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Assessment of knowledge, readiness, and barriers hindering the performance of first aid measures in emergency situations among non-healthcare professionals of selected organizations of Udupi Taluk

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Abstract:

BACKGROUND: A medical emergency is an unexpected event that poses a threat to one's health and safety. An individual who has received adequate first aid training is prepared to administer first aid promptly and effectively to a person in need until the arrival of medical assistance to prevent future problems that could result in disability or death. This study aims to assess the knowledge, readiness, and barriers to perform first aid measures.

MATERIALS AND METHODS: A descriptive survey was used to collect data from 384 non-healthcare professionals of selected organizations of Udupi Taluk with the help of a structured questionnaire from January 21, 2022 to April 13, 2022. The self-structured tool was validated with experts from the subject areas and reliability was obtained by using the Split half method (0.78) for the knowledge questionnaire, readiness scale by using Cronbach's alpha and the reliability coefficient was 0.80, and barrier checklist was accomplished by a test-retest method and reliability coefficient of 0.76. Data was organized, and frequency, percentage, and Chi-square analysis were performed using SPSS 16.0 version (IBM Corporation Business analytics software portfolio).

RESULTS: The results revealed that out of 384 samples, 261 (68%) non-healthcare professionals had average first aid knowledge, and 359 (93.4%) of the samples were found to be willing to administer first aid in an emergency. The six hurdles identified to performing first aid were language 365 (95.1%), lack of information 344 (89.6%), lack of training 341 (88.8%), legal concerns 274 (71.4%), fear 230 (59.9%), and lack of confidence 68 (17.7%).

CONCLUSION: The first aid knowledge among non-healthcare workers is generally average. Thus, the readiness of the non-healthcare professionals can be enhanced by improving their knowledge and reducing the barriers perceived by the non-healthcare professionals to provide first aid during a medical emergency with the help of first aid training and reading materials.

Keywords:

Barriers, first aid, knowledge, non-healthcare personnel, readiness

Introduction

An emergency is a sudden occurrence that poses an immediate risk to one's health, safety, property, or environment and which requires immediate action to prevent further deterioration of the condition.[1] First aid is the initial care given to a victim or ill person who is injured and until a medical team shows up on the scene. First aid is

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directed to meet purposes like preserving life, avoiding further complications, promoting recovery, and aiding in the safe transportation of the victim to the nearest hospital.[2] Training in first aid equips an individual to be knowledgeable and skillful in using lifesaving skills in times of medical emergencies.[3]

A cross-sectional research of 194 Ethiopian kindergarten teachers in 2017 found that 130 teachers (67%) stated that first aid is essential in epistaxis, followed by 112 teachers (57.7%) in choking, and 51 teachers (26.3%) in fracture.[4] As per the report by Statista in 2020, about 2 in 2,535 had been caused by choking, a medical emergency, by food and nearly 1.5 deaths per 1,00,000 had been reported.[5] Epistaxis is experienced by 60% of people during their life and only 10% required medical help.[6] A cross-sectional study conducted in the Kumaon region, India from November 2018 to January 2019, revealed that out of 252 drivers, only 10 (4%) participants were of opinion that splinting a fractured part is of utmost priority in first aid management in fracture.[7]

To better serve the community, India and other nations have made the crucial choice to make first aid a required component of the educational curriculum so that first aid training by the experts will help to recognize medical problems that need a quick response and act quickly as per a survey conducted at 628 school students of Kozhikode, Malappuram, and Palakkad districts of Kerala in 2019.[8]

The purpose of this study was to assess the knowledge and readiness of non-healthcare professionals to provide first aid in an emergency and identify the barriers hindering their performance of first aid and improve their readiness with the provision of instructional pamphlets. Since first aid is the immediate care given to victims in an emergency before the arrival of medical professionals and by improving the non-healthcare professionals' knowledge of first aid will certainly improve their readiness to provide first aid in emergencies.[7]

Material and Methods

Study setting and sample

Based on the previous studies, the sample size for the main study was derived by using a single proportion for the finite population with a 95% confidence interval, and a marginal error (d) of 5%.

