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Emergency medical services awareness and practices among rural population of District Hapur, Uttar Pradesh

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***Abstract*---**Introduction: The awareness and practices of the general population regarding handling of medical emergency situations is important as many lives can be saved from premature deaths if many people are equipped to handle emergency situation. The aim and objective of this study was to assess awareness about medical emergency and practices pertaining medical emergencies. Methodology; This cross-sectional study was conducted among 202 residents from 10 randomly selected villages in Hapur district, Uttar Pradesh, recruited using simple random sampling technique. A pretested structured questionnaire was used to collect data through face-to-face interview from July 2020 to Feb 2021. Result: A total of 202 participants were included in the study. We estimated 174(86.1%) are males and 28(13.9%) females in this study. Education of

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participants 94(46.5%) completed primary school, 76(37.6%) high school, 22(10.9%) senior secondary school, 8(4%) are illiterates and 2(1%) are university graduates. Regarding family size, 194(96%) are married while 8(4%) are single. The mean practice score was 3.97(SD±2.31). Majority 131(65%) had poor practices while only 71(35%) had good practices. Participants 196(97%) know the emergency toll free number, 183(90.6%) and 184(91.1%) said they will not call the police in case of road accident & if a person gets injured during violence. Participants (66.8%) have never used a first aid kit at home, 135(66.8%) do not have their families covered under insurance, and 116(57.4%) do not have a medical thermometer at home while only 86(42.6%) had thermometers at home. Conclusion: The findings of this study portray a high level of awareness about medical emergency and emergency toll free number. However, the high level of awareness does not correlate to their practices as majority had poor practices regarding handling of emergency situations. To avert preventable deaths, more efforts are needed to correct the negative practices of the participants

***Keywords*---**awareness, practices, medical emergency, Uttar Pradesh.

Introduction

The importance of Emergency Medical Services (EMS) around the world is typified by phrases like “The Golden Hour” and “Platinum Ten Minutes”. It’s common knowledge that a patient who receives basic care from experienced professionals and is taken to the nearest healthcare facility within 15-20 minutes of an emergency has the best chance of surviving. EMS is a critical component of the entire healthcare system because it saves lives by delivering urgent medical assistance. The state of EMS, on the other hand, varies greatly across developed and developing countries, such as India. Despite progress in the healthcare sector over the last decade, India has yet to establish a single, complete EMS that can be used across the country.[1]

Emergency medical services (EMS) are a community’s entry point to acute and emergency medical care for members of the public who are suffering from time-sensitive, condition-critical illnesses or injuries.[2][3]. When properly implemented, EMS systems can help to lower the disproportionately high morbidity and mortality rates in low- and middle-income nations.[4][5]. International organizations such as the World Health Organization and the African Federation for Emergency Medicine have advocated for the establishment of locally adapted EMS systems in low-resource settings to offer emergency care and transportation.[6][7]. As a result, EMS systems, regardless of their current degree of development, play a key role in the subsequent medical care continuum.[8]. When someone recognizes a potential emergency situation and attempts to activate the local EMS system, emergency care usually begins in the community. This, in theory, will set off a chain of events that will result in a rapid response of knowledge, resources, and service aimed at patient stabilization

and/or safe emergency patient transportation to the nearest appropriate facility.[9][10]

Many countries have done studies to assess public awareness of EMS, but just a few from Uttar Pradesh, India have been documented. A survey of 1534 people in the Western region of Saudi Arabia found that 33% of those surveyed were ignorant of the number to contact in the event of a medical emergency[11].In a cross-sectional study of 1680 Shiraz residents, 48.6% were unaware of the existence of EMS[12]**.**A total of 468 persons in Accra, Ghana, were polled to see how often they used the public access medical emergency telephone number. Just 43.8 percent of respondents knew the number, and only 37.1 percent recognized it was a toll-free number[10]**.**A total of 1,200 people from Japan's general population were polled to see how much they knew about the necessity to call 911 if they had an acute myocardial infarction (MI). Only 11.6 percent of those polled said they would call EMS during business hours (daytime), while 27.5 percent said they would call during off-business hours (nights/holidays)[13]**.**Vasudevan et al. conducted a survey in India to determine the effectiveness of '108' services in terms of traffic safety. The findings revealed that the general public is uninformed of the '108' services and that, although having access to them, they are rarely used to transfer victims of traffic accidents[14]**.**

So far, no survey has been conducted to determine public awareness and lifesaving practices like calling the police or ambulance in case medical emergency, having a thermometer in a home, medical insurance and many health practices in Hapur districts. We understand that public understanding of the EMS number, how it works, and how to get it, as well as practices of maintaining vital sign monitoring equipment on hand, having a first aid kit and knowing what to do in case of medical emergencies is perhaps the most essential link in the chain of survival for medical emergency and trauma patients.

