

Public Awareness and Utilisation of Emergency Medical Services in Nyamhunga: A Case Study of Nyamhunga, Kariba, Zimbabwe

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Abstract

The study sought to determine the level of awareness and utilisation of EMS services among the public in Nyamhunga, Kariba, Zimbabwe. Emergency medical care services are emergency services that provide basic emergency assistance and care, which include road ambulance services, air ambulance services, and water and fire rescue services.

The objectives of the study were to find out the level of awareness of EMS among Nyamhunga residents, to explore the relationship between the awareness of EMS with the time it took to respond and the quality of care accorded in case of emergencies, and to identify the factors influencing the effectiveness of the awareness campaigns on EMS awareness within the EMS industry in Kariba.

The quantitative research approach was used in this study, where structured questionnaires were distributed among representative samples. The study findings indicated that people residing in Nyamhunga were characterised by a generally low level of awareness about EMS; however, this varied significantly across demographic groups.

It was found that increased awareness of EMS was associated with faster response times and better quality of care in emergency situations. Other important determinants of the effectiveness of the campaigns of EMS awareness included the availability of information to the targeted populations, strategies for community reach, and trust in health services. The findings identified significant gaps in the communication strategies, and thus there is a need for more effective strategy implementation concerning information dissemination and community outreach.

The findings resulted in various recommendations of how targeted interventions might be made to enhance the accessibility and effectiveness of EMS in Kariba and create a safer care environment for the community.

Overall, the study provided useful information to guide targeted interventions to increase community participation in Nyamhunga and thus enhance the responses of emergency medicine, allowing a more responsive and safer healthcare environment

Keywords: emergency medical care services, emergency services healthcare, communication strategies

Introduction

The utilisation of emergency medical services (EMS) is a critical component of healthcare, particularly in rural areas, low-income areas, and a growing economy like in Zimbabwe, where access to medical facilities may be limited. Nyamhunga, a high-density suburb in Kariba, Zimbabwe, is one such area where the availability and accessibility of emergency medical services can be a matter of life and death. Emergency medical care services are emergency services that provide basic emergency assistance and care, which include road ambulance services, air ambulance services, and water and fire rescue services. There is, therefore, a cause for concern that in many cases, members of the community would prefer other means of transportation when it comes to EMS rather than utilization of the already existing EMS available. There are expected negative consequences associated with the refusal to call ambulances for emergency medical assistance. It is completely mystifying that seriously ill patients would forego an ambulance with trained emergency medical technicians, opting for a taxi (Mehmood et al., 2018). This study aimed to investigate the level of public awareness and utilisation of emergency medical services in Nyamhunga, with a focus on identifying the factors that influence the use of these services. The findings contribute to the existing body of knowledge on emergency medical services in rural areas, and provide valuable insights for policymakers and healthcare practitioners seeking to improve healthcare outcomes in Nyamhunga and similar communities.

Methodology

The research used a quantitative approach in collecting and analysing data where the focus was on numeric data and statistical analysis to draw conclusions about the awareness of Nyamhunga residents regarding the availability of emergency medical care services. The research utilised the quantitative research approach because it allowed for the collection of numerical data that can be analysed using statistical techniques to determine the level of awareness among residents. This helped in the provision of tangible evidence and insights into the effectiveness of the various current campaigns or programmes for creating awareness. This was also a method of generalising findings from a population larger than the residents who lived in Nyamunga. Therefore, through the survey conducted on a representative sample of its residents, researchers made conclusions about the general awareness of emergency medical care services in communities like these.

Research design

A research design refers to the specific plan or blueprint that outlines the detailed steps and procedures for carrying out the research study. The study adopted the cross-sectional survey design. According to Creswell, as cited by Rodgers (2019), a cross-sectional survey design involves collecting data at a single point in time from a sample of participants. This design was appropriate for the research topic, as it allowed the research to gather information about the current awareness levels of Nyamhunga residents regarding emergency medical care services. The research adopted this design because surveys are an efficient way to collect data from a large and diverse sample of participants.

