

Simulation Training in the Middle East: Experts' Viewpoint on Current Status vs. Future Trends

MenatAlla A Fayed^{1*}, Wafaa MN Ramadan¹, Faris Al-Omran² and Ali Alakhtar³

¹Medical Student, Al-Faisal University, Riyadh, Saudi Arabia

²Vascular Surgery Department, King Faisal Specialist Hospital and Research Centre, Riyadh, Saudi Arabia

³Cardiac Surgery Department, Unaizah College of Medicine, Qassim University, Qassim, Saudi Arabia

*Corresponding author: MenatAlla A Fayed, Medical Student, Al-Faisal University, Riyadh, Saudi Arabia, Tel: 00966-508109736; E-mail: mfayed@alfaisal.edu

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Abstract

Introduction: In the middle-east, the number of health-care professionals is rising exponentially. This poses a real challenge to initial and continuing medical education (CME). Our aim is to seek the expert's view in the field of simulation training to assess the current status and future trends of SBT in the medical field.

Methods: By conducting a standardized survey, the current SBT activities within the Gulf Cooperation Council (GCC) were reviewed by experts who are believed to be skilled and well experienced in SBT training. They were asked to forward this survey to individuals judged to be 'experts' in the field. It included a total of 10 questions including 7 MCQs and 3 open questions.

Results: A total of twenty-eight experts received the survey. Response rate was 21/28 (78%). Most experts find that the variety of courses is very low 15/21(71%), the volume of courses is very low 18/21 (85.7%), and SBT infrastructure as well is very low 15/21 (71%). None believed the number of SBT instructors was adequate 0/21 (0%). Regarding SBT distribution, the central and western regions ranked 1st and 2nd in numbers of courses. Regarding private SBT providers, 19 respondents believed the private sector should enter this market. Two thirds of the participants commented about governmental promotion of SBT and 12/21 (57%) commented about SBT's status and its future.

Conclusion: Simulation based education is still at its infancy with a huge potential for national and international growth. The number and variety of courses should increase to meet educational demands.

Keywords: Simulation training; Gulf cooperation council; Middle east; Private sector; Medical education

Introduction

Simulation is a general expression that refers to an artificial representation of a real world process to attain specific skills through experiential learning. Simulation-based training (SBT) is a symbolic learning model that allows learners to acquire the knowledge and skills of working on a usually simplified simulated system. It can be the route to improve health care professionals' skills, information and awareness. In an increasingly litigious society and focus on optimal healthcare delivery, training opportunities in the clinical setting are becoming limited. Learners often find it difficult to ring-fence teaching sessions within the daily clinical delivery schedule. SBT offers a potential medium to provide these opportunities whilst protecting patients from unnecessary risks.

In the middle-east, the number of health-care professionals and students is rising at an exponential rate. The health sector in KSA has increased from 3 hospitals in 1932 to 86 hospitals in 2010 [1]. The number of graduates is increasing and this is needed to maintain the physician-to-population ratio, while at the same time we need to maintain high quality training and this can be achieved by SBT. This increase in volume poses a real challenge to initial and continuing

medical education (CME). In addition, many healthcare facilities do not have the capabilities or accreditation to provide specialized training, CME, and quality development programs for their employees. Simulation based training (SBT) is now an international trend that is likely to grow; the middle-east is not an exception to this trend.

Creating an ideal educational environment that is stress-free and accessible, with solutions that inspire safe training practices will help to achieve better educational deliverables [2]. A simulation environment will offer a chance for deliberate practice to help achieve the required level of competencies by the end of training. This environment must be created in respect to time, equipment, and trained faculty.

Our aim in this study was to seek the view of experts in the field of simulation training to assess the current status and future trends of SBT in the medical field.

Methods

By the means of a standardized self-administered online survey, the current activities in SBT within the in the GCC were reviewed by experts from the simulation field. These experts constituted individuals involved in operating or planning simulation centers, SBT course content designers, and SBT trainers. They were all working within the GCC. The survey was designed and conducted through

SurveyMonkey® (Palo Alto, CA 94301, USA) and was sent to each participant by e-mail with a hyperlink.

The survey included a total of 10 individual questions. Of these, 7 were multiple choice questions (MCQs) and 3 were open questions with free text responses or comments requested but optional. The MCQs were related to course variety, volume, trainer quality, SBT infrastructure, and public private participation. The potential responses ranged from the participants in the survey were asked to comment on the future of SBT in the region and university and governmental participation.