$n = (z2\ p\ (1\text{-}p))/d2$

$n = 1.96 \times 1.96 \times 0.5\ (1\text{-}0.5)/0.05 \times 0.05$ and the estimated sample study is 384.

The samples selected for the study are non-healthcare professionals (high school teachers, bank employees, and legal professionals).

Udupi Taluk is divided into 16 clusters. Out of 16 clusters, the study's institutions - banks, high schools, and offices of legal professionals of Udupi Taluk were randomly selected from 8 clusters. The sample was chosen using a proportionate sampling technique. Hence, 192 high school teachers, 96 bank employees, and 96 legal professionals of Udupi Taluk were included in the study.

Inclusion and exclusion criteria

The study's inclusion criteria were non-healthcare professionals (high school teachers, bank employees, and legal professionals), who could read and write English, age group belonging between 21 and 60 years, and who worked for both private or government organizations. Participants who were older than 60 and refused to participate in the study were not included.

Data collection tools and method

A proportionate sampling technique was employed for the selection of 384 non-healthcare professionals of Udupi Taluk. The administrative permission was obtained from the Administrative Head of the Institution, the Deputy Director for Public Instruction, the Institutional Research Committee, the Institutional Ethics Committee, Kasturba Hospital (IEC 749-2021), CTRI registration (CTRI/2022/01/039479), permissions from the 17 high schools of Udupi Taluk, 16 banks, and the BAR (Body of Lawyers) association for the legal professionals. The self-structured tool was validated with experts from the subject areas and reliability was obtained by using the split half method (0.78) for the knowledge questionnaire, readiness scale by using Cronbach's alpha and the reliability coefficient was 0.80, and barrier checklist was accomplished by a test-retest method and reliability coefficient of 0.76. Pre-testing, validity, and reliability of the tools were established at Kaup, followed by a pilot study at Malpe on 38 non-healthcare professionals. The main data collection was done from January 21, 2022 to April 13, 2022. Participants were surveyed on-site and online, a participant information sheet was provided, and informed consent was obtained before administering the questionnaires. The self-structured questionnaire included a demographic proforma, a knowledge questionnaire on first aid basics, choking, epistaxis, and fractures, a readiness scale to ascertain readiness, and a barrier checklist to identify obstacles to administer first aid in an emergency. Data were organized, and frequency, percentage, and Chi-square analyses were performed using SPSS 16.0 version (IBM Corporation Business analytics software portfolio).

Results

In the study, 384 non-healthcare professionals were approached, and they consented to participate. Hence, the response rate was 100% for whom the results were presented. It was found that out of 384 participants, 172 (44.8%) belonged to the age range of 31 to 40 years, 251 (65.4%) were females, 163 (42.4%) were working in the private sector, and 266 (69.3%) were postgraduates. It was also noted that 328 (85.4%) of the participants had received information on first aid, and it was discovered that 117 (35.7%) of the respondents agreed that health professionals had contributed to the knowledge of first aid. Only 141 of the participants, or 36.7% had taken first aid classes, out of which 71 (50.4%) had attended voluntarily and 70 (49.6%) had done so as part of workplace training. Only 68 (17.7%) of the participants could administer first aid in a medical emergency [Table 1].

In our study, the knowledge of the non-healthcare professionals was assessed using a knowledge questionnaire. The knowledge questionnaire consisted of 30 questions. Based on the scores obtained by the non-healthcare professionals, they were categorized into Good (scoring 21–30), Average (scoring 11–20), and Poor (scoring 1–10). It was found that 261 (68%) non-healthcare professionals possessed average knowledge of first aid [Figure 1].