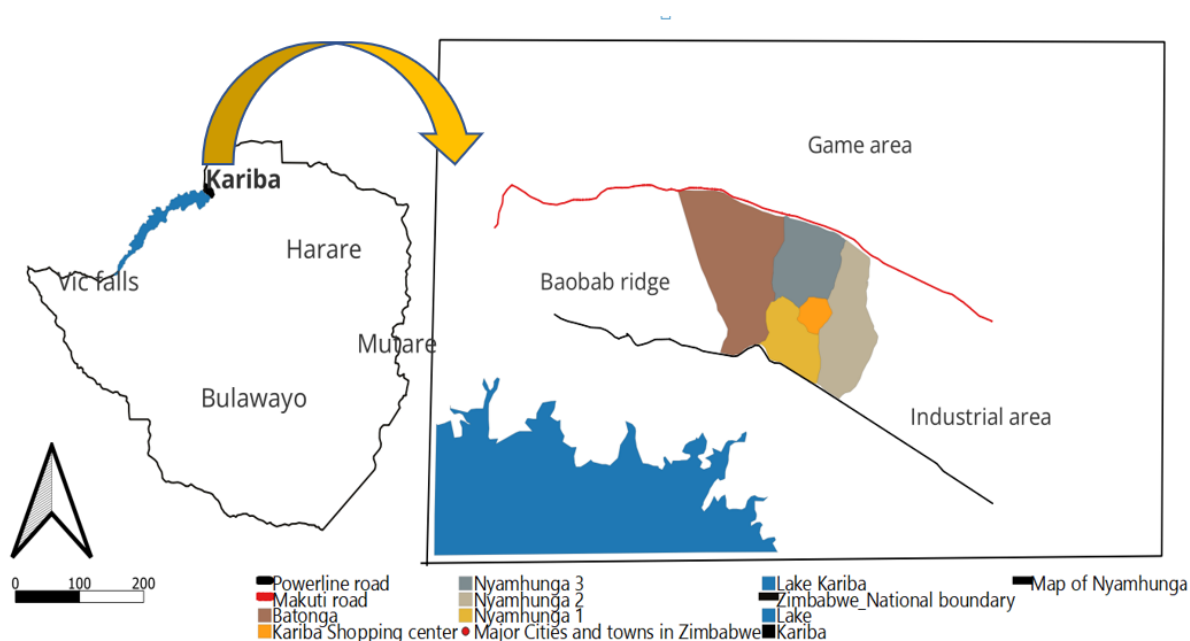


Figure 1: Setting of Kariba

Target population

The population of the study encompassed all residents of Nyamhunga, a suburb in Kariba, Zimbabwe, from sections 1-4 (Nyamhunga 1, 2, 3, and Batonga). The research focused on this specific population to gain insights into their perceptions, knowledge, and attitudes towards EMS awareness and its impact on the community. According to ZIMSTAT (2023), the population is estimated to be approximately 5,000 individuals.

Sample and sampling procedures

Sampling is the process of selecting a subset of individuals, items, or events from a larger population to study and make inferences about the population as a whole (Bhatarjee, 2021).

Since the research was based on a quantitative approach, the research used a simple random sampling technique. This method is a probability sampling technique in which every individual or element in the population has an equal chance of being selected for the study (Creswell & Creswell, 2022). To conduct simple random sampling, the researchers first created a list of all households in Nyamhunga, Kariba, Zimbabwe. The list was obtained from the local council. Next, the researchers used a random number generator to select a random sample of households from the list (in Excel). Using Rao's soft sample size calculator, the sample size was 377. This was accumulated by calculating, using a percentage of an unknown population, a 5% margin of error, a 95% confidence level, and a 50% response distribution. The researchers visited each randomly selected household and administered a questionnaire to the household head or a responsible person to gather data on their awareness and utilisation of emergency medical services.

Table 1: Awareness of Ambulance Services in Nyamhunga

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid Yes	164	63.8	63.8%	100.0
No	93	36.2	36.2%	100.0
Total	257	100.0	100.0	

Awareness of the availability of an ambulance service in Nyamhunga indicates fair awareness in the community in that a total of 164 respondents were aware of the service, whereas 93 indicated unawareness. A valid percent of 63.8% of yes responses indicates a very strong recognition of the ambulance services available, suggesting that a majority of the residents in the study understood that such important health resources exist and are accessible. Cumulative percent shows that all of the respondents were in one of the two categories and did not include missing data, and there was complete data on this question. This meant that 36.2% of the participants were uninformed, which is an opportunity for further outreach efforts to make sure even more community members are informed about the availability and role of ambulance services in emergency situations.

