, the quality and efficiency of ambulance services vary significantly across the world. Developed countries such as the U.S., China, Russia, and Japan benefit from advanced infrastructure, allowing for more efficient and accessible ambulance services. In contrast, developing nations like Nigeria and other African countries face challenges such as inadequate infrastructure and limited resources, which hinder the effectiveness of emergency medical services (Chan, Boutilier & Chan, 2020). Factors like poor road conditions, traffic congestion, and a shortage of ambulances contribute to slower response times in developing countries compared to their developed counterparts (Rathore, Jain & Parida, 2021).

Many factors have been traced by past studies as impacting accessibility and satisfaction of ambulance service; for instance, Lee (2014); and Li,Kwan, Chen,Wang, Yin & Yu. (2021), argue in their studies that service coverage, rural and urban serviceability, population, rate of urbanization, and age of the patient influence their access to ambulance service. Service satisfaction being a subjective term, the ease of access to an ambulance influences perceived quality and overall satisfaction. Cost of ambulance service, service frequency, and road access are key factors impacting accessibility of ambulance service.

In addition, ambulance accessibility and satisfaction are generally higher in developed nations, while poor access and availability remain significant challenges in developing regions (Levine, Gadiraju, Goel, Johar, King & Arnold, 2007). A major barrier to emergency medical care in these

areas is the lack of reliable emergency transportation. Empirical studies indicate that patients with direct experience of emergency ambulance services report higher satisfaction, particularly regarding service availability, response time, medical staff competence, and overall comfort (Farhad, Mehwish, Muhammad, Asad, Saima, Abid, Abid & Zia, 2023; O'Meara, 2003). Accessibility plays a crucial role in service satisfaction, as the inability to access ambulance services can lead to lower satisfaction levels. High service costs and infrequent ambulance availability are common factors contributing to poor access in many regions.

Despite the state government effort in improving the health sector of Niger State, the challenges of high service costs in urban areas and low service frequency in rural areas create significant barriers to access that are still persisting, affecting patient satisfaction of ambulance service in Minna. It is therefore against this backdrop that the present study aimed to address these gaps by investigating public ambulance accessibility and patient satisfaction in Minna's metropolitan area. The findings are expected to enhance the quality of medical care, identify key factors affecting ambulance access, and improve overall service performance for medical patients. The study specific objectives are:

i. To examine the level of accessibility to ambulance service in Minna
ii. To assess the level of satisfaction of ambulance service in Minna
iii. To determine the overall satisfaction of ambulance service in Minna
iv. To identify the relationship between residential areas and accessibility of ambulance service
v. To determine the relationship between ambulance service satisfaction and accessibility of ambulance service.

Literature Review

Theoretical review

Theory of accessibility is a management theory was introduced by Higgins in 2012 in his handbook of theories of social psychology which serves as an underpin to the present study. The theory focuses on the priming and accessibility of social constructs. It explores how recent and frequent priming, combined with chronic accessibility, influences our impressions of others. For instance, even vague information about someone can shape our perception of them based on this principle (Higgins, 2012). In the context of emergency ambulance service, efficient and high medical patient accessibility may improve their overall satisfaction. efficient service offered to medical patients may be perceived highly satisfactory.

The social model of disability is a theory which have profound impact in the present study. The idea was introduced by Mike Oliver in 1980s. according to the theory, not individual limitation that cause the problem of poor accessibility rather the society failure in providing appropriate and adequate services in ensuring the demand of people (Lacke, 2021). The theory was never intended to encompass theory of disability from the starting point as was perceived as a tool to improve the lives of disability in the society (Oliver, 2013). In the context of ambulance service accessibility implies that the inability of medical patient to have access to the ambulance emergency service may be as a result of the nature of the physical surrounding or poor planning of the ambulance service.

