

Awareness of Burns First Aid amongst Healthcare Providers and Medical Students in Emergency Department

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Abstract: ***Background:** To study the knowledge of healthcare providers including emergency doctors, nurses and medical students posted in Emergency Department of Thumbay Hospital Ajman, UAE on first aid for burns management. **Materials and Methods:** A cross sectional study was conducted in the Emergency department of Thumbay Hospital, Ajman- United Arab Emirates over 6 months involving the healthcare providers and medical students. A structured questionnaire was handed over to the doctors, nurses and medical students posted in the Emergency department that involved the details of demographics, knowledge on first aid methods used for burns and the source of interest to receive the first aid information. The aim was to assess the appropriate responses to established norms of first aid in burns using a structured questionnaire distributed randomly to healthcare providers and medical students. **Results:** In total, 75 participants were approached only 50 responses were obtained (28% male and 72% female). Responses of 62% the respondents were graded "inadequate" or "poor" based on Maguire First aid knowledge score. There was no significant correlation was found between gender, higher educational level, training and knowledge, however, female gender and higher educational level were associated with greater awareness although this was not statistically significant ($p=0.92$ and $p=0.24$). **Conclusions:** Appropriate education and knowledge on first aid for burns is important for all the medical caregivers for a better outcome. The study revealed that majority of the respondents had inadequate knowledge but was intended to learn more on burns first aid through various sources. The results of the study also highlight on need of awareness programs and campaigns to adequately manage burns at first instance.*

Keywords: Burns, First aid, Awareness, United Arab Emirates

1. Introduction

Burns require immediate management as it is one of the preventable trauma and effective first aid treatment helps in securing the tissue by reducing the severity and its depth of damage [1]. Burns are complex trauma that require continuous therapy and multidisciplinary treatment [2]. In the Middle East burns are one of the commonest hazard seen at work or at home. Globally burn injuries were very common and a major health concern in developing countries [2].

Creating awareness on first aid treatment among the medical staff initially would help to bring a significant outcome [3]. The study will help us to acknowledge the importance of primary burn prevention and provide appropriate knowledge and beliefs to create awareness among the caregivers and raise public health concerns [3, 4]. The aim of the study was to test the effective baseline information on the importance of first aid management for burns acquired by our healthcare providers and medical students in the emergency department.

2. Materials and Methods

The study design adopted to conduct the study was a cross sectional study design. The study was conducted at Thumbay Hospital, Ajman- UAE over a period of 6 months from November 2018- April 2019. A structured questionnaire was prepared and was given to the Emergency department healthcare providers that includes Doctors and nurses and medical students. The questionnaire was randomly distributed, in different shifts of the medical staffs. [5].

Questions were developed to assess the knowledge and experience of the participants. The questionnaire comprises

a total of 17 questions which leads from general information of the participants to their first aid awareness. The general information involves the participant's age, gender, occupation, educational level, their marital status and children [6].

The first aid awareness questions were based on their opinion, experience and belief. It's composed of the first aid methods they prefer with the options given and the duration it should be treated and their reassessment period. The 17 open ended questions were framed to assess the knowledge of the caregivers that includes the demographics, first aid treatment for burns, training period and ended by their source of interest to receive the first aid information through first aid courses, leaflets, presentations, medical education meetings or other methods. No ambiguous questions had been found after a trial of pretesting for validity and feasibility [4, 5].

A total of 75 questionnaires were handed over, some of the participants did not give back the questionnaires were excluded and only 50 responses were obtained. The results were calculated based on it.

Knowledge on first aid is widely accepted to be important in reducing the severity of burns outcome and to play a significant role in treating the suffered patients of different age groups. The knowledge score has been set to show the levels of treatment being used and to be ranked on the basis of it. The adequate knowledge represents how the first aid treatment is done by treating the burns with cool running water for 10-20minutes and using a cling film as it would resist sticking to the burn and retain moisture [4]. We adopted Maguire et al 2013 scoring system to score the knowledge of first aid in burns [7].

Table 1: First aid knowledge score of Maguire et al 2013 [7]

Knowledge score		First aid treatment
1	Contraindicated	Ice pack/toothpaste/butter Honey/ketchup
2	Poor	Water for ≤5 minutes. Covering with plastic sheet.
3	Inadequate	Water for 5minutes + inappropriate treatment
4	Adequate	Water for 10-20minutes with cool running water cling film Water for 5minutes+cling film

3. Results

A total of 75 participants were approached and obtained 50 responses (14 men, 36 women) excluding the unanswered questionnaires and questionnaires that were not returned back. Logistics of the individual variables such as gender, higher educational level, training and knowledge showed no significant relationship, however, female gender and higher educational level were associated with greater awareness although was not statistically significant.(p=0.92 and p=0.24).