Table 2: Self-Rated Knowledge of Ambulance Service

Knowledge Level	Frequency	Percentage %
Very Good	15	5.8
Good	30	11.7
Average	60	23.4
Poor	77	30.0
No Knowledge	75	29.2

Data showed that a larger percentage of Nyamhunga respondents reported poor knowledge regarding the subject matter of ambulance services, as evidenced by 30.0% characterising their knowledge as poor and 29.2% stating no knowledge, for a cumulative total of more than half, or 59.2%, describing themselves as uninformed about the subject. Thus, the distribution suggested an average self-rated knowledge of between poor and average, since its mean value was approximately 2.35 points on a scale ranging from lower values for less knowledgeable respondents to higher values representing more knowledgeable subjects. Poor being the mode of the responses shows that poor awareness persists in the community. Such findings created a clear need for targeted educational initiatives aimed at improving the state of public awareness and understanding of the ambulance service, all being fundamental to the improvement of emergency response and overall community health outcomes.

Table 3: Knowledge of ambulance contact numbers

Knowledge of Ambulance contact Number				
	Frequency	Percent	Valid Percent	Cumulative Percent
Yes	81	31.5	31.5	31.5
No	176	68.5	68.5	100.0
Total	257	100.0	100.0	

The knowledge of the contact numbers for ambulance services is quite low among the subjects, as only 31.5% confirm knowing the contact numbers for ambulance services. Therefore, the majority of the subjects, constituting 68.5% (176 persons), indicated they did not have the knowledge. The percentage distribution remained the same valid percentage: yes, 31.5%; no, 68.5%; meaning these figures were accurate. It was further supported by the fact of the cumulative percentages: 31.5% of the respondents who were aware of the contact numbers and 100% representing the total population surveyed.

Table 4: Response time rating

Response Time Rating	Frequency	Percentage
Excellent	48	12.7
Good	115	30.5
Average	153	40.6
Poor	61	16.2

A total of 40.6% described the response time as average, showing from their perspective that there was a perceived need to increase efficiency in ambulance services. Only 12.7% of the

answers described the response time as excellent, which indicated that there were some challenges that hit overall performance as perceived by the community.

Table 5: Correlation analysis of response time and quality care

Variable	Response Time	Quality of Care
EMS Awareness	0.675	0.812

The correlation analysis revealed a strong positive relationship between the level of awareness of EMS and perceived response times, with a correlation coefficient of $r = 0.675$ ($p < 0.01$), as well as a notable correlation with perceived quality of care, indicated by $r = 0.812$ ($p < 0.01$). This means that the more significant the awareness there was, the faster and better the quality of services provided. Therefore, there was a pressing need for strategic public education drives on raising awareness about EMS services. Such efforts are essential for creating better knowledge in the community and involvement in emergency medical services.

Strategies that can influence the effectiveness of EMS awareness in the EMS industry

The research also gathered detailed information on the strategies that may have affected the effectiveness of EMS awareness in the EMS industry in Nyamhunga, Kariba. Strategies ranged from conceptualisation to the necessary approaches that could be followed in improving the knowledge status of Nyamhunga residents on a large scale. Below are the details of the data collected from the research study.

Effective channels for raising awareness

The respondents were asked to identify all the different channels they felt would be appropriate for creating awareness about ambulance services. This open-ended question demonstrated that a combination of channels could yield a multifaceted awareness campaign, which is one that will build education in the masses regarding the role, availability, and efficiency of ambulance services. To this effect, the findings showed a diffuse set of preferred communication methods.