Accessibility of Ambulance services

Accessibility of ambulance services is crucial for effective emergency medical care, ensuring that patients receive timely and appropriate treatment. Several factors impact the accessibility of ambulance services, including geographical, financial, infrastructural, and systemic elements. Plethora of study have strived to investigate the accessibility of emergency ambulance service. For instance, the work of Lee (2014) focused on examining service coverage, accessibility and serviceability of rural and small urban ambulance systems. The study aimed at proposing a novel approach to analyse potential accessibility to ambulance services and compares it to the two-step floating catchment area method. Demand-covered-ratio, potential serviceability, average response time, and ambulance-covering-ratio are the key component use in analysing ambulance service accessibility. The proposed model demonstrate that it can efficiently identify under-covered and overlapped ambulance service coverage to improve service quality, timeliness, and efficiency. The model considers households and travel time to plan rational ambulance service. In another study, Li *et al.* (2021) examined EMS accessibility in Shanghai during a 100-year pluvial flood scenario, considering regular (population and traffic) and irregular (flood) factors. The study found that, under normal conditions, central areas with higher populations had better EMS accessibility. During flood events, EMS accessibility decreased significantly, but areas with higher normal accessibility remained relatively more accessible. The study recommended that the government should strategically locate or relocate EMS stations in less accessible areas based on the findings.

Zou *et al*. (2023) studied The spatial accessibility of emergency medical services in Chongqing, Southwest China. The authors used the nearest neighbour method was used to measure spatial accessibility of

ambulance services and complete EMS. While Moran's I index, Pearson correlation and multiple linear regression were use to analysed the spatial aggregation patterns and factors impacting spatial accessibility of complete EMS. The study result shows that the medians of shortest travel time for ambulance, monitoring ambulance, primary EMS and advanced EMS in Chongqing were 7.0, 18.6, 36.2, and 47.8 min. also, the study find that urbanisation rate was a negative influencing factor on shortest travel time for primary EMS, while average elevation and the number of settlements were positive influencing factors. The study concluded that GDP per capita and urbanization rate were negative influencing factors on shortest travel time for advanced EMS, while the number of settlements was a positive influencing factor.

Utilising the case of Ningbo China, Zhu *et al*. (2021) conducted spatial accessibility assessment of prehospital emergency service focusing on elderly. The major purpose of the study was to determine the rate of ambulance usage and accessibility among the elderly. The study results indicate that the rate of utilisation of ambulance services by the elderly was 27.39 per 1000 elderly residents. In addition to the findings, the mean accessibility score was only 1.43 and nearly 70% of demand points had scored lower than 1. The study concluded that the elderly's spatial accessibility to prehospital EMS had a central-outward gradient decreasing trend from the central region to the southeast and southwest of the study area.

In another investigation, Deliry & Uyguçgil (2023) use the case of Eskişehir, Türkiye, to study accessibility assessment of urban public services using GIS-based network analysis. The purpose of their study was to determine the coverage radius and spatial distribution of some public services as well as the location-allocation of new facilities in Eskişehir city. Fire stations, emergency centers, and urban parks data were collected, pre-processed, and analysed using GIS. The findings of their study showed that the majority of the city population has access to emergency health centers within a 10-min drive time. However, Eskişehir city center does not have a sufficient distribution of fire stations and urban parks in terms of service coverage.

Quality and satisfaction of Ambulance service

Many studies have been undertaken on the quality of ambulance service around the world. For instance, Carolus *et al*. (2022) studied the perception of the staff of Qatar ambulance service on the quality-of-service delivery to patients. This is one of the most well-known works on the subject. The study

used Servqual dimensions and concluded that the general quality of ambulance service is inadequate. However, the variables providing service within the time period and visually beautiful ambulance were good with a service quality score of 0.17 and 0.08, respectively. In another study, Peters *et al*. (2015) examined ways for managing quality in ambulance services by examining the existing state of ambulance quality indicators with the goal of providing a framework for developing quality control in ambulance services. The study concluded that patients' pre-hospital treatment may be examined and monitored using the Clinical Leadership Education Accountability and Responsibility (CLEAR) framework. El Sayed (2011) conduct a literature review on clinical performance indicators, focusing on quality measurement in emergency medical services. Their study examined the various types of performance indicators, their advantages and drawbacks, and evidence-based prehospital clinical bundles.