Among the 261 non-healthcare professionals were 62 (64.6%) bank employees, 60 (62.5%) legal professionals, and 139 (72.4%) high school teachers who possessed average knowledge in first aid management. The knowledge of the non-healthcare professionals in the areas of first aid was further analyzed and found that 91 (47.4%) high school teachers had a good understanding of the basics of first aid, whereas 53 (55.2%) legal professionals had good knowledge of epistaxis management, 37 (38.5%) bank employees had good knowledge in the area of choking, while 27 (14.1%) high school teachers had good knowledge in the field of fracture management.

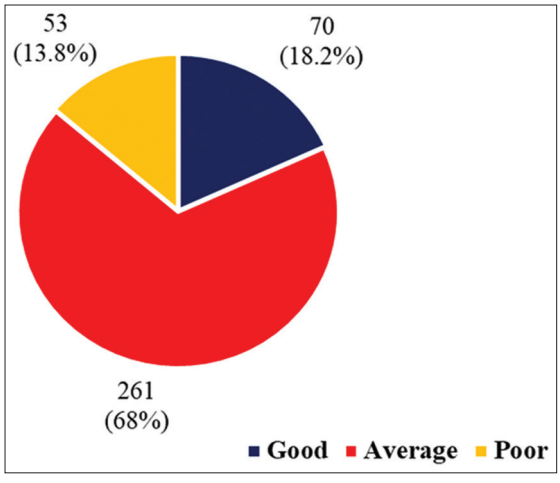

Figure 1: A pie chart depicting the categorization of knowledge of non-healthcare professionals

To determine an association between knowledge of first aid and selected demographic variables, a

Table 1: Demographic profile of the non-healthcare professionals (*n*=384)

Sample characteristics	Frequency (f)	Percentage
Age in years		
21–30	96	25.0
31–40	172	44.8
41–50	91	23.7
51–60	25	6.5
Gender		
Male	133	34.6
Female	251	65.4
Educational qualification		
Pre-University College	14	3.6
Undergraduate	67	17.4
Postgraduate	266	69.3
Other	37	9.7
Type of profession		
Bank employee	96	25.0
Legal professional	96	25.0
High School Teacher	192	50.0
Sector of employment		
Government	145	37.8
Private	163	42.4
Self	76	19.8
Area of residence		
Rural	182	47.4
Urban	202	52.6
Religion		
Christian	96	25.0
Hindu	270	70.3
Muslim	18	4.7
Have you received information on first aid?		
Yes	328	85.4
No	56	14.6
Sources of information (*n*=328)*		
Health professional	117	35.7
Mass/print media	73	22.3
Social network/social media	95	28.9
During the course	43	13.1
Have you attended any first aid training?		
Yes	141	36.7
No	243	63.3
Reason for attending training program (*n*=141)*		
Voluntary	71	50.4
Workplace training	70	49.6
Have you performed first aid care?		
Yes	68	17.7
No	316	82.3

*Indicates that *n* is not 384

null hypothesis (H_0) was formulated that stated that there will not be a significant association between knowledge of the selected demographic variables. Then the research hypothesis (H_1) formulated was that there will be a significant association between knowledge of the selected demographic variables. To ascertain if there was an association of knowledge of the non-healthcare professionals with certain demographic variables, further analysis was done using Chi-square [Table 2].

On analysis, since the *P* was >0.05, it accepts the null hypothesis and concluded that there was no association between knowledge of first aid with selected demographic variables.

In the study, the barriers to first aid administration perceived by the non-healthcare professionals were assessed with the help of a barrier checklist. The checklist consisted of 10 questions with options like Yes and No. Using this checklist, six barriers were identified among non-healthcare professionals [Figure 2].

Figure 2 provides details of barriers experienced by non-healthcare professionals in providing first aid. Most of the participants, about 365 (95.1%), reported the language barrier as a major barrier while only 68 (17.7%) reported a lack of confidence as an obstacle to first aid care. These barriers varied among the non-healthcare professionals based on the type of profession, though the language barrier had ranked as the major hurdle [Table 3].