For all MCQs, the options of responses for single answer questions were (too low, a little low, adequate, a little high and very high). There was one multiple answer question, where respondents were asked to subjectively identify all of the regions with an adequate number of SBT courses. The options were: (Saudi Arabia (5 regions), UAE, Kuwait, or none of the above).

Results

Response rate to the survey was 21/28 (78%). The majority of respondents found the variety of available courses to be very low 15/21(71%). As much as 18/21 (85.7%) found the number of courses very low (Figure 1).

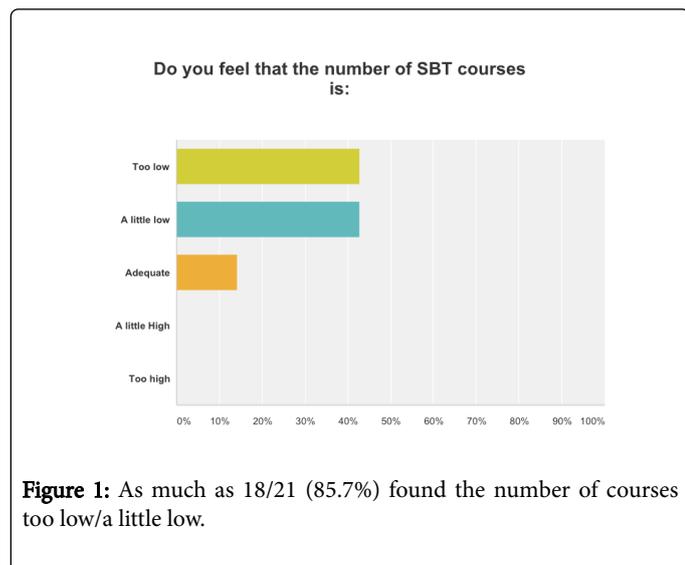


Figure 1: As much as 18/21 (85.7%) found the number of courses too low/a little low.

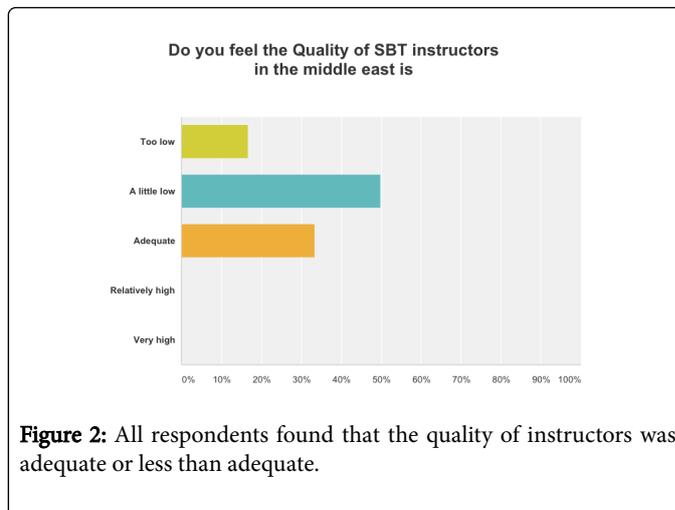


Figure 2: All respondents found that the quality of instructors was adequate or less than adequate.

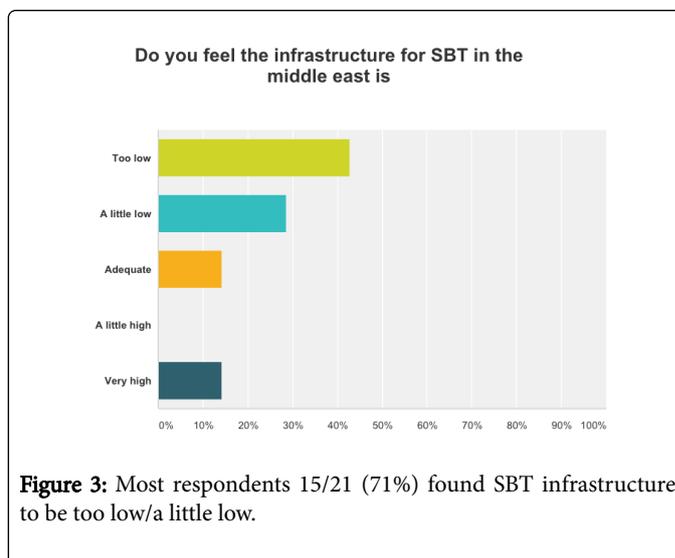


Figure 3: Most respondents 15/21 (71%) found SBT infrastructure to be too low/a little low.

