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Original Research Article

A comparative study of medical emergency among dental and nursing student respective to knowledge, attitude and practice: A cross sectional study

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Abstract

Background: A medical emergency refers to a condition that presents an immediate risk to a person's life. Such emergency situations can arise at any moment can be prevented when healthcare professionals have sound knowledge, attitude, and practice toward medical emergencies.

Aim and objective: Aim of study is asses the knowledge, attitude, and practice of medical emergency among different healthcare profession i.e. nursing, dental.

Materials and Methods: The study participant was selected by convenience sampling method. A survey was conducted through a questionnaire to assessing the knowledge, attitude, and practice of medical emergencies after that data was transferred to an excel sheet and a chi-square test was employed to determine any meaningful association between the parameters, with a P value of less than 0.05 deemed statistically significant. The analysis was conducted using version 22.0 of the Statistical Package for the Social Sciences software.

Result: The questionnaire was distributed among the participants 150 participants among 139 questionnaires were received a response rate was 92.6%. 95.5% of dental and 94% of nursing participants record past medical history covering medicaments as well as allergic reactions before initiating any treatment, Only 51.6% of participants from the dental profession while a major proportion from the nursing profession (86%) have practiced previous workshops or training on emergency training with the significant difference among two professions respectively (p=0.001).

Conclusion: The study showed that Knowledge regarding diagnosis and BLS was better among nursing participants.

Keywords: Dentistry, Hypersentivity, Health knowledge.

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1. Introduction

A medical emergency (ME) refers to an unforeseen and undesired reaction or complication that typically necessitates urgent care or action.[1]

A sound understanding of emergency identification and response is crucial, as emergencies can pose serious risks to life and may lead to legal implications. It is essential to provide adequate knowledge and training in dental schools at the undergraduate level.[1]

Numerous research studies have been carried out worldwide for the assessment of knowledge, awareness, and self-reported readiness of dental and nursing students in relation to handling medical emergencies, providing Basic Life Support (BLS), and utilizing emergency medications.[1]

A medical emergency refers to a condition or serious injury that presents an imminent danger to someone's existence. Such emergency situations can arise at any moment.[2]

The most frequent crises experienced by both adults and children comprise bronchial asthma, anaphylactic shock, epileptic seizure, vasovagal syncope, stable angina, orthostatic hypotension, aspiration of extrinsic objects and hypoglycaemia.[3,4]

Healthcare professionals, particularly nurses, are essential in delivering care during emergencies.[2]

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Injuries, accidents, and critical situations that arise in the College setting require prompt and effective life-saving assistance prior to the affected individual receiving care from a healthcare professional. Approximately 150,000 people lose their lives each year in situations where timely medical intervention could have prevented death. Research indicates that 35% of fatalities happen within the first 5 minutes after an accident, and 54% occur within the first 30 minutes, with witnesses being present at the scene in over half of the emergency incidents before paramedics arrive.[5]

In the realm of undergraduate nursing education, the development of competencies in a broad context is crucial. Besides acquiring theoretical and practical knowledge and cultivating nursing attitudes, it is vital to foster transversal skills such as headship, communication, and social skills, along with capabilities for the individual as well as career development. To cultivate these transversal skills, promoting reflection is essential. Clinical practice serves as a key component of the educational experience for nursing students, as it allows for the implementation of speculative concepts in actual life situations, the enhancement of technical proficiency through interactions among hospital patients and healthcare professionals, and the growth of nursing attitudes.[6]

Emergencies in a dental environment occur 5.8 times more frequently than in a medical facility.[7]

The documented occurrence of medical emergencies in dental procedures is between 0.22 and 0.7 per dentist annually in day-to-day clinical practice.[8]

The aim of study is to Assessing the knowledge, attitude and practice of Medical Emergency among Dental and Nursing undergraduate while objectives were:

1. Perception of students regarding medical emergency.
2. Knowledge of students of medical emergency.
3. Knowledge of vital signs.
4. Knowledge of management of medical emergency.
5. Attitude toward medical emergency.

2. Materials and Methods

A Cross-sectional analysis was executed from October 2024 to December 2024 after receiving ethical clearance in the Department of Public Health Dentistry, Dental College Gwalior.

The research participant was selected by convenience sampling method. A self-administrative survey was implemented among participants for assessing their knowledge of medical emergencies and was constructed with an open-ended question and either yes or no responses.

2.1. Inclusion criteria

The study Include those are posted in clinics of their respective years in different medical field i.e. dental, nursing.

1. The entire participant who was willing for study.
2. Dental student among 3rd year, 4th year and Interns.
3. Nursing student among 1st, 2nd, 3rd and 4th year.

2.2. Exclusion criteria

1. Student among non-clinical years of their respective profession
2. PG students who have completed their degree
3. Staff of college
4. Those who will not participate in study.

2.3. Sample size and sampling procedure

1. Included all students of colleges.
2. Depend on response rate.

2.4. Planning and data collection

The customized questionnaire consists of fourteen questions i.e. 4 open-ended and 10 questions based on yes or no. The survey form divided statistical data (year, profession), vital signs, medical history, medical emergency and treatment of medical emergency.