Demographics

The participants were divided based on their age groups, gender, educational level, marital status, number of children and any previous burn injuries to the children as summarized in Table 2.

Table 2: Demographic data given by the participants

Demographics	Number (n=50)	Percentage %
1) <u>Age in years</u>		
20-30	19	38
31-40	22	44
≥ 40	9	18
2) <u>Gender</u>		
Male	14	28
Female	36	72
3) <u>Educational Level</u>		
MBBS	31	62
Nursing	19	38
4) <u>Marital Status</u>		
Married	36	72
Single	14	28
5) <u>Children</u>		
0	19	38
1	11	22
2	14	28
3	5	10
4	1	2
6) <u>Prev. injury to yourself or children</u>		
Yes	18	36
No	25	50
N/A	7	14

The participants gave their opinions on the various first aid methods they used throughout these years and the duration of treatment followed by covering the burn surface area. It tested their beliefs and their practical understanding. The questionnaire helped to gain an insight to their experience of knowledge and theoretical or practical understanding of first

aid treatment. The lack of awareness on this aspect builds a great responsibility to change the perception and help the healthcare professionals to be cognizant. Table 3 and figure 1 shows the various opinions on first aid methods used.

Table 3: First aid methods

First Aid Methods	Number * (Total=64)	Percentage %
Ice pack	10	15.6
Cool water	31	48.4
Tooth paste	8	12.5
Butter	2	3.1
Honey	3	4.6
Ketchup	2	3.1
Other	8	12.5

*Total number of responses for more than one option

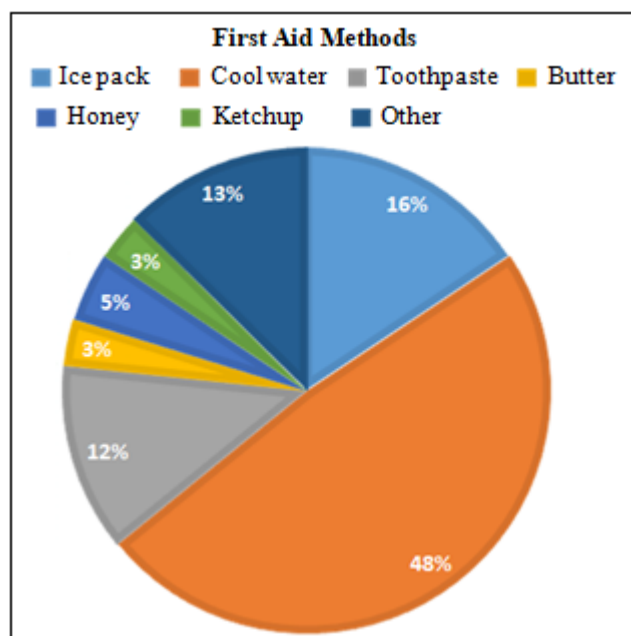


Figure 1: Various opinions on first aid methods used

Table 4 and figure 2 demonstrates the duration of treatment and methods used to cover burn surface area.

Table 4: Duration of treatment and Methods used to cover burn surface area

Duration	*Total = 51	Percentage %
≤5 minutes	25	49
10-20minutes	21	41.1
30minutes	2	3.9
I don't know	3	5.8
Methods to cover burn surface area	*Total = 55	
Clean towel	6	10.9
Plastic sheet	2	3.6
Cling film	5	9
Leave open	38	69
Other	4	7.2

*Total number of responses for more than one option

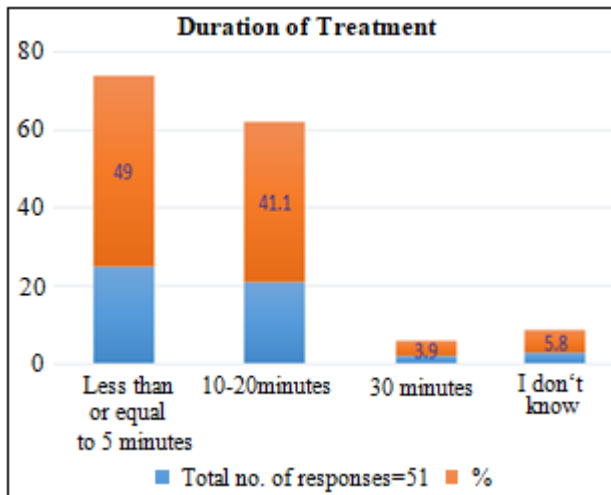


Figure 2: Participants responses to the duration of treatment for burns

The participants also shared their source of education through which they gained awareness on first aid. The most potential resource selected was hospital (26) followed by university (22) and other resources as summarized in Table 5 and figure 3 whereas, the least one was through healthcare workers. This grasps the importance of introducing more interactive learning sessions on sharing knowledge among the healthcare setting.