Edwards, Fitzgerald, Franklin and Edwards. (2020) conducted a systematic protocol review of air ambulance outcome measures utilising Institutes of Medicine and Donabedian quality frameworks. The study was able to assess several aspects of the air ambulance health service, including front-line health personnel, individual patient outcomes, support systems (such as dispatch and triage), organisational structures (such as asset capability and availability), governance, and law. Aboosalehi *et al*. (2022) used the case of Tehran emergency medical care to study clients' satisfaction with services provided by ambulances and motor ambulances. The purpose of this study was to determine how pleased consumers were with the missions completed by Tehran EMS center's ambulances and motor ambulances/ motor lances, as well as the factors that influenced their satisfaction. The study revealed that respondents were "very satisfied" with the Tehran EMS. Additionally, it was discovered that overall happiness was associated to dependence on the health group, educational status, economic level, sent car, and diagnosis. Blomstedt *et al*. (2012) investigated the public's perceptions of prehospital emergency care in the County of Skane, Southern Sweden. The study aimed to evaluate the public's use, knowledge, and expectations of prehospital emergency care in Skane, southern Sweden. The survey found that respondents trust the personnel's knowledge and work qualities. Older informants predicted faster care from a physician upon arriving by ambulance to the hospital, regardless of medical condition.

Research Methodology

Research design

This study utilized a descriptive research design to describe the features of the study population. The aim of descriptive survey design is directed to a larger population and makes generalizability of findings possible and represents the samples. This study therefore uses a descriptive survey design to gather information on the level of ambulance service accessibility and satisfaction in Minna.

Population and sample techniques

The study population comprises the medical patients at Minna General Hospital. The purpose of choosing this category of people as the study respondents is because they have, in one way or another, used the General Hospital ambulance services. The study purposefully distributed 150 questionnaires among the respondents using accidental sampling techniques.

Procedures for data collection

The study uses a questionnaire survey to gather information regarding medical patient perception on ambulance service accessibility and satisfaction in Minna General Hospital. The study used seven (7) days to gather information from the respondents with the aid of three field assistants who are competent in the Hausa, Gbagi, and Nupe dialects.

Data type and sources of data collection

The study used both primary and secondary data for the investigation. The primary data was retrieved using a questionnaire survey, while the secondary data utilized are mainly from journal articles, website sources, and published books. The secondary data were used to build the literature review and to determine the study variables.

Description of research instrument

The research instrument used for this study is a questionnaire survey. The questionnaire is divided into three sections; the first section provides information regarding the socioeconomic features and overall satisfaction of medical patients in Minna General Hospital, the second section of the questionnaire consists of three items that are used to measure the level of ambulance accessibility, and the last section comprises nine (i.e., 9) items that were used to measure medical patient satisfaction with the ambulance.

Validity and reliability of research instrument

The study relies on content validity to select the study variables using expert judgement and past literature. In determining the internal reliability of the research instrument, the study administered 10% of the questionnaire in the pilot survey, where experts in the fields of transport, quality assurance, and environmental studies

responded to the questionnaires. The outcome was further updated, and Cronbach's alpha was used to test the internal consistency of the instrument, which ranged from 0.76 to 0.94.

Tools and method of data analysis

The gathered data was coded on SPSS tools and Excel version 16 to show a visual presentation of the results. Frequency, percentages, and mean index scores were used to analyze the gathered data, while correlation analysis was used to determine the relationship between overall ambulance satisfaction, accessibility and satisfaction of ambulance service in Minna.

Study Area

Minna is the capital of Niger State, which is located at the latitude of 9.62˚ and longitude of 6.53˚. Minna is made up of two local governments, which are the Chanchaga and Bosso Local Government Areas. Minna is the home for the majority of the ethnic groups of Niger State, which are the Gbagyi and Nupe people, and consists of an estimated population of 348,788. Minna has two seasons: the dry season, characterized by arid, dusty, harmattan-dominated weather, which starts in November and ends in April, and the wet season, which starts in May and ends in October. The temperature in Minna is hot all year round, making it uncomfortable for people, though dry seasons are hotter than wet seasons. This harsh climate has a serious negative impact on mobility, as most unpaved internal roads are not accessible during the wet season due to stagnant water, thereby making ambulance accessibility difficult in areas like Gbegano, Dutsen-Kura Gwari, and so on. In terms of transportation, Minna is linked to neighboring cities by road transport. Minna is just 150 km from Abuja and connected to the Federal Capital Territory by roads, while Kano, Ibadan, and Lagos are also connected to Minna by both the rail network and roads. The economy of Minna is supported mainly by agricultural products such as cotton, guinea corn, maize, and ginger. Also, yams are cultivated extensively in the capital. In terms of educational activities, Minna has many tertiary education institutions, such as the Federal University of Technology, Minna; Niger State College of Education; and Newgate Science and Technology, among others. However, the growing economy and educational development of Minna has made the capital attract more population to the city, thereby making ambulance service less accessible due to rapid urbanization. Figure 1 shows the map of Niger State showing Minna and the Minna General Hospital location.