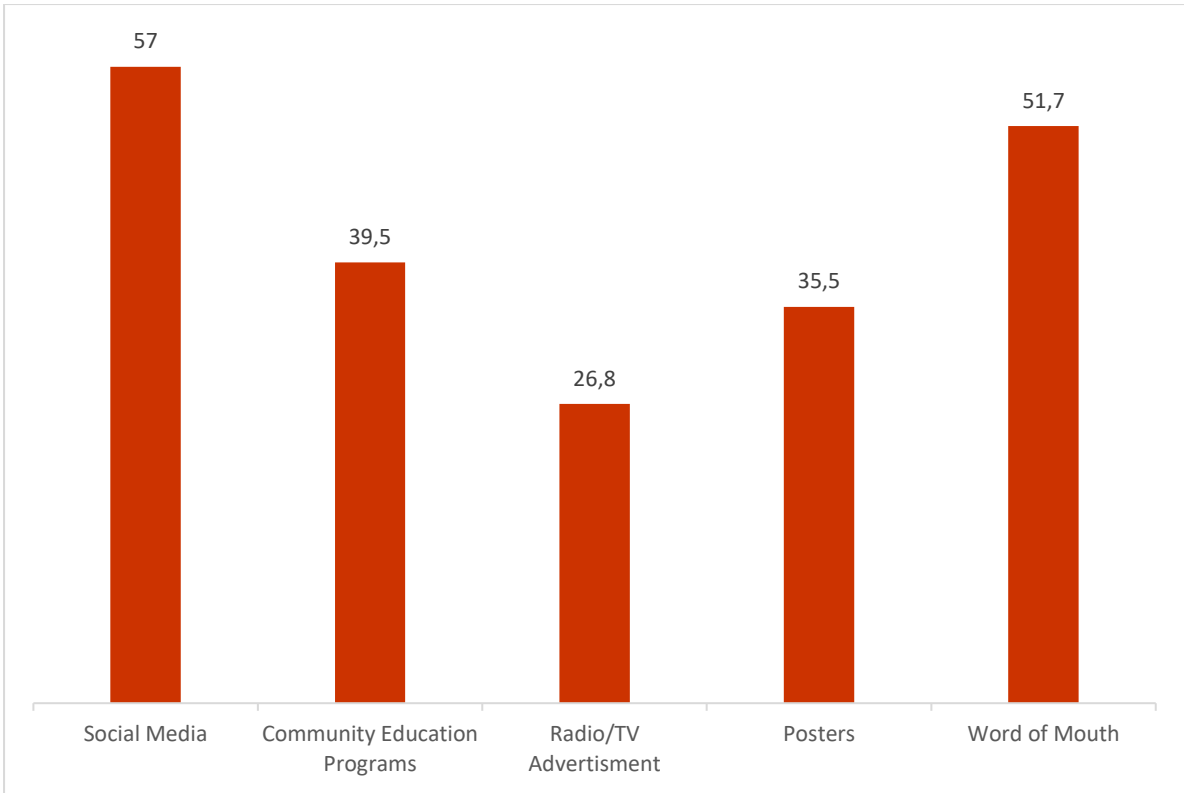


Figure 2: Channels to Improve Emergency Medical Services Awareness

Source: Field data (2024)

The outcome of the survey shows clearly that a multi-channel approach is preferred by the respondents to be more aware of the emergency medical services, and among all, social media stands at 57 percent. This shows that digital platforms are becoming increasingly influential in how information is given out fast and to wide circles, especially among the youth. Community education programmes were also considered very important by 39.5% of the responding participants, which evidences that there was an appreciation for the local, direct engagement and hands-on learning experience that could provide a deeper understanding of EMS. Other media, like radio and television, received support from 26.8%, which would suggest that these channels were still important, but mainly for an older population or populations with less digital engagement. Some (35.5%) preferred posters as the visual means of communication, citing that information is supposed to be readily available in areas that people have to pass through. Word of mouth had the highest rating, with 51.7%, propelled by personal interaction and community discussion as more vital means of passing awareness.