Methodology

Study design

This was a cross-sectional study conducted for a period of seven months,from July 2020 – February 2021 in the District of Hapur, Uttar Pradesh rural areas. Ten village were randomly selected for the final study and participants aged (15 to 45) were included. Total 218 participant agree for questionnaire respond, but 16 participants withdraw from study. Therefore,202 participants were included in the final study

Sample size

$$n = \frac{Z^2 p(1-p)}{d^2}$$

d is the desired level of precision (i.e., the margin of error), a ±5%;0.05, margin of error is required in this study is the (estimated) proportion of the population which has the attribute in question, since no much information is known about

the population of interest an assumption that half of the population has the required attributes was made. Therefore, (p is 50%;0.5 in this study). Q is 1 – p. (In this study it is 1-0.5=0.5). when the values are substituted in the formula ((1.96)2 (0.5) (0.5)) / (0.05)2 = 385. A total of 385 participants are required to achieve the desired accuracy. However, only 202 full responses were procured.

Study population

Participants aged 15 to 45 years from the 10 villages randomly selected from Hapur district, Uttar Pradesh rural areas.

Inclusion criteria

All persons aged 15 to 45 years, who have consent to participate in the study and are staying in Hapur district. Children below 15 years and adults above 45years, those who did not give consent and people residing outside the 10 selected villages in District of Hapur were excluded.

Sampling technique

Participants in the study were selected using simple random sampling technique from their homes. Individuals were approached, purpose of the study explained and their consent was obtained before issuing the questionnaire

Research tool

A pretested questionnaire was used. The tool was divided into two parts. The first part includes questions to collect data on social demographic variables (Age, gender, marital status, education level, occupation, family income, family size and language spoken). The second part of the questionnaire comprised of 10 questions with responses dichotomized into “Yes and No”. These questions were used to assess participants awareness and medical emergency services and practices regarding medical emergencies.

Data collection and statistical analysis

Data were collected using pretested structured questionnaire. The data obtained were compiled in MS Excel and analyzed using SPSS version 22. Results were reported using both inferential and descriptive statistics.

Results

Sociodemographic characteristics

A total of 202 participants were included in the study. Majority 174(86.1%) are males while only 28(13.9%) are females. Majority 114(56.4%) were in the age group 15-25 years, followed by 80(39.6%) aged 26-35 years and only 8(4.0%) aged 36-45 years. Majority 94(46.5%) completed primary school only, followed by 76(37.6%) high school, 22(10.9%) senior secondary school, 8(4%) are illiterates and only 2(1%) are university graduates. Majority 176(87.1%) earn between

51,000 to 2lacs per month, followed by 18(8.9%) who earn between 2.1lakh to 5lakh. 8(4%) earn less than 50000 per month. Majority 107(53%) are employers, followed by 62(30.7%) farmers, 25(12.4%) are housewives, 6(3.0%) are students and minority 2(1.0%) merchants. Regarding family size, majority 176(87.1%) had 1-2 family members, followed by 18(8.9%) with ≤1 family member, 6(3.0%) have 3-4 members, and 2(1.0%) had more than 5 family members. Regarding marital status, 194(96%) are married while 8(4%) are single. Majority 185(91.6%) spoke Hindi at home while only 17(8.4%) spoke Urdu at home. Details of the frequency and percentage distribution of the sociodemographic characteristics of the participants are given in table 1 below

Table 1: Socio-demographic characteristics of study participants. (N=202)