Though the language barrier was ranked first, it was found that among the 96 bank employees, 85 (88.5%) felt that lack of training played an important role in preventing first aid care, while 89 (92.7%) out of 96 legal professionals perceived that lack of training and lack of knowledge were also a hurdle to first aid administration. Out of 192 high school teachers, 174 (89.6%) felt that lack of knowledge hindered first aid care apart from the language barrier.

The readiness of the non-healthcare professionals was determined with the help of a readiness scale. The questions were rated using a 5-point Likert scale as 5-Strongly agree, 4-Agree, 3-Neutral, 2-Disagree,

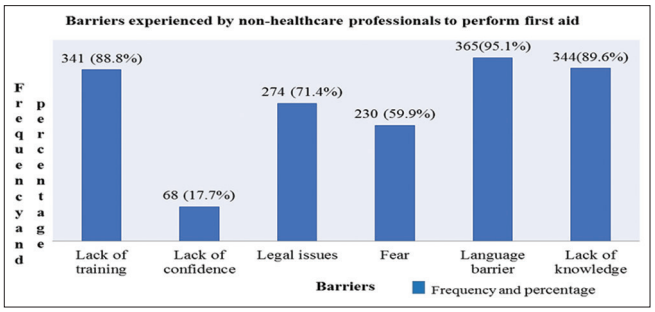

Figure 2: A bar diagram depicting barriers to performing first aid among the non-healthcare professionals

Table 2: Association of knowledge of the non-healthcare professionals with the selected demographic variables (*n*=384)

Variable	Knowledge category			$\chi^2_{(df)}$	P
	Good	Average	Poor		
Age				$0.582_{(6)}$	0.54
21–40	49	181	38		
41–60	21	80	15		
Gender				$0.193_{(2)}$	0.20
Male	27	83	23		
Female	43	178	30		
Education				$0.809_{(6)}$	0.84
Pre-University College	3	8	3		
Undergraduate	14	43	10		
Postgraduate	47	182	37		
Other	6	28	3		
Type of Profession				$0.067_{(4)}$	0.06
Bank employee	14	62	20		
High School Teacher	32	139	21		
Legal professional	24	60	12		
Have you attended any first aid training?				$0.935_{(2)}$	0.91
Yes	26	97	18		
No	44	164	35		
Have you performed first aid?				$0.354_{(2)}$	0.36
Yes	9	47	12		
No	61	214	41		

*Significant at *P*<0.05

Table 3: Presentation of barriers faced by non-healthcare professionals from various sectors of employment (*n*=384)

	Frequency	Percentage	Frequency	Percentage	Frequency	Percentage
Lack of knowledge	81	84.4	89	92.7	174	89.6
Language barrier	89	92.7	93	96.7	183	95.3
Fear	64	66.7	49	51.0	117	60.9
Legal issues	67	69.8	74	77.1	133	69.3
Lack of confidence	11	11.5	25	26.0	32	16.7
Lack of Training	85	88.5	89	92.7	167	86.9

and 1-Strongly disagree. The scoring for the positive statement is 5-Strongly agree and 1-Strongly disagree while for the negative statement 5-Strongly disagree and 1-Strongly agree. The checklist consisted of 12 questions and 31–60 scoring was categorized as Willing and 1–30 scoring as Not willing. According to the readiness scale, 359 (93.4%) out of 384 non-healthcare professionals who took part were willing to administer first aid in an emergency. Out of 359 participants, 184 (51.3%) high school teachers, 90 (25%) legal professionals, and 85 (23.7%) bank employees had indicated that they would be willing to give first aid in medical crises.