Strategies to Increase Emergency Medical Services Awareness in Nyamhunga

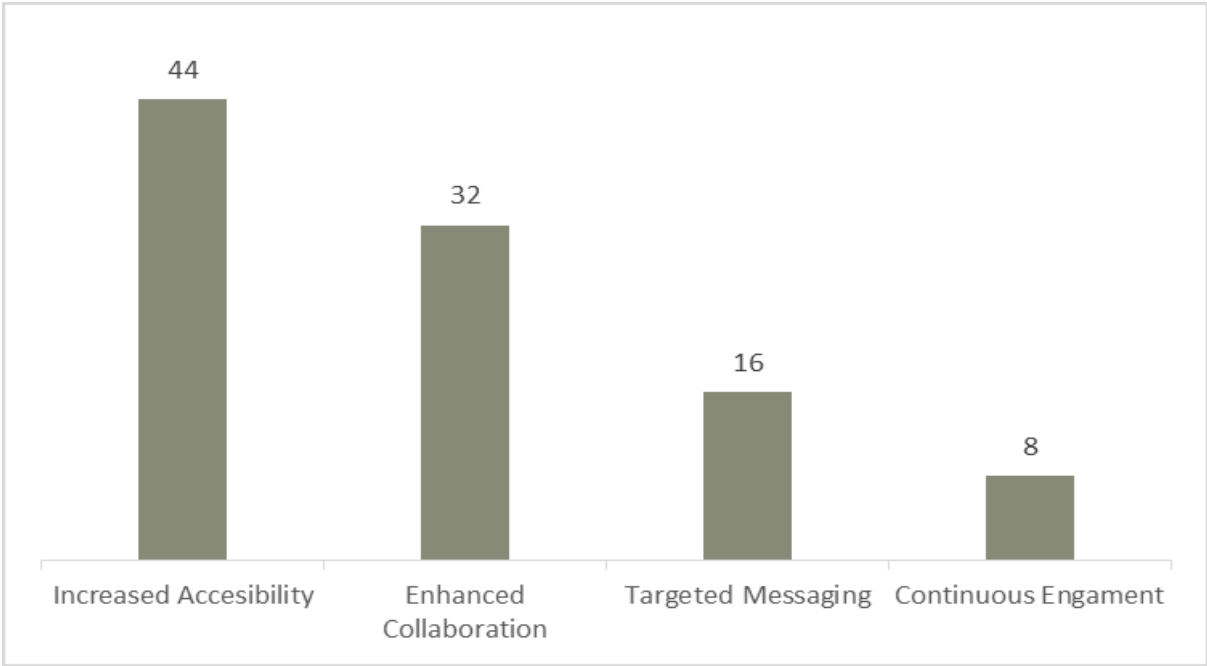


Figure 3: Strategies to increase emergency medical services awareness in Nyamhunga

Source: Field data (2024).

The data in the figure showed the strategies that could be adopted to improve emergency medical services (EMS) awareness in Nyamhunga. The data showed that increased accessibility was the highest strategy, with 44% of the responses citing it as one of the key focus areas. This, therefore, meant that making the resources and information concerning EMS more available and accessible was important in enhancing the awareness of the public. Better collaboration was supported by 32% of participants, and they emphasised that collaboration with many stakeholders involved, such as healthcare providers, local government, and community organisations, should be done to expand outreach. Sixteen percent supported targeted messaging and hence proposed tailoring communication strategies either to a particular demographic or to community needs to further enhance awareness campaign effectiveness. Continuous engagement was the least emphasised strategy, at 8%. This indicates that, while ongoing interaction with the community is of value, it is not perceived to be the highest priority when compared to the remaining strategies. These things reflect a concentration on accessibility and collaboration for the essential elements necessary in raising EMS awareness in the community.

Regression analysis was employed to examine the study hypotheses, and the results are depicted in the subsequent table.

H1: There is a significant positive correlation between EMS awareness and response time.

The analysis revealed a positive correlation coefficient ($r = 0.675$) between EMS Awareness and Response Time, which was statistically significant ($p < 0.01$). This would imply that, with greater awareness of EMS, response time could increase dramatically. With this in mind, we can rule out the null hypothesis-a significant positive correlation exists between EMS awareness and response time.

H2: There is a significant positive correlation between EMS awareness and quality of care.

The results showed a strong positive correlation, at 0.812, between EMS Awareness and Quality of Care, and also proved to be statistically significant at $p < 0.01$. Therefore, this correlation could be interpreted to mean that a high level of awareness of the EMS is associated positively with better quality of care. So, we reject the null hypothesis (H_0) and conclude that there is a significant positive correlation between EMS awareness and quality of care.

Discussion

Findings were discussed in the context of available literature, describing how findings compare with previous studies, with implications for practice and future research.