Variables	Responses	Frequency N=202	Percentage (100%)	P-Value
Gender	a) Male	174	86.1%	0.82
	b) Female	28	13.9%	
	Total	202	100%	
Age	a)15-25	114	56.4%	0.89
	b)26-35	80	39.6%	
	c)36-45	8	4.0%	
	Total	202	100%	
Education level	a) Illiterate	8	4.0%	0.26
	b) Primary	94	46.5%	
	c)High school	76	37.6%	
	d)Secondary school	22	10.9%	
	e) University	2	1.0%	
	Total	202	100%	
Family income	a) Less than 50000	8	4.0%	0.01
	b)51000 – 2L	176	87.1%	
	c)2.1L – 5l	18	8.9%	
	Total	202	100%	
Occupation	a) Farmer	62	30.7%	0.32
	b) Employer	107	53.0%	
	c)Merchant	2	1.0%	
	d)Student	6	3.0%	
	F) House wife	25	12.4%	
	Total	202	100%	
Family size	a) ≤1	18	8.9%	0.75
	b)1-2	176	87.1%	
	b)3-4	6	3.0%	
	c)More than 5	2	1.0%	
	Total	202	100%	
Marital status	a) Single	8	4.0%	0.33
	b) Married	194	96.0%	
	Total	202	100%	
Language spoken	a) Hindi	185	91.6%	0.00
	b) Urdu	17	8.4%	
	Total	202	100%	

Table 01

Knowledge/awareness and practices regarding health emergency management

All the participants 202(100%) have heard about emergency ambulance. Majority 196(97%) know the emergency toll free number while only 6(3%) don't. Majority, 183(90.6%) of the participants will not call the police in case of road accident, only 19(9.4%) will call the police. Majority 184(91.1%) said they will not call the police/ambulance if a person gets injured during violence. Majority (66.8%) have never used a first aid kit at home while only 67(33.2%) have ever. Majority 135(66.8%) do not have glucose at home while only 67(33.2%) do have. Similarly, majority 135(66.8%) do not have their families covered under insurance only 67(33.2%) have medical insurance. Majority 157(77.7%) do not have prescribed emergency medicine at their homes while only 45(22.3%) have. Majority 164(81.2%) after the taking any medicine did not ever need medical emergency while 38(18.8%) have ever needed medical emergency after taking medicine. Majority 116(57.4%) do not have a medical thermometer at home while only 86(42.6%) had thermometers at home. Details are given in table 2 below.

Table 2: Awareness and practices for managing medical emergencies(N=202)

S/No	Questions	Frequency (%) N=202(100%)	
		Yes	No
1	Have you heard about medical emergency ambulance?	202(100%)	0(0%)
2	Do you Know Medical emergency Toll free number?	196(97%)	6(3%)
3	In case of road Accident, will you call to ambulance/ Police?	19(9.4%)	183(90.6%)
4	If a person gets injured during violence, will you call police / ambulance?	18(8.9%)	184(91.1%)
5	Have you ever used first Aid kit at your home?	67(33.2%)	135(66.8%)
6	Do you have glucose at your home?	67(33.2%)	135(66.8%)
7	Have you taken any health insurance for your family?	67(33.2%)	135(66.8%)
8	Do you have prescribed emergency medicine at your home?	45(22.3%)	157(77.7%)
9	After the taking any medicine did you ever need medical emergency?	38(18.8%)	164(81.2%)
10	Do you have thermometer at home?	86(42.6%)	116(57.4%)

Table 02

Based on the number of questions asked, a scale was developed to describe the practices of the participants regarding medical emergency, out of the 10 questions asked, scores <5 were considered poor practices while scores ≥5 were considered good practices. The mean practice score was 3.97(SD±2.31). 1 and 10 being the lowest score and highest scores respectively. Majority 131(65%) had poor practices while only 71(35%) had good practices.

Table 3: Practices regarding management of medical emergency

Scores	Level of practices	Frequency	Percentage
<5	Poor practices	131	65%
≥5	Good practices	71	35%

Table 03

Association between sociodemographic variables and practices

To determine sociodemographic factors associated with practices regarding management of medical emergencies, a regression analysis was performed. Variables with p-values <0.05 were considered associated while those with p>0.05 were considered not associated. Details entered in table 4 below indicated that only family income(p=0.01) and language spoken at home (p=0.00) were the factors associated with practices. Gender(p=0.82), age(p=0.89), education level(p=0.26), occupation (0.32), family size(p=0.75) and marital status(p=0.33) were all not associated with awareness and practices regarding medical emergency.