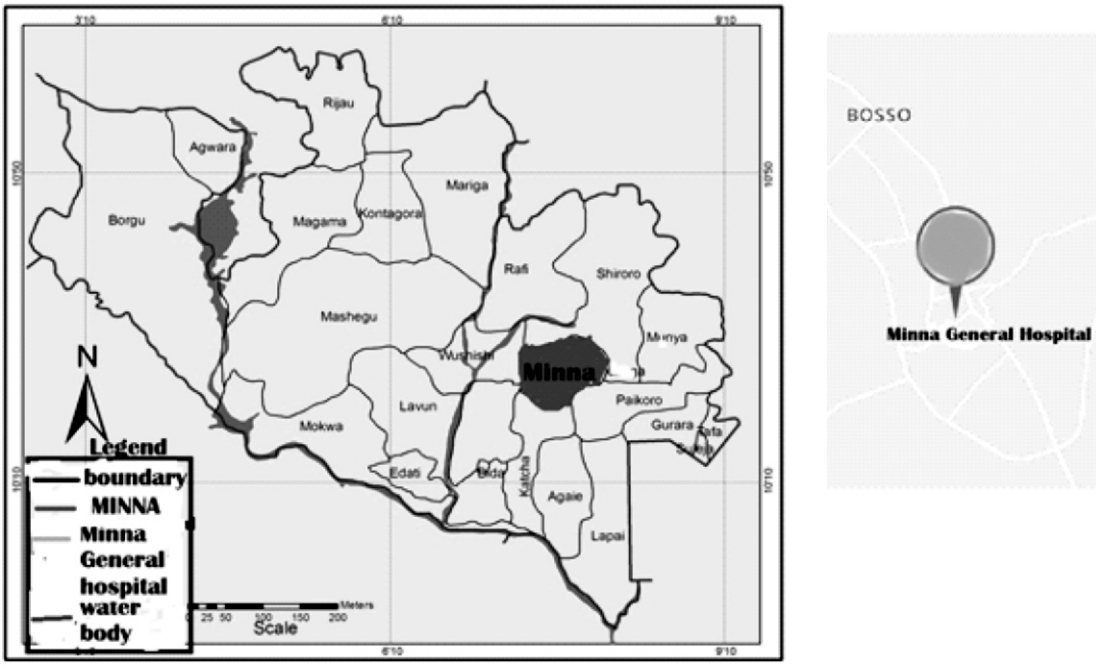

Figure 1: Map of Niger state showing Minna and Minna general hospital (Sources: Authors survey 20215)

Research Methodology

Analysis of the socio-demographic features

The analysis of the gender of the respondents in Table 1 reveals that 61.5% of the respondents are male and only 38.5% of them were female. Also, the analysis of the age of the respondents showed that about 31.1% of the respondents are in the age of 18 and 35 years, 29.1% were in the age of 36 and 50 years, 20.9% were over 66 years. Also, 15.5% of the respondents are between the age of 51 and 65 years and only 3.4% of them were less than 17 years.

The analysis of the marital status of the respondents in Table 1 reveals that 39.2% of the respondents were still single, 27.7% were married, 18.9% were divorced and only 14.2% of the respondents were widowed. The analysis of the educational level attained by the respondents in Table 2 showed that about 29.1% of the respondents had tertiary education, 18.9% had secondary education, and 16.9% had qur'anic education. In addition to the analysis, about 14.2% of the respondent had postgraduate education, 11.5% had no formal education and only 9.5% had primary school education.

The analysis of the employment status in Table 1 indicate that majority of the respondents were civil servant, about 25.7% of the respondents are self-employed

and only 16.9% of them were privately employed. Also, 13.5% of the respondents were still in school and only 12.1% of the respondents were into farming. In addition to the analysis on Table 1, it was recorded that 28.4% of the respondents earned between 71,000 and 100,000 monthly, 24.3% of the respondents earned less than 70,000 monthly and 19.6% of them earned between 131,000 and 170,000 monthly. Again, the analysis recorded that 16.9% of the respondents earned over 171,000 monthly and only 10.8% of them earned between 101,000 and 130,000 per month.