Awareness of emergency medical services in Nyamhunga

Awareness of the status of knowledge of emergency medical services among Nyamhunga residents showed that serious attention was needed because of the huge knowledge gap. Overall, the findings showed that a section of the community had some understanding of what generally the functions of EMS are, although the general awareness was very low. This was evidenced by a review conducted by Chabikuli et al. (2017), which reported that raising the role and scope of work that EMS provides needs to be intensified through public educational efforts. The lack of knowledge on how to access the service, perceived barriers, and the extent of services offered result in hindrances to timely care during emergencies. The need for increased awareness cannot be ruled out because it forms the backbone of community preparation and medical crisis response.

The demographics of the respondents also revealed differences in awareness with respect to age, educational level, and socioeconomic status. Such findings support previous studies done

by Ghosh et al. (2019) that young and better-educated people are usually more knowledgeable about health services, including EMS. It tells of targeting educational programmes at population groups that may conventionally have low awareness levels and ensuring information is sent out in a culturally sensitive and accessible way. Community engagement programmes may nurture discussions about EMS and improve shared knowledge in this area; thus, informing members of the community may render them capable of taking the initiative in seeking care in emergency situations. Awareness programmes can only work if they are attuned to local realities. According to Bhandari et al. (2018), tailored interventions, with consideration of a local language, cultural practice, and community structure, have significantly enhanced health education programmes. Stakeholders in Nyamhunga should, therefore, work in collaboration with local leaders and health practitioners to develop appropriate awareness programmes that would be in tune with the people's values and norms. Such collaboration has the potential to inspire trust and thereby increase the diffusion and appropriateness of educational materials distributed in the area.

Ultimately, increasing EMS awareness requires more than just giving information but building a culture in which the community will invest time in health proactively. Empowerment through the acquisition of knowledge among residents could demystify emergency responses and allow the people to adapt more speedily and with effectiveness in the services offered through EMS for better overall health outcomes. The education strategies, as indicated by Caffrey et al. (2020), need to be reviewed in order for them to respond and be effective in stimulating awareness in Nyamhunga. The findings also highlight critical aspects of the health belief model, particularly perceived barriers and perceived benefits, indicating that significant knowledge gaps hinder timely access to care.

The relationship between EMS awareness, response time and quality of care

These findings regarding the level of awareness about EMS and two metrics relating to response time and quality of care in emergencies create a critical implication for public health. Various data indicated that a high level of awareness about EMS is strongly associated with shorter response times. This agrees with the work done by Kwan and Thiessen (2017), in which it was indicated that communities comprising informed citizens tend to make better use of services at the right time, thus minimising delays in care delivery. By knowing when and how to activate the EMS and how urgent it is for timely intervention, individuals are likely to quickly react activation of the emergency services to improve the overall population health

from life-threatening situations. The quality of emergency care seemed to be positively related to the degree of awareness among the community. The more informed the residents are regarding the procedures and expertise of the EMS, the more appropriately they would use these services. This can be furthered by the findings of Benabdeljalil et al. (2019), which reflected that improved public knowledge of the principles of EMS translates into better patient outcomes since interventions are done faster and more accurately. In Nyamhunga, the education programmes would not only better prepare the public, but also create better callers of the service. This, in effect, can greatly help medical responders in the mobilisation of the right care through effective communication of key information. From the data, what came out was that people feel increased awareness could help reduce the time taken to assemble resources and personnel during an emergency. This is further supported by studies conducted by Atakites et al. (2021), which established that the more the public is involved and aware, the more coordinated the community responses in case of emergencies. Such training sessions, simulations, and educational workshops help the community understand the significance of timely calls to the EMS and result in a well-informed and responsive community able to take action with dispatch in emergency situations. With these promising associations, the barriers to effective use of EMS due to lack of awareness are still noted. Research from Mulaudzi et al. (2018) indicates that cultural misconceptions and fear of medical services could lead to delays in calling for assistance. Hence, Nyamhunga faced the challenge of not just creating awareness, but breaking down barriers of distrust and misunderstanding. Interventions should be comprehensive, addressing knowledge gaps and the socio-cultural factors prevailing and guiding the utilisation of EMS to ensure long-lasting improvements both in response times and quality of care in the region. The findings showed the health belief model's emphasis on perceived susceptibility and benefits, revealing that enhanced awareness of emergency medical services (EMS) leads to shorter response times and improved quality of care during emergencies.