Table 5: Knowledge gained from various resources

Where did you learn about burns first aid?	*Total = 83	Percentage%
Hospital	26	31.2
University	22	26.5
Internet	10	12.04
Family/Friends	7	8.4
Media	7	8.4
First aid course	6	7.2
Healthcare workers	5	6.02

*Total number of responses i.e. Respondents could choose from one or more options

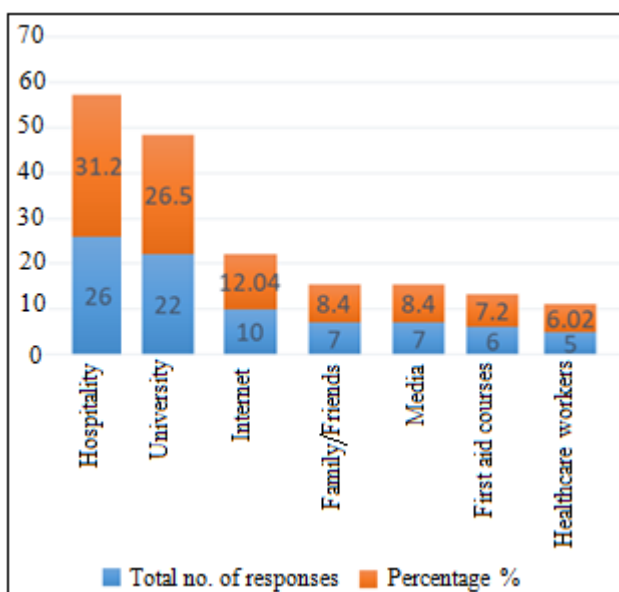


Figure 3: Knowledge gained from various resources

The study demonstrated their period of education and experience which would help to reflect on their perspectives and how time of learning has an impact on their awareness's on burns first aid. It also implies how often the healthcare system has to be updated and evolve through different means of learning. Table 6 gives an insight on their former education learning period of years.

Table 6: Time period of former education

Study period	Total=50	Percentage %
Last year	10	20
Last 5 years	13	26
10 years ago	8	16
≥10 years	19	38

The participants were questioned on how they would like to be aware on the burns first aid and majority of them would like to attend first aid courses. The first aid courses were selected by 23 respondents followed by leaflets (19), Mobile apps (10), posters (9), presentations (8) and medical education meetings (7). The awareness through various sources would help to correlate with their gained knowledge and improve the burn outcome.

Table 7: First aid information sources

How would you like to receive first aid information?	*Total= 76	Percentage %
First aid course	23	30.2
Leaflets	19	25
Mobile apps	10	13.1
Posters	9	11.8
Presentations	8	10.5
Medical education meetings	7	9.2
others	0	0

*Total number of responses for more than one option

Based on the knowledge score of Maguire et al 2013 as mentioned above it has been done to evaluate the participants from our healthcare setting as shown in table 8 and figure 4.

Table 8: Evaluation of knowledge score of our participants

Knowledge score	Number of Participants =50	Variables	First aid treatment
1	5	None/ Contraindicated	Ice pack/ toothpaste/ butter/ Honey/ ketchup
2	14	Poor	Water for ≤5 minutes. Covering with plastic sheet
3	17	Inadequate	Water for 5minutes + inappropriate treatment
4	14	Adequate	Water for 10-20minutes with cool running water cling film Water for 5minutes+cling film

Responses of 62% (31) the respondents were graded "inadequate" or "poor".

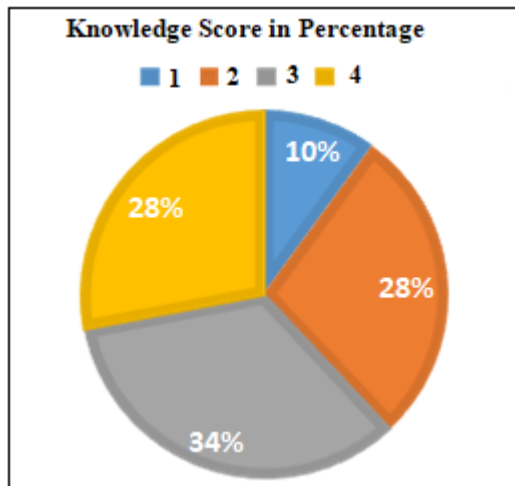


Figure 4: Knowledge score evaluation based on participants responses in percentage

4. Discussion

Previous studies have highlighted the importance of burns first aid knowledge and higher incidence of burns occurring in low and middle income countries [6, 5]. A study conducted in Saudi Arabia regarding burns first aid among caregivers in pediatric emergency department were able to draw attention on the inappropriate first aid measures taken by the caregivers. They have also mentioned on the use of traditional first aid therapies with no scientific evidence [5].