The analysis of the residential area of the medial patient indicates that 63.5% of the use of service where from urban areas and only 36.5% of the respondents investigated were from rural areas. The higher proportion who admitted that they were from urban area may be as a result of their access to the use of Minna general hospital.

Table 1: Sociodemographic factor

Sociodemographic factors	variables utilise	Frequency	Percentages
Gender	Male	91	61.5
	Female	57	38.5
	Total	148	100.0
Age	0-17	5	3.4
	18-35	46	31.1
	36-50	43	29.1
	51-65	23	15.5
	Over 66	31	20.9
	Total	148	100.0
Marital Status	Single	58	39.2
	Married	41	27.7
	Divorced	28	18.9
	Widowed	21	14.2
	Total	148	100.0
Education Level	No formal education	17	11.5
	Quranic education	25	16.9
	Primary education	14	9.5
	Secondary education	28	18.9
	Tertiary education	43	29.1
	Postgraduate education	21	14.2
	Total	148	100.0
Employment Status	Self-employed	38	25.7
	Privately employed	25	16.9
	Civil servant	47	31.8
	School	20	13.5
	Farming	18	12.1
	Total	148	100.0
Monthly earned income	< ₦70,000	36	24.3
	₦71,000-₦100,000	42	28.4
	₦101,000-₦130,000	16	10.8
	₦131,000-₦170,000	29	19.6
	> ₦171,000.	25	16.9

	Total	148	100.0
Residential Area	Urban	94	63.5
	Rural	54	36.5
	Total	148	100.0

Source: Authors' survey (2024)

Analysis of the level of accessibility

The analysis of level of accessibility among the residential areas in Table 2 shows that sixty-two respondents from Urban areas agreed that the cost of ambulance service is high while only twenty-six (26) patients from rural areas reveals that the cost of service is high. This outcome is a revelation that high cost of ambulance services are barriers to its accessibility. The findings advocate for a comprehensive review of service pricing to ensure everyone has timely and un denied access to medical care due to constraints in service affordability. The findings are in line with the work of Caballo et al. (2021) whom concluded that high cost of health service limits medical patient accessibility to the service.

Table 2: Cross tabulation of residential areas and cost of services

		High cost of service			
Residential area		D	N	A	Total
	Urban	2	30	62	94
	Rural	7	21	26	54
Total		9	51	88	148

Source: Authors' survey (2024)

The analysis of the cross tabulation of residential areas and ambulance service frequency in Table 3 reveals that about seventy (70) respondents agree that high service frequency impact on ambulance accessibility in urban area and only 30 respondents agree that ambulance service is high in Minna rural area. This finding is in line with the outcome of Moafa et al. (2020) whom concluded that there is high frequency of ambulance service in urban areas in Saudi Arabia. Although, emergency service in urban area is delayed during peak period because of traffic congestion in mega cities.

Table 3: Cross tabulation of residential areas and service frequency

		service frequency			
Residential area		D	N	A	Total
	Urban	5	19	70	94
	Rural	7	17	30	54
Total		12	36	100	148

Source: Authors' survey (2024)

The analysis of the ambulance accessibility in term of road access across the residential areas are shown in Table 4. From the analysis, it can be observed that larger proportion of the medical patients from urban areas agreed that there is road access and only twenty-nine of the medical patients from rural areas agreed that there is road access. The analysis outcome enables the authors to concluded that the more accessible the residential areas by road the more accessible medical patients can access ambulance service.

Table 4: Residential area and road access

	Road access					
Residential area	SD	D	N	A	SA	Total
Urban	0	2	34	52	6	94
Rural	3	6	13	29	3	54
Total	3	8	47	81	9	148

Source: Authors' survey (2024)

Analysis of the Ambulance service satisfaction

The analysis of the satisfaction of ambulance service are shown in Table 5. From the analysis quality of service provided by the ambulance were satisfied at a mean score of 3.7635. The quality of ambulance service is a critical aspect of emergency medical care. Quality care during emergency ambulance service should be prioritized in order to increase patient chance of safety. Also, the analysis indicate that medical patients are satisfied with ambulance response time (M=3.5338). however, longer response time are undesirable by medical patients particularly in an emergency situation. The shorter the response time the higher the survival rate for emergency medical patients.