Strategies that can influence the effectiveness of EMS awareness

Results of strategies to improve the awareness of EMS in Nyamhunga showed different areas of promise for intervention. The data support the fact that the most feasible strategy revealed increasing accessibility to information concerning EMS, as reiterated by Ziegler et al. (2019). Easy access to information through different formats such as digital, print, and community presentations, would ensure a better-informed public. The development of easy-to-use online platforms and mobile apps intended for the distribution of EMS information may prove

particularly effective in knowledge gaps, especially among the younger segment of the population, which was more prone to use modern technologies compared to their older peers. The second important strategy arising from the process included an increase in inter-stakeholder coordination; that option received significant approval from participants. This was supported by the results of Ludwick et al. (2020) in their study, which recognised that collaboration between public health organisations and local authorities and/ or community groups increases the effectiveness of awareness programmes. For this reason, coordination in resources and skills would make it easier to develop informational tools that are both educational and relevant to the targeted culture. These partnerships can also facilitate the development of community health worker programmes using local knowledge and contacts to make appropriate awareness for the community on the grassroots level about EMS.

Another way of designing awareness programmes is demographic-based focused messaging. Studies have shown that tailored communication strategies are more representative and effective in reaching a greater diversity of distinct audiences. In Nyamhunga, for example, crafting a message that is sensitive to local languages, norms, and values could result in a much better engagement rate. Any training content should be prepared in alignment with community priorities and concerns related to health emergencies. This would make the information relevant and applicable to the target community. Local stories or testimonials can even further solidify this emotional tie and a sense of urgency when EMS is unavailable. The least amount of support in the survey was continuous engagement; however, this was a key factor in long-term awareness. For long-term awareness, as explained by Jansen et al. (2019), strategies must aim at making the habit of awareness rather than dependence on one-time campaigns among members of the community. This topic discussing EMS and the role of every community member regarding safety could be nurtured through community workshops, health fairs, and school programmes. The momentum built up should be maintained so that Nyamhunga develops a knowledgeable community with regard to awareness and effective engagement with EMS for a better public health status.

The results, directly in line with the health belief model, indicated increased access to information and specific messaging as critical interventions geared toward raising the awareness of communities toward emergency medical services (EMS). Culturally relevant strategies and inter-stakeholder coordination could facilitate dynamic reductions in experienced barriers and thereby increase public going to EMS for health gains associated with health service utilisation.

Conclusion

The knowledge of EMS in Nyamhunga emphasised the dire need for focused educational initiatives that raise awareness and utilisation of such important services within the community. The findings showed that the general trend in the population under survey had a basic understanding of EMS; however, low defects were noted, especially in the older adult population and among those with lower education levels, regarding knowledge of what services were available, how to access them, and reasons for which emergencies required urgency. Moreover, there was across-the-board mistrust of the system due to various issues in response time, quality of care, and personal experiences. All these factors made people in the community reluctant to seek such services, even when their lives were in danger. The study calls for serious outreach and education to demystify EMS, gain trust, and emphasise to them the essence of timely medical intervention. They can therefore be majorly in a position to improve health outcomes in Nyamhunga by better equipping the residents with confidence in facing the health care system. It therefore improves the general capacity of the community to respond to any medical emergency and serves as a useful foundation for future initiatives aimed at enhancing awareness, perception, and utilisation of the EMS within the community.

Recommendations

Based on the identified gaps and findings from the study of awareness of the existence and accessibility of emergency medical services in Nyamhunga, the researchers made various recommendations. First, they developed standard strategies for improvement concerning both knowledge in the community and approaches toward seeking these vital services. These recommendations are hereby included to help address the noted gaps in knowledge, increasing confidence in the working of the EMS system, and thus enabling the residents to seek medical care in time. The following are the recommendations for facilitating a more informed and responsive community towards emergency health care.

