

Needs Assessment for a Module on Medical Emergencies in Dentistry in Syrian Dental Schools: A Cross-sectional Study in Aleppo University

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Abstract: Medical emergency skills are very important for dentists. These skills need to be focused on by dental schools especially in Syria throughout civilian war. Assessment of the need for dental curriculum in Syrian dental schools was required to develop a module on medical emergencies in dentistry in Syrian dental schools to meet the community needs. A cross-sectional study design have been used to assess the need for a module on medical emergencies in dentistry at faculty of dentistry in Aleppo University. A multiple-choice question (MCQ) test has been developed to assess medical emergency knowledge among undergraduate students. A module on medical emergency in dentistry has been designed depending on the results of needs assessment which, is based on how many students have passed the MCQ test about comprehensive guidelines on medical emergencies in the dental practice. After collecting the test results, if any gap is founded in the curriculum based on medical emergency concepts in dentistry, Harden's 10 questions will be used in this study to develop a module on medical emergencies in dentistry if the mean score of the MCQ test was below the pass/fail point (less than 50%). 44 students (42%) have passed the MCQ test. 61 students (58%) have failed the MCQ test. The mean score of 75 (MCQ) items test was 45%. Every item of the MCQ test was answered respectively by senior year undergraduate dental students in Aleppo University. Data from the test results has been collected and evaluated statistically. Depending on The mean score of the MCQ test, a module on medical emergencies in dentistry was needed to be developed in Syrian dental schools' curriculum. MCQs has been effective to assess knowledge of medical emergency in Syrian dental schools. Depending on this research results, there still need to develop a Module on Medical Emergencies in Dentistry in Syrian dental schools. Therefore a new module on Medical Emergencies in Dentistry was suggested in this paper to develop the curriculum in Syrian dental schools.

Keywords: Dental-Medical Emergency Module, Harden's 10 Questions Approach, MCQ, Curriculum, Syria

1. Introduction

Development of medical curriculum is highly recommended at faculty of dentistry especially, in Syrian dental schools because of lack of concentration on an effective curriculum planning, and the medical education program objectives related to our community needs during time of Syrian crisis have not been achieved appropriately. Coordination is recommended during time of Syrian crisis between dentists, dental academic staff and some organizations such as Red Cross and Red Crescent who are

responsible for emergency management [12]. Sessions to deal with pediatric emergencies in dental practice should be added to a module on Medical Emergencies in Dentistry, depending on the results of war effect on children [2]. Conducting a deep medical history and stabilizing the patient's medical condition when possible are required to be done by dentists to prevent many medical emergency issues [13]. Curriculum Dysesthesia is on one of Diseases of Curriculum as was described by Stephen Abrahamson in 1995 [4]. A Curriculum Dysesthesia has been distinguished in Syrian dental schools' curriculum because of their lack of

concentration on community needs such as medical emergencies courses in dentistry. In Syrian dental schools, the curriculum seems to be not good health enough and yet a feeling that something is not quite right persists. This condition is called "curriculum dysesthesia" or "curriculum malaise" [4]. There is something wrong with curriculum [4] in Syrian dental schools. "I do not know what makes me angry about it, but Syrian dental schools' curriculum just does not seem right to me" [4]. In our culture, there are some who are never "satisfied": there is always something poor; things were and still never good enough [4]. Medical emergencies in dental practice are infrequent in general, but dentist must be prepared when an emergency does occur because it can be life threatening [13]. In Syrian dental schools, Professors may think that medical emergencies courses in dentistry are just related to master education of maxillofacial surgery. Concentration on teaching medical emergencies in dentistry in the under graduation education should be considered in Syrian dental schools. Emergencies will occur in spite of all efforts at prevention [13], especially during time of Syrian crisis. It is therefore necessary to assess the undergraduate dental students' knowledge about medical emergency concepts related to dental practice before developing a Module on Medical Emergencies in Dentistry in Syrian dental schools' curriculum because of the increasing number of life threatening emergencies during time of Syrian crisis. Therefore, there is highly concentration by Syrian medical educators on Harden ten questions to improve medical teaching and learning in Syria especially, in dentistry field.