In addition to the analysis in Table 5, the patients are satisfied with staff knowledge (M= 3.5946). Medical staff knowledge in managing emergency victim during transportation to the hospital is important in resuscitation of emergency victim. Staff communication and information (M= 3.5743) were perceived satisfactory. Effective communication is necessary to reassure the emergency patients of safety during the transportation to the hospital. This will improve the care service offered to the patients by the nurse (Hettinger *et al*., 2020). Also, the patients were satisfied with the ambulance arrival time (M= 3.5676), on time arrival at the emergency scene as well as the hospital are required by emergency patients for their survival.

Again, the analysis in Table 5 recorded that

medical patients are satisfied with the comfort during transit (M= 3.4797). patient comfort during transport is vital and addressing the individual comfort needs is significant in reducing medical patients' levels and overall satisfaction. The analysis of the cleanliness and condition of ambulance vehicle in Table 5 indicate that the patients were satisfied with a mean index score of 3.2568. However, the table 4 recorded that patients were not satisfied with ease of accessibility (M= 2.4054) and cost of ambulance service (M= 2. 3581).

Table 5: Medical patient satisfaction

	N	Minimum	Maximum	Mean	Std. Deviation
Satisfaction on ambulance response time	148	2.00	4.00	3.5338	.61074
Staff knowledge	148	2.00	4.00	3.5946	.63715
Staff communication and information	148	1.00	5.00	3.5743	.77452
Comfort during transit	148	1.00	5.00	3.4797	.74203
Quality of care-service provided	148	2.00	5.00	3.7635	.87568
Satisfaction on cleanliness and condition of ambulance vehicle	148	1.00	5.00	3.2568	.85014
Ambulance arrival time	148	1.00	5.00	3.5676	.88956
Satisfaction on the ease of accessibility	148	1.00	5.00	2.4054	.78105
Satisfaction on ambulance cost	148	1.00	5.00	2.3581	.96898

Source: Computer analysis (2024)

Analysis of the overall Ambulance service satisfaction

The analysis presented in Figure 1 reveals that approximately 49 respondents were moderately satisfied with the ambulance services, while about 35 respondents expressed satisfaction. In contrast, 32 respondents indicated they were less satisfied, 25 reported being not satisfied, and only 7 respondents stated they were very satisfied with the ambulance services provided. Combining the responses of those who were less satisfied and not satisfied yields a total of 57, suggesting that a significant proportion of the respondents are dissatisfied with the ambulance service. This finding aligns with the study by Asfaw et al. (2024), which reported that ambulance services in Addis Ababa, Ethiopia, were generally unsatisfactory.

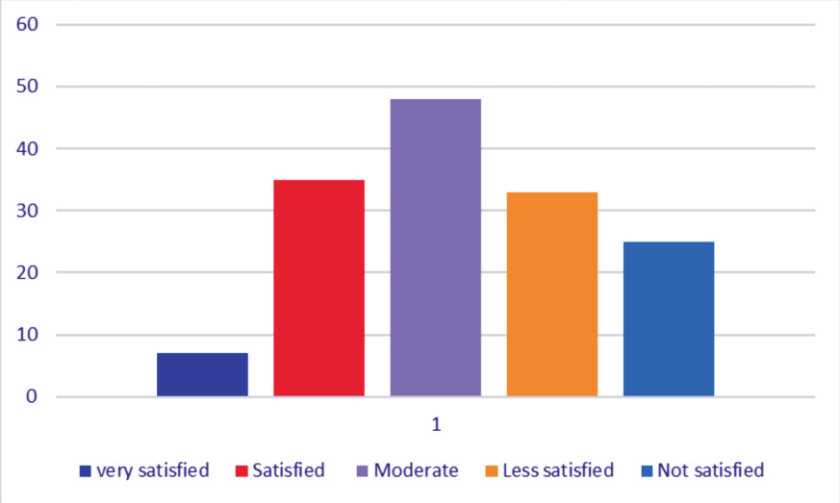

Figure 1: Overall ambulance service satisfaction
Source: Computer analysis (2024)

Analysis of the relationship between residential areas and ambulance service accessibility

In order to determine the relationship between residential areas and service accessibility, the study formulated and test the hypothesis as shown in Table 6. The hypothesis is stated as follows;

H01 there is no statistically significant connection between the residential areas and ambulance service accessibility.