Policy recommendation

In step with Zimbabwe's Education 5.0 philosophy, one of the viable pragmatic policy options for public awareness and utilisation of emergency medical services (EMS) within a community of Nyamhunga, Kariba, would be creating a health emergency fund within the community. This would be financed through a small percentage deduction from the salaries of all formal sector workers, similar to NSSA contributions. The pooled resources from this would enhance access to free EMS services across the community to the marginalised segments of society and low-income earners. This policy not only speaks of social responsibility and collective

investment in public health but also innovation through micro-financing in finding part of the answer to community challenges. To propel the initiative, an aggressive campaign would be run at local health authorities, formal/informal markets, and academic institutions to inform the public about the initiative to build a proactive health-seeking behaviour culture that is more inclusive of using the available EMS resources. This aligns perfectly with the research objectives by addressing the critical need to enhance awareness of emergency medical services (EMS) among residents of Nyamhunga, creating pathways for improved response times and quality of care, and identifying innovative strategies to foster community engagement and accessibility within the EMS framework.

Resource allocation

To make the Nyamhunga, Kariba Emergency Medical Services thicker with effectiveness and availability, it is proposed that the local council should develop an emergency services infrastructure fund (ESIF) borne by a minimal additional incremental amount added to the rates payable by residents. The new strategy may stabilise and sustain an income stream to acquire EMS equipment and infrastructure such as ambulances, medical supplies, and emergency response facilities. The local council may engender a community-centred posture in establishing this fund by involving residents in budgeting and planning discussions to allow the resources to be allocated in accordance with the real health needs of the community. This might be further consolidated by a performance-based funding pathway designed to reward EMS providers for service delivery and responsiveness. This would also strengthen initiating a community-led funding approach to deal with urgent infrastructural deficits and build ownership among residents, thereby creating further avenues for the improvement of visibility and utilization of EMS. Establishing an emergency services infrastructure fund (ESIF) directly addresses the identified knowledge gap regarding emergency medical services (EMS) in Nyamhunga. This does not only enhance the effectiveness and availability of EMS resources, but also promote community involvement in the planning and allocation of funds, thereby fostering greater awareness and responsiveness to emergency care needs among residents.

Programmes on education

The study recommends an initiation of the community health champions Programme, which could introduce EMS education into the national school curricula from primary and secondary schools, as well as outreach programmes within the community. It may also involve integrating EMS subjects into primary school to secondary learning curricula, teaching students about

health-related emergencies, first aid, and the importance of timely medical interventions. The gap between formal education and community involvement could be bridged by bringing school-age partners together with local health authorities and EMS professionals to facilitate workshops, simulations, and awareness campaigns in the community. Furthermore, a mentorship framework can be developed so that the best students in these modules can be empowered as community health champions to facilitate peer education and outreach in their communities. At this multi-tiered level, life-saving skills equip the younger generation and build a culture of health consciousness and resilience in communities right from the early days. Inherited knowledge would be disseminated adequately and become popularly used for daily lifesaving. By connecting students with local health authorities and EMS professionals through workshops and campaigns, we can close the gap between what is taught in school and what is needed in the community.

Technological recommendation

It is proposed that a mobile application designed by and for the community be developed for Nyamhunga, Kariba, to allow increased efficiency and responsiveness in the emergency medical services (EMS) sector. The name of the app can be Nyamhunga EMS Connect. Such an app could serve various functions. For example, the app would guide local residents by providing real-time information regarding EMS resources available to them, including information on the nearest hospitals, available ambulances, and the identity of emergency response teams. Therefore, it would be very important because during emergency periods people can make quick access to such lifesaving resources. The app would also boost response time for EMS given the emergency alert system through which the residents could quickly inform and alert the EMS about any health emergency. Through such a platform, users may get push notifications with regard to health workshops, first aid training, and other community health programmes, thus creating an informed citizenry. To boost the community engagement, a feedback system for users could allow residents to report their experiences positively and suggest improvements in local EMS practices. Such a technological provision creates the possibility for this connected and proactive community to rise to the occasion in this dire public health scenario.

Future studies

Further studies in this area may look at the assessment of long-term effects of improved awareness and access to emergency medical services on the health status of the Nyamhunga community. Longitudinal studies may be useful in determining how the implementation of

strategies identified by the research recommendations improves health service utilisation, community health indicators, and general perceptions about EMS. Researching on a variety of educational interventions that show the most promise could also help bring to light best practices and give an idea of how these successful programmes may be replicated in other areas to help a greater number of people.

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