2. Methods

In this study, senior year dental students were asked to complete a questionnaire about their satisfaction toward their current curriculum related to medical emergencies concepts at faculty of dentistry in Aleppo University before starting multiple choice questions test (MCQ). The scale about students satisfaction was divided into five choices (strongly satisfied, satisfied, fair, dissatisfied, strongly dissatisfied) and the participants have to select one of these choices to describe their satisfaction toward the current curriculum related to medical emergencies concepts at faculty of dentistry in Aleppo University. 75 multiple choice questions (MCQ) test for senior-year undergraduate dental students in Aleppo University who completed all curriculum subjects that contain medical emergency concepts was conducted with the time duration of 2 hour to assess the need for a new module on medical emergencies in the curriculum at faculty of dentistry in Aleppo university. MCQ scores were classified into six grade categories (very high, high, medium, low, and very low), which cumulatively measured the conducted examination score by authors. The sample size was divided into five groups. The group (very low performers) includes students whose scores are between (0% to 20%). The group (low performers) includes students whose scores are between (21% to 49%). The group (medium performers) includes students whose results are between

(50% to 69%). The group (high performers) includes students whose scores are between (70% to 89%). The group (very high performers) includes students whose scores are between (90% to 100%). The full mark of this test is 100 with a passing grade of 50. A cross-sectional study design was used to assess student's knowledge about medical emergencies concepts at faculty of dentistry in Aleppo university. the assessment test has to be valid and reliable [15]. senior-year (fifth year) undergraduate dental students were eligible to participate in this study and volunteered consent to be surveyed were obtained before conducting the MCQ test. Participants will be invited to complete MCQ test, which included items about medical emergency in the dental practice within 10 sections depending on the contents of a new module on medical emergencies in dentistry to be suggested to develop Syrian dental schools' curriculum. Therefore, the contents of MCQ test was designed as follows:

1. An Overview of Medical Emergency Drugs and the GDC Guideline.
2. An Overview of the Emergency Kit and the Resuscitation Equipment.
3. An Overview of the Management of Medical Emergencies and Resuscitation.
4. Sessions to Deal with Respiratory Disorders in Dental Practice.
5. Sessions to Deal with Cardiovascular Disorders in Dental Practice.
6. Sessions to Deal with Endocrine Disorders in Dental Practice.
7. Sessions to Deal with Neurological Disorders in Dental.
8. Sessions to Deal with Anaphylaxis in Dental Practice.
9. Sessions to Deal with Pediatric Emergencies in Dental Practice.
10. Sessions about Principles of First Aid in the Dental Practice.

This MCQ test was verified by thesis advisor before implementing the test on the senior year dental students in Syria.

Harden's 10 Questions of curriculum development framework approach should be used to develop the curriculum [6] and improve a module on Medical Emergencies in Dentistry Syrian dental schools' curriculum in high quality manner. After the MCQ test, The first four question are suggested to be used in this research to design the contents of a new module on medical emergencies in dentistry at Syrian dental schools.

Harden's 10 questions [6]:

1. What are the needs to the product of the educational program?
2. What are the aims and objectives?
3. What content should be included?
4. How should the content be organized?
5. What educational strategies should be adopted?
6. What teaching methods should be used?
7. How should assessment be carried out?
8. How should details of the curriculum be communicated?

9. What educational environment or climate should be fostered?

10. How should the process be managed?

Statistical analyses were performed by using spss v. 21.0.0.0

3. Results

105 students of senior year under graduate dental students at faculty of dentistry in Aleppo University were included in

this study after getting their acceptance to participate in the questionnaire and the MCQ test about medical emergencies concepts. Females comprised 57 students (56.2%) and male comprised 48 students (43.8%) of those who completed both questionnaire and the MCQ test. 61 students (58%) have failed MCQ test but 44 students (42%) have passed the MCQ test about medical emergencies concepts in dentistry. Most of participants was low performers in the MCQ test as shown in (table 1).

Table 1. Assessment of participants scores after MCQ test related to medical emergencies concepts in dentistry.

Grade categories	Very low score	Low score	Medium score	High score	Very high score
Number of students	6 (5.7%)	54 (51.4%)	40 (38%)	5 (4.8%)	0 (0%)

The mean score of 75 (MCQ) items test was 45. The mean score of very low performers was 16.7. The mean score of low performers was 35.7. The mean score of medium performers was 58.3. The mean score of high performers was 75.2. To the

first questionnaire prior to the MCQ test, most of participants responded that their satisfaction was fair toward their current curriculum related to medical emergency concepts at faculty of dentistry in Aleppo university as shown in (table 2).

Table 2. Students' satisfaction toward the current curriculum related to medical emergency concepts at faculty of dentistry in Aleppo university.

Students' satisfaction	Strongly dissatisfied	Dissatisfied	fair	Satisfied	Strongly satisfied
Number of students	5 (4.9%)	14 (13.3%)	41 (39%)	37 (35.2%)	8 (7.6%)

Depending on The mean score of 75 (MCQ) items test which was below the average (less than 50) and 58% of participants have failed the MCQ test, a new module on medical emergencies was suggested by following first four Harden's 10 questions approach to develop Syrian dental schools' curriculum.

