

Burn first aid knowledge, attitude, and practice among medical interns of a tertiary care center: A descriptive cross-sectional study

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ABSTRACT

Introduction: Burn injuries are a significant public health concern with immediate and long-term consequences. This study assessed the knowledge, attitude, and practice of burn first aid among medical interns in a tertiary care center. **Methods:** A descriptive cross-sectional study was conducted among medical interns at a tertiary care center. A structured questionnaire was used to collect data on the burn first aid knowledge, attitude, and practical skills of medical interns. The data were analyzed using appropriate statistical methods. **Results:** The study involved 89 medical interns aged between 23 and 29 years, with 60.7% male participants. Of them, 51(57.3%) reported no prior exposure to burn and 17(19.1%) received formal training in burn first-aid priorly. The study found that 85 participants had good knowledge (95.5%), with only 4.5% having poor knowledge. Attitude assessment revealed 66(74.16%) participants had unfavorable attitudes, while 25.84% had a favorable attitude towards burn first aid. All participants had a good level of practice. **Conclusions:** The study emphasizes the need for targeted interventions to enhance burn first aid KAP among medical interns in tertiary care centers, including structured training programs, continuing medical education, positive attitudes, and hands-on practical skills training.

Keywords: Attitude, burn, first aid, intern, knowledge, practice.

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INTRODUCTION

Burn injuries are a significant public health issue, causing 2,65,000 deaths annually and affecting 11 million people globally.¹ First aid is defined as emergency care given before regular medical aid can be obtained, with the aim of halting tissue damage, stabilizing the vasculature, reducing edema, and providing appropriate analgesia.

Improper use of various topical agents used in immediate burn care can worsen injuries promoting bacterial growth, leading to increased post-burn complications. Prompt administration of appropriate burn first aid treatment has been shown to reduce hospitalizations and decrease morbidity and mortality.² Studies show a lack of awareness about current recommendations of burn first aid,³⁻⁷ particularly in Nepal, where burn injuries remain under-researched. In this context, healthcare professionals, especially medical interns who serve as the initial point of contact in many clinical settings, and constitute the future clinicians hold a crucial responsibility in providing timely and appropriate care to burn victims. Their knowledge, attitude, and practice (KAP) towards burn first aid are of paramount importance in ensuring optimal patient outcomes.

Hence, this study aimed to assess the general knowledge, attitude, and practices related to burn first aid among medical interns in a

tertiary care center.

METHODS

This was a hospital-based, cross-sectional, descriptive study. All the medical interns who have passed their university board exams and are currently working as medical interns at Kathmandu Medical College Teaching Hospital (KMCTH), a tertiary care center in Kathmandu, during the study period were enrolled in the study. The study period was from September 1, 2023 to September 15, 2023. Written consent was obtained from the participants included in the study. Ethical clearance was obtained from the Kathmandu Medical College-Institutional Review Committee prior to the study (approval number: 18082023/05; dated August 18, 2023).

The objective of this study was to assess burn first aid knowledge, attitude and practice of medical interns from a tertiary center in Kathmandu. A pre-designed, self-administered anonymous questionnaire extracted from a similar study was used for data collection⁸ that was validated by a consultant plastic surgeon. It contained 23 questions in the following sections: sociodemographic information, knowledge, attitude, and practices of burn first aid. The questionnaire included a range of close-ended questions with the answer options as strongly agree, agree, disagree, strongly disagree, neutral to assess knowledge and attitude. Situation based practice questions included multiple options with one correct answer.

There were a total of 17 questions, among them assessment of knowledge (six questions), practice of burn first aid (six questions), and a single correct answer, which was scored as one while incorrect answer was scored as zero, and attitude of burn first aid (five questions) which were answered in Likert scale and presented as median score.

Further categorization of overall knowledge of students about first aid was scored and categorized as good and poor. Attitude was determined as favorable and unfavourable, and practice as good and poor. The operational definitions were:

- Good knowledge: A knowledge score above or equal 50% (scoring ≥ 3 out of 6) was categorized as having good knowledge.
- Poor knowledge: A knowledge score below 50% (scoring < 3 out of 6) was categorized as having poor knowledge.
- Favorable attitude: An attitude score above or equal to the mean or median (based on the distribution of data)

score was categorized as having a favorable attitude.⁸

- Unfavorable attitude: The attitude score below the mean or median (based on the distribution of data) score was categorized as unfavorable.⁸
- Good practice: A practice score above or equal to the mean score was categorized as having good practice.⁸
- Poor practice: A practice score below the mean score was categorized as having poor practice.⁸

The data was electronically recorded from individual medical interns as per their best responses against multiple choices. The collected data was stored in an electronic database (MS Excel sheet) and the results were analyzed using appropriate statistical methods.