The survey form was passed on as an open link via whatsapp to all study participants. The answers were recorded and analyzed using statistical methods.

2.5. Statistical analysis

Descriptive statistics were used to summarize and analyze the data. The chi-square test was employed to determine any meaningful association between the parameters, with a P value of less than 0.05 deemed statistically significant. The analysis was conducted using version 22.0 of the SPSS.

3. Result

Questionnaire were distributed among the 150 participants among 139 questionnaire were received a response rate was 92.6%.

95.5% of dental and 94% of nursing participants record medical history which covers drugs as well as allergic prior to initiating any treatment while 4.5% (dental) and 6% (nursing) don't enquire about any medical history, p = 0.001 showing significant difference between two professions respectively.

Nearly 98.8% of dental participants and 98% of nursing participants think that obtaining vital signs is of importance while 87.6 % (dental) and 92 % (nursing) were actually confident in obtaining vital signs. Only 1.2% of dental respondents and 2% of nursing respondents don't know the importance of measuring vital signs. Moreover, 12.4% of participants from the dental profession and 2% of participants from the nursing profession were not confident in measuring vital signs with a significant difference between the dental and nursing professions (p=0.001).

Only 51.6% of participants were from the dental profession while a major proportion from the nursing profession (86%) had practiced previous workshops or training on emergency training with significant difference among the two professions respectively (p=0.001).

Fifty-five percent (55%) of dental participants have the knowledge to accomplish BLS while for nursing participants it's approx. three fourth (84%)

Although 90% of respondents from nursing while 60.6% of respondents from dental were aware to utilize AMBU bag with significant difference (p=0.001).

Eighty-two percent of nursing participants and 69.6% of dental participants are capable of diagnosing medical emergencies and medical urgency.

Syncope is reported as the most common medical emergency among dental participants with the proportion of 48.3% however, angina is reported most common among nursing participants with proportion of 52% along with a significant difference (p=0.00001)

The study demonstrated heart attack (42.6%) as the most serious medical emergency among dental students while cardiac arrest (58%) among nursing students with a significant difference between dental and nursing students (p=0.003).

The majority of dental (79.7%) and nursing students (94%) students choose 100-120 as a rate of chest compression showing a significant difference (p=0.024).

Regarding the management of angina, 55% of participants from dental and 72% of participants from nursing answered sublingual nitroglycerine as a management (p=0.123) which doesn't show any significant difference.

Only about half of participants from dental felt competent while administration of I.M (55%) and I.V (53.9%) injections while less than half of nursing participants felt competent while the administration of I.M injection (40%) and about 62% were competent in administration of I.V injection (p=0.001).

Table 1: Response of knowledge based questionnaire

K1.	Question: Do you know how to perform BLS (basic life support)?				
	Yes		No		P value 0.001
Dental	55%		45%		
Nursing	84%		16%		
K2.	**Question: Do you know how to use AMBU bag?**				
	Yes		No		P value 0.001
Dental	60.6%		39.4%		
Nursing	90%		10%		
K3.	**Question: Do you know how to diagnose urgency and emergency?**				
	Yes		No		P value 0.001
Dental	69.6%		30.4%		
Nursing	82%		18%		
K4.	**Question: Do you know management of syncope?**				
	Yes		No		P value 0.001
Dental	85.3%		14.7%		
Nursing	38%		62%		
K5.	**Question: What is most common medical emergency?**				
	syncope	Heart attack	Angina	Others	
Dental	48.3%	29.2%	2.2%	20.3%	P value 0.00001
Nursing	14%	26%	52%	8%	
K6.	**Question: What is most serious medical emergency?**				
	Heart attack	Cardiac arrest	Angina	Others	
Dental	42.6%	29.2%	5.6%	22.6%	P value 0.003
Nursing	34%	58%	2%	6%	
K7.	**Question: how many chest compressions to be done in one minute in adult?**				
	100-120		Others		P value 0.024
Dental	79.7%		20.3%		
Nursing	94%		6%		

*P<0.05 = significant, BLS= Basic life support, AMBU bag= Artificial manual breathing unit

Table 2: Response of attitude based questionnaire

A1.	Question: Are you confident in obtaining vital signs?		
	Yes	No	P value 0.001
Dental	87.6%	12.4%	
Nursing	98%	2%	
A2.	Question: Do you think that obtaining vital signs of patient is of importance?		
	Yes	No	P value 0.001
Dental	98.8%	1.2%	
Nursing	92%	8%	
A3.	Question: Do you feel competent I.M injection administration?		
	Yes	No	P value 0.001
Dental	55%	45%	
Nursing	40%	60%	
A4.	Question: Do you feel competent I.V injection administration?		
	Yes	No	P value 0.001
Dental	53.9%	46.1%	
Nursing	62%	38%	