3.1. The Needs of the Module on Medical Emergencies in Dentistry

Syrian community needs are highly concentrated on medical emergencies in dentistry especially, throughout Syrian crisis. Lectures about common medical emergencies in dentistry should be involved in Syrian dental schools' curriculum. Undergraduate dental students should have the required knowledge at least, but skills and attitude are also important [1] to deal appropriately with medical emergencies that happened during Syrian crisis.

All dental professionals are responsible for putting patients' interests first and for acting to protect them [3].

3.2. The Aims and Objectives of a Module on Medical Emergencies in Dentistry

SMART acronym was described by George T. Doran in

1981 (Specific, Measurable, Attainable, Relevant, Time bound) [8]. Student-learning outcome could be achieved by Application of SMART model [8] in Syrian dental schools. Outcome of curricula should be specified and directly linked to the aim of teaching and learning [8]. There should be a defined measurement to prove the outcome and the period need to achieve this outcome should also be included [8]. The type of the learning method should be selected by using One or more of Bloom six levels such as knowledge, comprehension, analysis, synthesizes, and evaluation [7].

3.2.1. The Aim of a Module on Medical Emergencies in Dentistry

The Aim of a Module on Medical Emergencies in Dentistry is achieving significant improvement in patient safety in Syria.

3.2.2. Learning Outcomes of a Module on Medical Emergencies in Dentistry

At the end of this module, student should have the acquired knowledge as shown in (table 3) that make students ready for the next step of this module outcomes such as demonstrating attitudes, and be able to demonstrate proficiency in skills in medical emergencies in dentistry.

Table 3. Learning Outcomes of a Module on Medical Emergencies in Dentistry before graduation.

Prospective knowledge outcomes:	Prospective attitudes outcomes:	Prospective skills outcomes:
Be aware of systemic disorders and treatments that may cause clinical complications in dental and oral health care.	Present the unified list of all problems that could influence oral health care; and formulate a diagnosis/treatment plan for each problem.	Manage of patients with medical emergencies should take into consideration the severity of the condition, which means the type of operative procedure envisioned.
Understand relevant illness identified from the medical and dental history, physical examination and investigations.	Avoid any implication of negligence.	Use the recommended further reading sections and the Internet to reach out to the correct management of medical emergencies and procedures.
Understanding of medical terminology, and the relationship between medical	Awareness of the need of interactions between medicine and	Treat sick patients in an appropriate way, taking into account both their dental needs and any special considerations related to their medical and

Prospective knowledge outcomes:	Prospective attitudes outcomes:	Prospective skills outcomes:
terms and concepts	dentistry.	drug history.
Monitoring people in medical emergencies.	Understanding of dentist roles to health care in the medical environment.	Generate strategies to distinguish patients at risk of medical problems, to estimate the severity of those risks and, where necessary, to recognize the need for help, and graduate students should continue professional medical and dental education and development.

3.3. The Contents of the Module on Medical Emergencies in Dentistry

Courses of module contents are allocated from third to fifth year in the under graduation level in Syrian dental schools as shown in “Figure 1” “Figure 2” “Figure 3” “Figure 4”.

The contents in the third year should be An Overview of Medical Emergency Drugs and the GDC Guideline, the

Emergency Kit and the Resuscitation Equipment, and the Management of Medical Emergencies and Resuscitation [5].

GDC guideline is followed by offering Annual theoretical and practical training of all clinical staff and students in faculty of dentistry [3]. Medical emergency drugs should be available in emergencies in Syrian dental schools through clinical practicing sessions. The emergency kit should be available during emergencies in Syrian dental schools [3]. “Figure 1”.