RESULTS

A total of 89 medical interns were enrolled in the study with ages between 23 and 29 and 54(60.7%) males and 35(39.3%) females. Of the participants, 51(57.3%) reported no prior exposure to burn to self or family members while only 17(19.1%) had received formal training in burn first-aid.

Table 1: Demographic profile of all participants (N=89)

Sociodemographic variables	Category	Frequency	Percentage
Age (Range: 23-29 years)	<25	45	50.6
	≥ 25	44	49.4
Sex	Male	54	60.7
	Female	35	39.3
	Unmarried	88	98.9
Marital status	Married	1	1.1
	History of exposure to burn (self/family member)	Yes	38
No		51	57.3
Participation in burn first aid	Yes	17	19.1
	No	72	80.9

Most participants, 85(95.5%), had good knowledge with score $\geq 50\%$ in the test questions, and only 4(4.5%) had poor knowledge. The mean score for knowledge was 4.75. The results of the attitude assessment showed 74(83.1%) participants had a favorable attitude, and 15(16.8%) were classified as having an unfavorable attitude towards burn first aid. The median score for attitude was 4. The mean score for practice was 6. All the participants 89(100%) had a good level of practice. The responses of participants to knowledge-based questions have been shown in Table 2. Table 3 highlights the attitude-based responses, and Table 4 shows responses to practice-based questions. The overall scores were calculated and classified in Table 5.

Table 2: Assessment of burn first aid knowledge among medical interns

Q.No.	Knowledge based questions	Category	Frequency	Percentage
1	Burn first aid is the immediate care given to a person who has sustained a burn injury before they arrive at a health institution.	Strongly disagree	4	4.5
		Disagree	2	2.2
		Neutral	6	6.7
		Agree	77	86.5
2	Burns can lead to permanent injuries.	Strongly disagree	4	4.5
		Disagree	3	3.4
		Neutral	2	2.2
		Agree	80	89.9
3	Children are the most vulnerable family members to burns.	Strongly disagree	4	4.5
		Disagree	3	3.4
		Neutral	15	16.9
		Agree	67	75.3
4	Washing the burned area with running tap water for 30 minutes is the first correct step in case of burn injuries.	Strongly disagree	4	4.5
		Disagree	4	4.5
		Neutral	21	23.6
		Agree	60	67.4
5	Never apply traditional remedies to the burn before going to the health facility, e.g., "dough, toothpaste, oil, banana leaf, etc." as first aid for burn wounds.	Strongly disagree	5	5.6
		Disagree	3	3.4
		Neutral	13	14.6
		Agree	68	76.4
6	In the case of a flame burn Stop, drop, and roll. Do not run.	Strongly disagree	3	3.4
		Disagree	3	3.4
		Neutral	14	15.7
		Agree	69	77.5

Table 3: Assessment of attitude towards burn first aid among medical interns

Q.No.	Attitude based questions	Category	Frequency	Percentage
1	Home remedies can reduce pain and infection.	Disagree	35	39.3
		Neutral	35	39.3
		Agree	19	21.3
2	Do you think that it is important for you to learn burn first aid?	Disagree	0	0
		Neutral	0	0
3	If the Ministry of Health gives nationwide burn first aid training to all, do you think that it is useful?	Disagree	0	0
		Neutral	2	2.2
4	Burn first aid training is mandatory not only for health professionals but also for everyone.	Disagree	0	0
		Neutral	5	5.6
		Agree	84	94.4
5	Most burn injuries are preventable.	Disagree	0	0
		Neutral	23	25.8
		Agree	66	74.2

Table 4: Assessment of burn first aid practice among medical interns

Q.No.	Practice based questions	Category	Frequency	Percentage
1	If someone from your family received a small/minor burn, where would you take them quickly for treatment?	Herbalist/Traditional healer	2	2.2
		Pharmacy/Health post	36	40.4
		Hospital	51	57.3
2	If someone from your family received a large or major burn, where would you take them quickly for treatment?	Herbalist/Traditional healer	0	0
		Pharmacy/Health post	1	1.1
3	In burn patients, there is a third space fluid loss that needs well hydration: statement is true or false?	Hospital	88	98.9
		True	85	95.5
4	Parkland Formula for fluid resuscitation: 4ml X Body weight X % of Burn Total Body Surface Area in 24 hours.	False	4	4.5
		True	88	98.9
5	What substance do you use when the patient you are caring for has sustained a burn injury?	False	1	1.1
		Silver Sulphadiazine	87	97.8
		Banana leaf	0	0
		Mud	0	0
6	In the case of an electrical burn injury, the first action is to turn off the source of electricity if possible.	Nothing to do	2	2.2
		True	89	100
		False	0	0