The hypothesis results in Table 6 indicate that there exists a negatively weak relationship between the residential areas and service accessibility variables high cost of service (-.227), less service frequency (-.201) and Road access (-.146). The correlation results indicate that there exists a significant relationship between the study area and high cost of service and less service frequency at .006 and .014 significant level respectively. This outcome is a revelation that high cost of ambulance service is common in urban area due to increased private ambulance service which may charge higher compare to the public ambulance service. The cost of ambulance service maybe different in rural area because rural areas depend on public ambulance service.

Also, the positive correlation between the residential area and ambulance service frequency is a revelation that more service frequency may be observed in urban areas due to the density of urban area while less service frequency may be observed in rural areas due to sparse population. Moreso, the analysis of the relationship between residential areas and road access in Table 6

indicate that there is no statistically significant relationship at 0.077 significant level. This outcome is a revelation that the transport infrastructure is quite bad both in rural and urban areas of Minna. These results explain why they find it difficult to access ambulance service in Minna.

Table 6: Correlation results

		Residential area	High cost of service	service frequency	Road access
Residential area	Pearson Correlation	1	-.227**	-.201*	-.146
	Sig. (2-tailed)		.006	.014	.077
	N	148	148	148	148
High cost of service	Pearson Correlation	-.227**	1	.647**	.282**
	Sig. (2-tailed)	.006		.000	.001
	N	`148	148	148	148
Less service frequency	Pearson Correlation	-.201*	.647**	1	.406**
	Sig. (2-tailed)	.014	.000		.000
	N	148	148	148	148
Road access	Pearson Correlation	-.146	.282**	.406**	1
	Sig. (2-tailed)	.077	.001	.000	
	N	148	148	148	148

Correlation is significant at the 0.05 level (2-tailed).

Source: Computer analysis (2024)

Analysis of the relationship between ambulance satisfaction and accessibility of ambulance service.

The relationship between ambulance service satisfaction and accessibility of ambulance service can be achieved through the hypothesis stated as follow; H02 there is no statistically significant relationship between ambulance service satisfaction and accessibility of ambulance service. The study used three accessibility variables such as high cost of service, less service frequency and road access. The outcomes of the hypothesis are shown in Table 7. From the analysis, Table 7 reveals that the correlation between overall satisfaction and accessibility variables are not statistically significant with high cost of service at 0.17, less service frequency at .293 and road access at .912.

Table 7: Correlation results

		Overall satisfaction	High cost of service	Less service frequency	Road access
Overall satisfaction	Pearson Correlation	1	-.197*	.087	-.317**
	Sig. (2-tailed)		.017	.293	.912
	N	148	148	148	148
High cost of service	Pearson Correlation	-.197*	1	.039	.789**
	Sig. (2-tailed)	.017		.636	.000
	N	148	148	148	148
Less service frequency	Pearson Correlation	.087	.039	1	-.022
	Sig. (2-tailed)	.293	.636		.794
	N	148	148	148	148
Road access	Pearson Correlation	-.317**	.789**	-.022	1
	Sig. (2-tailed)	.912	.912	.794	
	N	148	148	148	148

*. Correlation is significant at the 0.05 level (2-tailed).

Conclusion and Recommendations

This study examined public ambulance service accessibility and patient satisfaction in Minna metropolis. The findings revealed that ambulance accessibility is significantly affected by service cost, service frequency, and road infrastructure. The study further concluded that the patients are generally dissatisfied with the ease of access to ambulance services and the associated costs. Accessibility and cost satisfaction vary depending on residential areas: rural areas experience lower accessibility due to poor road conditions and infrequent services, while urban areas benefit from better road access, higher service frequency, but at a higher cost. The study recommends that;

1. The Niger State government should subsidise ambulance service costs to enhance accessibility for all patients across different residential areas. This measure would also help increase service frequency, especially in underserved rural areas.
2. The overall quality and efficiency of ambulance services should be improved. A better-equipped and faster-responding service will lead to higher patient satisfaction and improve survival rates in emergencies.
3. The Niger State government should prioritise the maintenance and improvement of road access, especially in rural areas, to ensure that ambulance services can reach these communities quickly and effectively

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