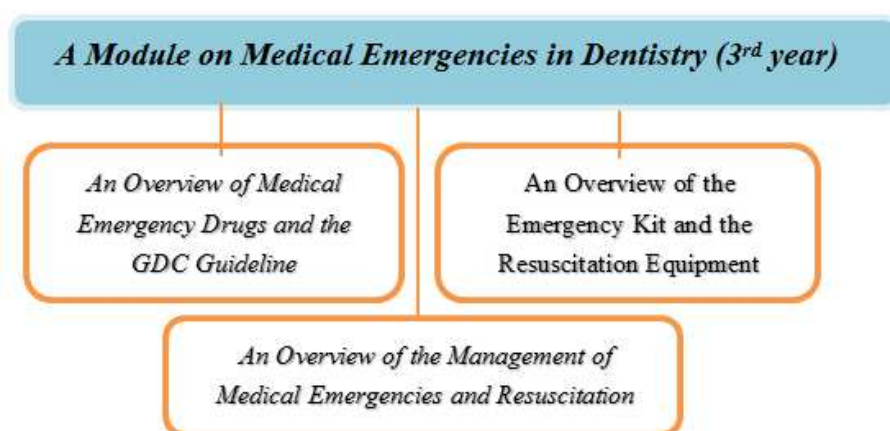


Figure 1. This demonstration shows the required two courses programs in the 3rd year of under graduation education in Syrian dental schools' curriculum.

The contents in the fourth year should be about Sessions to Deal with Respiratory Disorders, Cardiovascular Disorders, and Endocrine Disorders in Dental Practice [5]. Look at “Figure 2”.

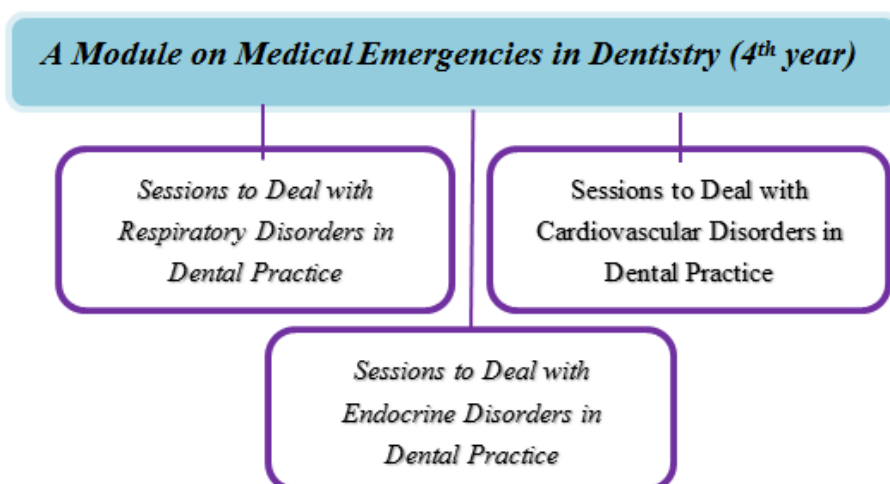


Figure 2. This demonstration shows the required two courses programs in the 4th year of under graduation education in Syrian dental schools' curriculum.

The contents in the fifth year (senior year) should be about Sessions to Deal with Neurological Disorders, Anaphylaxis, Pediatric Emergencies, and Principles of First Aid in Dental Practice [5].

Look at “Figure 3”.

Evaluating and monitoring in Syrian dental schools should be considered after implementation of new educational strategy to improve students' knowledge about medical emergency concepts in dentistry.

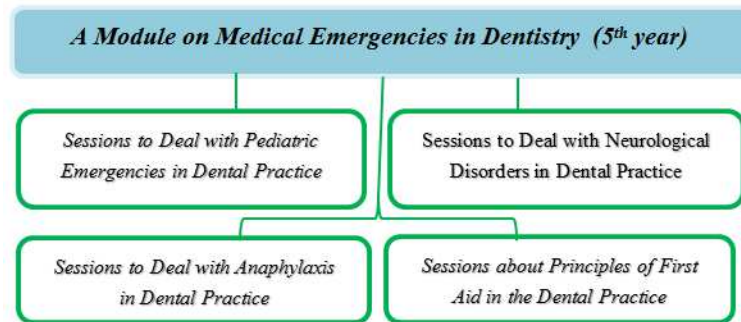


Figure 3. This demonstration shows the required two courses programs in the 5th year (senior year) of under graduation education in Syrian dental schools' curriculum.

3.4. Methods to Organize the Contents of a Module on Medical Emergencies in Dentistry

Using a spray diagram [11] has shown an important feature of curriculum organizational framework to support teaching and learning systems in medical and dental

education "Figure 4". A module on Medical Emergencies in Dentistry should be offered by curriculum planners in Syrian dental schools with a curriculum covering 10 contents from third to fifth year in the under graduation education.