Table 5: Grading of knowledge, attitude, and practice

Variables		Number	Percentage
Level of knowledge (mean = 4.75)	Good	85	95.5
	Poor	4	4.5
Level of attitude (median = 4)	Favorable	74	83.1
	Unfavorable	15	16.8
Level of practice (mean = 6)	Good	89	100
	Poor	0	0

DISCUSSION

This study is important as it highlights the scenario and the need for formal burn first aid training for medical interns, especially in a resource-limited setting such as primary health posts where future clinicians will be posted in a lower-middle-income country like Nepal as well as tertiary care centers, wherein medical interns are the first point of contact in the emergency departments. According to WHO, more than 95% of these burn injuries occur in low- and middle-income countries. Due to lack of specialized burn care centers, burn injury has always remained an overlooked and under researched area in Nepal.

The advantage of gaining knowledge of burn first aid among medical interns can proper aid in assessment and evaluate the burn patient, hence improving treatment outcome. A study conducted among health care providers in Vietnam showed significant improvement in the capabilities and competence of medical professionals working in the

emergency department as highlighted with better scores in knowledge as well as practical skills with combined theoretical and practical simulation.⁹

Our study demonstrated an overall good knowledge of burn first aid among medical interns, as evident by 95.5% correctly identifying knowledge-based answers and only 4.5% scoring low (below 50%). Contrary to our findings, a study conducted on medical and nonmedical students in Pakistan demonstrated 44% of students scoring poorly (<50% scores) and only 9% of students scoring >70%, with medical students having higher knowledge scores than their non-medical counterparts.¹⁰ Similarly, another study demonstrated an inadequate level of knowledge and awareness among health-care workers in Saudi Arabia.⁷ In our study, only 83.1% of participants had a favorable attitude. The overall lower attitude scores can be due to fairly equal participants answering “home remedies can reduce pain and infection” as “disagree” and “neutral” (both, 39.3%). Similarly, for “most burn injuries are preventable,” 74.2% responded “agree,” and 25.8% of participants answered “neutral.” The neutral response can be justified, as burns resulting in household and factory settings can be attributed to inevitable technical errors that may occur in themselves. The disparity in responses led to a median score of 4 for attitude and subsequently lowered favorable attitudes. The responses for practice were remarkable, with 100% of participants having good practice. This highlights the good familiarity of interns with the principles of practical burn first aid management. Additionally, 98.9% of participants correctly answered “Parkland Formula for Fluid Resuscitation,” which highlights good practical knowledge as good initial management can lead to significantly better outcomes among burn patients in the future. Our results showed higher KAP scores than those of preceding studies, which may have been because the research population in our instance consisted of early medical practitioners already.

The findings indicate an excellent level of KAP among medical interns from a tertiary center in Kathmandu. Although only 19.1% of participants had received prior formal training, this can be attributed to individual and institutional academics as well as clinical rotations with exposure to burn-related cases in the burn unit of the institute. A study by Riaz et al. shows better scores for burn first aid knowledge among medical students who received formal training.¹⁰ In the study by Wallace et al., more than 15% of participants responded correctly to knowledge-based questions who had previously attended a first aid training course.³ These findings highlight the need for a

more robust and comprehensive burn first aid curriculum during medical training. It is essential that medical interns have a solid foundation in burn injury management, as they often serve as the first point of contact for burn victims in many healthcare settings. Fostering better knowledge can lead to quicker and more appropriate responses, potentially reducing burn injury-related complications.

Improving burn first aid KAP among medical interns has direct implications for patient care in tertiary care centers. Enhanced knowledge, improved attitudes, and proficient hands-on training and simulation exercises can lead to more effective care for burn victims and ensure that interns are well-prepared to manage burn injuries competently. This, in turn, can contribute to reduced morbidity, shorter hospital stays, and improved overall outcomes for patients with burn injuries. It is imperative that healthcare institutions prioritize ongoing education and training such as continuing medical education training courses to ensure that medical interns are well-equipped to provide optimal care in the critical moments following a burn injury.⁹

The limited sample size and single-center study are the limitations of this study. Additionally, self-reported data may be subject to social desirability bias. Additionally, there is a chance that participants’ knowledge may be overestimated when using closed-ended questions. Further research could involve direct observation of interns’ practical skills to provide a more comprehensive assessment.

CONCLUSIONS

Our findings indicate that medical interns possessed a commendable level of burn first aid knowledge, attitude and practice. By identifying and addressing knowledge gaps, enhancing attitudes, and refining practical skills by hands-on training, healthcare institutions can empower medical interns to provide more effective and compassionate care to burn victims. It is imperative that medical training programs and healthcare institutions prioritize burn first aid education.

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