*$P<0.05$ = significant, I.M= Intramuscular, I.V= Intravenous

Table 3: Response of practice based questionnaire

P1.	Question: patient has angina at your working place what immediate management will you do?				
	Sublingual nitroglycerin	Aspirin	Oxygen	other	P value 0.123
Dental	55%	15.7%	6.7%	22.6%	
Nursing	72%	12%	4.4%	11.6%	
P2.	Question: Do you enquire about medical history including medication and allergy?				
	Yes		No		P value 0.001
Dental	95.5%		4.5%		
Nursing	94%		6%		
P3.	Question: Do you attend any workshop on emergency training?				
	Yes		No		P value 0.001
Dental	51.6%		48.4%		
Nursing	86%		14%		

*$P<0.05$ = significant, CPR= cardiopulmonary resuscitation

A good proportion of participants (85.3%) in dental profession were aware of management of syncope but only 38% of participants from the nursing profession were aware of management (p=0.001) showing high significance between dental and nursing.

4. Discussion

Medical emergency can occur anytime and anywhere so it must be necessary for healthcare professionals to have adequate knowledge of medical emergency delay in intervention may lead to fatal consequences. It can be difficult for individuals who are not skilled in managing medical emergencies.[9]

Sufficient knowledge of BLS (basic life support) can save patients from life-threatening medical emergencies.[10,11]

Vital signs represent a neutral assessment of person's fundamental physiological processes. These are referred to as "vital" because measuring and evaluating them is a crucial initial step in any clinical assessment. The initial phase of clinical examinations involves assessing the patient's vital signs. The extent of abnormalities in vital signs can also indicate long-term health outcomes for patients, the likelihood of returning to the emergency department, the frequency of hospital readmissions, and the use of medical resources. Typically, vital measures include temperature, pulse rate, blood pressure, and respiratory rate.[12]

In our present study, 98.8% of dental and 92% of nurses think recording vital signs is important before commencing any treatment while 1.2% of dental and eight percent respondents from nursing are not confident about record vital signs. This can be aligned with the study of Hashim R *et al* 2021 a considerable percentage of participants (52.6%) opted to document vital signs solely when the patient's medical history suggested the presence of an underlying health issue.[13]

Medical emergencies can be prevented by a detailed case history and examination of the patient and according to that alteration in treatment planning.[14]

In the present study 95.5% (dental) and 94% (nursing) of respondents' records medical history can be synonyms with another study by Ahmad A *et al* greater percentage (100%) of student's record medical history before initiating any treatment.[14]

In the current study percentage of dental respondents those were earlier attended workshop on BLS is 51.6% while nursing is 86% and those who did not attend any previous workshop on BLS dental (48.4%) and nursing (14%) while in another study total of Sangmesh NC *et al* total respondents those had workshop on BLS were 34.14%,[10] and by Kaihula WT *et al were* 44% (prior workshop on BLS) and 56% (don't have prior workshop).[15]

The present study showed that 55% (dental) and 72% (nursing) answered sublingual nitroglycerine as a management of angina others answered oxygen, aspirin and others as a management of angina. Mohideen K and *et al* About 72% of the participants were aware of the importance of having nitroglycerin accessible in the emergency kit and its usage.[16]

According to our study, 85.3% of dental respondents knows to manage syncope while only 38% of nursing respondents knows to manage syncope. Mohideen K *et al* Approximately 83% of those surveyed were aware to handle syncope.[16]

The present study showed syncope (48.3%) is the most common medical emergency according to dental respondents while according to nursing respondents is angina (52%) another side secondary is a heart attack in both dental (29.2%) and nursing (26%) respondents. According to the study of Raffee LA *et al* syncope is considered as a most common medical emergency.[17]

In our present study most serious medical emergency according to dental respondents is heart attack (42.6%) and according to nursing respondents is cardiac arrest (58%) can be compared with a survey of Europe around 3,50,000 to 700000 population suffered from cardiac arrest.[18]

In our current study percentage of dental responders is 79.7% and nursing is 94% those who know correct rate of chest compression while in previous study by Abebe TA *et al* 50.6 % responds for 100 compressions per minute.[19] While in a study by Chandrasekaran S *et al* only 35% responds to 100 chest compressions per minute.[20]

The present study showed that 55% of dental responders and 40% of nursing responders practice I.M injection and I.V. injection other dental (53.9%) and nursing (62%) don't knows to administer I.M and I.V injection while according to

study of Gupta H *et al* less than half practitioner practice I.V injection.[21]

5. Conclusion

The study showed that Knowledge regarding diagnosis and BLS (basic life support) was better among nursing participants. Vasovagal syncope was the most frequently recorded medical emergency among dental healthcare professionals but in nursing, angina is most commonly reported. There is lacking of adequate knowledge and practice although the attitude toward medical emergencies was positive enough. Therefore it is important to have compulsory training on medical emergency in their curriculum so that they can deal with anytime occurring medical emergencies.

6. Source of Funding

7. Conflicts of Interest

There is no individual authors personal interests like family, friendship, financial and social factors that can compromise judgment.

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