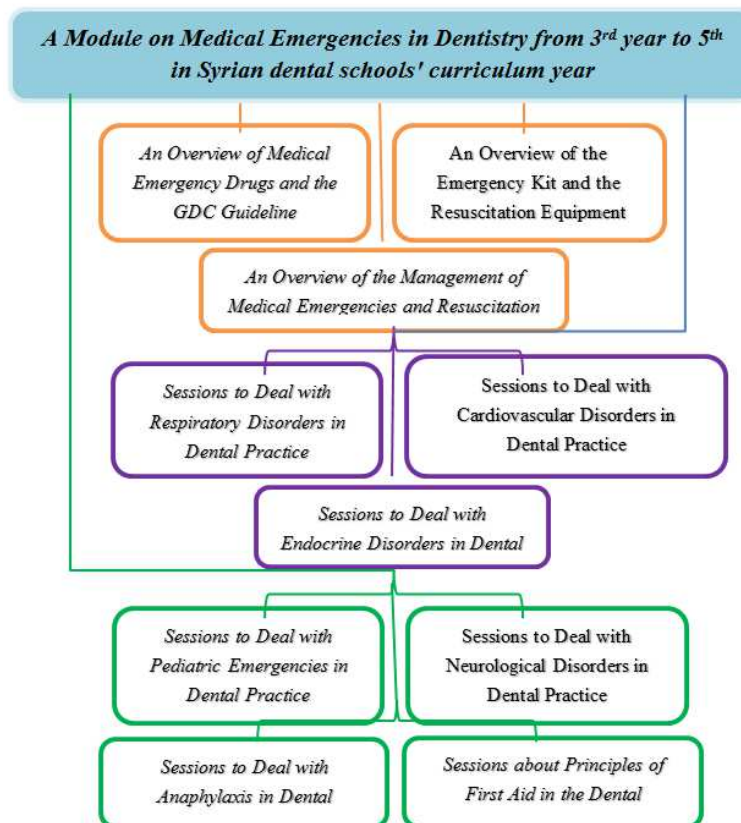


Figure 4. This demonstration shows a spray diagram as an organizational framework for A Module on Medical Emergencies in Dentistry.

4. Discussion

The participants' answers format was collected essentially by MCQ test which are more objective type of questions [16] to assess knowledge. Because of the need of developing a module on Medical Emergencies in Dentistry in Syrian dental schools, Harden's 10 Questions approach was followed to meet better curriculum outcomes and community

needs in Syria, and to get a clear insight into the process in Syrian dental schools. Success and continuity of a module on Medical Emergencies in Dentistry will heavily depend on the collaboration and coordination between Ministry of Higher Education and the Ministry of Health [10]. The result of participants responses about their satisfaction toward the current curriculum related to medical emergency concepts at faculty of dentistry was fair and that means there many weakness points in the learning methods in Syrian dental

schools curriculum. Assessment of participants scores of the MCQ in this research has shown 51.4% of participants have got low score (lower than 50 degree out of 100) and this result suggests developing a module on medical emergencies in Syrian dental schools using Harden's 10 Questions approach as mention above.

A clear definition of roles and continuous monitoring and evaluation plan, should be always coordinated to obtain and maintain the expected outcomes [10]. Undergraduate Student learning outcomes can be enhanced by applying SMART model throughout training and practicing sessions [8] in Syrian dental schools. The main purpose of SPICES model is not only to improve teaching and learning in Syrian dental schools but also to enable achieving international standards in the future [9]. Following the UK General Dental Council (GDC) guideline is suggested for implement any proposed undergraduate program successfully [14]. Using SMART approach is suggested to facilitate achieving the outcome [17] of a module on Medical Emergencies in Dentistry in Syrian dental schools in future. Some weakness points of the curriculum in Syrian dental schools related to medical emergencies concepts were appeared in the mean scores of the MCQ test and the question about students' satisfaction toward the current curriculum related to medical emergency concepts. lack of concentration on community needs in Syrian dental schools' curriculum was thought to be the result of using traditional teaching and learning methods. Therefore, Harden's 10 Questions approach was suggested to be followed as a method to overcome the weakness points of the curriculum as was described above and to help curriculum planners to develop the curriculum in Syrian dental schools. It is also recommended to use SPICES model because it is necessary for quality improvement and evaluation of Syrian dental schools' curriculum [18] to help under graduate dental students to meet the UK General Dental Council (GDC) guideline and Syrian community needs appropriately.

5. Conclusion

This article has described MCQs method to assess the need for developing a module on medical emergencies in the curriculum in Syrian dental schools and described the advantages of Harden 10 questions approach related to Syrian community needs for dental-medical emergency module. Improving patient safety in Syria is the main concern and this article provide education suggestions to in Syrian dental schools such a way that dentists can apply their knowledge to the profession in an efficient way. Finally, It is recommended to use Harden's 10 Questions approach as a method to develop the curriculum in medical education.

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