Table 4: Association between sociodemographic variables and awareness

Sociodemographic variables	P-Values	Lower 95% CI	Upper 95% CI
Gender	0.82	-1.24	1.57
Age	0.89	-0.58	0.66
Education level	0.26	-0.79	0.21
Family income	0.01	-2.22	-0.24
Occupation	0.32	-0.59	0.19
Family size	0.75	-1.10	0.80
Marital status	0.33	-0.88	2.63
Language spoken	0.00	0.74	3.90

Table 04

Discussion

This study was conducted to assess awareness and practices of managing medical emergencies of participants selected from 10 villages of district of Hapur, Uttar Pradesh, India. The findings in this study show that there is high level of awareness about medical emergency number. 100% have heard about medical emergency and 97% knew the medical emergency number. This findings contradicts those of Bagis et al conducted in Saudi Arabia which found that 33% of those surveyed were ignorant of the number to contact in the event of a medical emergency[11].In Moradian et al 48.6% were unaware of the existence of EMS[12]**.** Just 43.8 percent of respondents in Kofi et al knew the medical emergency number, and only 37.1 percent recognized it was a toll-free number[10]**.** The findings of Vasudevan et a revealed that the general public is uninformed of the '108' services and that, although having access to them, they are rarely used to transfer victims of traffic accidents[14]. The high awareness about the medical emergency number recorded in the current study maybe due to the increased

community sensitization about response to health in Harpour district and majority of the participants are also educated**.**

Findings related to practices reveal that, the mean practice score was 3.97(SD±2.31). 1 and 10 being the lowest score and highest scores respectively. Majority 131(65%) had poor practices while only 71(35%) had good practices. Majority, 183(90.6%) of the participants will not call the police in case of road accident, majority 184(91.1%) said they will not call the police/ambulance if a person gets injured during violence. Majority (66.8%) have never used a first aid kit at home while only 67(33.2%) have ever. The fear of calling the police to help in case of road accidents and injury during violence maybe due to the fear of getting taken for questioning and getting arrested. However, the reasons for refusing to call the police is not clear. Only family income(p=0.01) and language spoken at home (p=0.00) were the factors associated with practices. Gender(p=0.82), age(p=0.89), education level(p=0.26), occupation (0.32), family size(p=0.75) and marital status(p=0.33) were all not associated with awareness and practices regarding medical emergency. Income determines the purchasing power of the families. Families in high socio-economic status, will have enough money to buy health monitoring equipment like thermometer and afford a first aid kit. They might have transportation means to get sick family members to the hospitals hence feel reluctant to call medical emergency ambulance.

Recommendations

To improve the practices of the participants. The following recommendations are proposed

- This study recorded poor practices regarding managing medical emergencies, therefore, an immediate sensitization of the villagers regarding management of medical emergency situations is highly recommended.
- Active involvement of the police in emergency situations such as accidents and injury during violence, to make the villagers know it's part of the duties of the police to help in case of medical emergencies
- Health workers should encourage community members to have first aid kits and simple equipment like thermometer to monitor health conditions and seek medical attention on time.

Conclusion

The participants in this study have high awareness about medical emergency ambulance services and the toll-free number to dial in case of medical emergency. Family income was the only factor associated with awareness and practices of medical emergency. However, despite the high awareness recorded about medical emergency services, the study participants have poor practices of managing health emergencies. Therefore, it is necessary to conduct community health education regarding first aid management and practices of managing medical emergencies before victims are transferred to hospitals.

Limitations

This study used cross-sectional study design. It was limited to 10 villages in Hapur District, in Uttar Pradesh, therefore the findings cannot be used to generalize the medical emergency awareness and practices of the whole of Uttar Pradesh, India. Persons aged 15 to 45 years were only included in this study, the excluded age groups might have a different perspective.

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Availability of data and materials
Not applicable

Competing interests
There are no potential conflicts of interest.

Ethical Approval

Ethical clearance from institutional ethics committee (I.E.C.) was obtained for the study. Utmost care was taken to maintain the privacy and confining their identity.

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