Discussion

This study mainly assessed knowledge, readiness, and barriers hindering their performance of first aid in emergency situations among 384 non-healthcare professionals. Of the study participants, 251 (65.4%) were females and this outnumbered the men who participated in the study, 328 (85.4%) participants had information on first aid. The study reported that 141 (36.7%) non-healthcare professionals had undergone training in first aid but only 68 (17.7%) of them were able to perform first aid care. This can be due to a lack of training as supported by a cross-sectional study conducted among 194 kindergarten teachers in Ethiopia in the year 2018. The study revealed that 62 (32%) out of 194 participants had undergone first aid training.[4] Another study conducted among 146 schoolteachers of Mangalore reported that 74 (84%) out of 88 participants that witnessed medical emergencies, provided first aid care.[9]

On assessing the knowledge in the area of first aid, a study conducted among 146 schoolteachers in Mangalore in 2013 found that 127 (87%) teachers had average knowledge[9] and this was consistent with the present study finding.

The present study highlighted six barriers perceived by 384 non-healthcare professionals that interfered with first aid care such as language problems, lack of knowledge, lack of training, facing legal issues, fear, and lack of confidence. A systematic review conducted to identify the barriers to the prevention of home injuries among under-five children by retrieving 57 studies from 2004 to 2009 revealed that 20 studies pointed out language barriers and inadequacy of providing training to the staff posed a threat to providing first aid intervention.[10] These results were not in line with the present study findings on language barrier 365 (95.1%) and lack of training 341 (88.8%). Apart from these barriers, other barriers also played a key role in hindering first aid care as supported by a cross-sectional study conducted among 720 laypersons at Tumkur in 2011 that stated 265 (37%) participants withdrew themselves from providing first aid care in emergencies. Of the 265 participants, 79 (29.8%) reported a lack of knowledge and 52 (19.6%) stated fear as the barrier to first aid administration. These findings were not in line with the present study findings. It was also noticed that 79 (29.8%) participants expressed fear of facing legal implications as a barrier to first aid care.[11] This was consistent with a cross-sectional study conducted at Uttarakhand among 252 drivers that reported the same experience by 18 (94.7%) out of 19 participants who were unwilling to provide first aid.[7] This study's finding was consistent with the findings of the present study. A qualitative study conducted at Ontario in 2008 identified lack of confidence among 11 (45.8%) out of 24 participants,[12] which was in line with the finding of the present study 68 (17.7%).

The present study revealed that 359 (93.4%) of the non-healthcare professionals were willing to perform first aid, which was consistent with the findings from a cross-sectional study conducted at Uttarakhand, that reported 233 (92.5%) out of 252 participants are willing to perform first aid care during emergencies.[7]

Conclusion

Thus, the study was intended to assess knowledge, readiness, and barriers hindering the performance of first aid measures in emergency situations. The knowledge of the non-healthcare professionals was found to be average, but the majority of the participants exhibited their willingness to undergo first aid training. As the gap identified in the study was a lack of training in first aid, the public will be benefited by being educated and trained in first aid to recognize the need for first aid and take prompt action to avoid any delay in saving a life.[13]

The findings of this main study can bring about a huge impact on the general public with the help of

health educational programs, to educate the public on medical emergencies and their first aid management. The non-healthcare professionals can take up leadership roles and conduct health programs to educate the public. Further initiatives by health professionals to educate the public through health talks, radio programs, video-assisted programs, instruction modules, and booklets can be done to curb morbidity and mortality, as done by the researcher in this study by providing an instructional pamphlet as a motivation to the participants. A qualitative study conducted in Tanzania reported that the provision of an instruction manual or booklet in the simple language would boost their confidence and help them to provide first aid.[14] However, this study has revealed a significant gap in the training offered to the public or in the workplace. Further studies including interventional should be conducted to assess the theoretical knowledge and skill retention to bring down the morbidity and mortality caused by delays in first aid management.

The recommendation for this study is that further interventional studies can be extended to various areas of first aid management and skill assessment other than the areas mentioned in this study. The limitation of the study is that skill assessment in the areas chosen for this study was not done and it was limited to non-healthcare professionals belonging to three professions.

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Conflicts of interest
There are no conflicts of interest.

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