Our study was demonstrated to test the knowledge on burns first aid on our healthcare professionals as it is particularly important to establish appropriate first aid treatment to improve the burns outcome and raise awareness on the significant importance of first aid measures in a healthcare setting [8]. Our study was conducted for a period of 6 months and collected 50 participants responses on burns first aid through a structured questionnaire comprising of 17 questions. They tested the knowledge of healthcare professionals and their beliefs.

In our study 48.4% of healthcare professionals belonging to medicine and nursing fields chose cold water as one of the initial first aid method to treat the burns. 15.6% responded they would treat the burns with icepack followed by 12.5% with toothpaste and 3.1%, 4.6% and 3.1% for butter, honey and ketchup while, 12.5% chose other method such as flour. This aided us on the awareness and lack of knowledge in a healthcare setting. Although, they were more aware on the initial first aid method the duration to cool the burns for 10-20 minutes had only 41.1% responses whereas, a majority of 49% stated for less than 5 minutes. This highlights the need to emphasize on this crucial stage of first aid management.

Almost 69% suggested to leave the burn wounds open and 9% to cover with a cling film followed by 10.9% with clean towel and 3.6% with plastic sheet. Delivering the protection advice to the healthcare workers would reduce the incidence of inappropriate burn dressings and significantly improve the outcome.

A large proportion of the respondents gained knowledge on first aid burn measures through hospitals (31.3%) and

(26.5%) through universities and only (7.2%) had taken first aid courses. The data collected clearly states the requirement for all the healthcare professionals to be educated in first aid management by attending first aid courses and be updated every 5 years. It also highlighted on the time period of their former education as our data collected showed majority of respondents 38% completed their education ≥ 10 years ago and 20% last year. This can be argued on updating the system of healthcare education programs and first aid training in healthcare settings.

Most of the healthcare professionals prefer gaining knowledge for burns first aid via first aid courses (30.2%), leaflets (25%) and medical education meetings (11.8%). Many preferred to use mobile apps (13.1%), posters and presentations (11.8% and 10.5%) to be effective in updating their knowledge.

This study limitation arises from a small sample with just 50 responses within the Emergency department of Thumbay hospital setting. However, we were able to examine their knowledge and practice and their adequate responses would aid in bringing more first aid training courses, health education awareness programs in healthcare settings and improve the beliefs, attitude and practice of healthcare professionals [9, 10].

Educating the healthcare professionals in a healthcare setting is an utmost need in this current generation. European Burn Association have organized burn camps and support groups for burn survivors and implements the participation of healthcare professionals and bring a better outcome to the society [2]. The study helps to give an insight in the knowledge of healthcare professionals and the need to involve more activities and update the healthcare society in a better way.

5. Conclusion

With a limitation of small sample size the results are not generalizable to the whole nation but it showed the healthcare providers and medical students knowledge about first aid for burns is not at an adequate level. Lacking knowledge on appropriate first aid management of crucial conditions can lead to mortality and severe consequences in the near future. Implementing more first aid awareness programmes and various information resources in healthcare settings can be useful to keep the healthcare professionals updated.

Appendix I

Awareness of First Aid for Burns Questionnaire General information

1. Occupation:

Doctor Nurse Other

2. Age: _____

3. Gender: Male Female

4. Educational level: _____

5. Are you: Married Single

6. If married how many children do you have and how old are they?

7. Has your child or yourself had a previous burn injury?

Yes No N/A

8. In your opinion, what was the first aid method you used?

Ice pack cool water toothpaste butter honey ketchup
 other _____

9. How early the burn should be treated?

≤ 5 minutes 10-20minutes 30minutes I don't know

10. It is necessary to cover the burn surface area using:

Clean towel plastic sheet cling film leave open
 other _____

11. You should never rub a burn

True false I don't know

12. All the burn wound will heal by itself with using local medication:

True False only for partial burns
 I don't know

13. Burns should be reassessed at:

24 hours 48 hours 3 days other _____ I don't know

14. Where did you learn about the burns first aid?

Course Hospital Media Healthcare worker Internet Family/ friends University
Other _____

15. When did you learn this?

Last year last 5 years 10 years ago
 ≥10 years

16. Would you be interested in knowing more information about the first aid for burns?

Yes No

17. How would you like to receive this information?

Through First aid course Leaflets presentations Mobile apps
 Posters Medical education meetings
others _____

6. Acknowledgement

The participants contributions are sincerely appreciated and gratefully acknowledged.

7. Statement of Ethics

The authors have no ethical conflicts to disclose.

8. Disclosure Statement

The authors have no conflicts of interest to declare.

9. Funding Sources

This work did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

10. Author Contributions

A. Ansilata Marlyn contributed to the experimental design, data collection and analysis, and drafted the manuscript. Faisal Ameer contributed to the experimental design, data analysis and interpretation, and manuscript preparation. All authors read and approved the final manuscript.

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