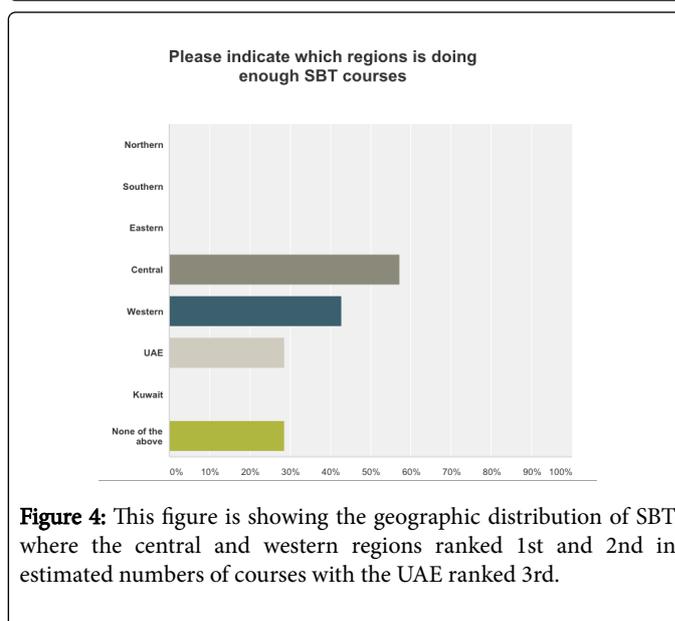


Figure 4: This figure is showing the geographic distribution of SBT where the central and western regions ranked 1st and 2nd in estimated numbers of courses with the UAE ranked 3rd.

All respondents found that the quality of instructors was adequate or less than adequate with no respondents describing the quality of instruction as 'high' (Figure 2). This was more profound regarding the number of SBT instructors as no respondents found their number to be adequate or more than adequate 0/21(0%). Most respondents 15/21 (71%) found SBT infrastructure to be very low (Figure 3). Regarding geographical distribution of SBT, the central and western regions ranked 1st and 2nd in estimated numbers of courses with the UAE ranked as the Third (Figure 4). Regarding private sector SBT providers, 19 of the 21 responders believed that the private sector should enter

this market. Two thirds of the participants provided comments about governmental promotion of SBT and 12/21 (57%) opted to comment about SBT's status and future in the region.

Discussion

SBT in Saudi Arabia is developing rapidly due to the expanding healthcare workforce as the number of medical colleges has expanded from 5 colleges to 21 within a decade [3], with an increase in training needs [4] and availability of resources (Table 1) [5].

Hijri Calendar	Gregorian Calendar	Total of the State Budget	Appropriations for the Ministry of Health					
			Total Budget	Rate in %	Chapter I	Chapter II	Chapter III	Chapter IV
1427/1428	2007	380.000.000	22.808.200	6.0%	11.527.000	3.781.000	5.200.00	2.300.000
1428/1429	2008	450.000.000	25.220.000	5.6%	12.392.000	4.228.000	6.000.000	2.600.000
1430/1431	2009	475.000.000	29.518.700	6.2%	14.391.400	4.527.300	7.760.000	2.840.000
1431/1432	2010	540.000.000	35.063.000	6.5%	17.150.000	5.213.200	9.560.000	3.140.000
1432/1433	2011	580.000.000	39.860.000	6.9%	19.207.000	5.903.200	11.210.000	3.540.000
1433/1434	2012		47.076.447		22.594.000	6.850.100	13.291.755	4.340.592
1434/1435	2013		54.350.355		25.200.000	7.758.600	16.391.755	5.000.000
1435/1436	2014		59.985.360		26.087.630	8.492.000	20.404.543	5.001.187
1436/1437	2015		62.342.539		26.666.810	8.725.303	21.898.239	5.052.187
MOH budget in the years 2007-2015								

Table 1: This table shows that there is a persistent increase in the State and MOH Budget in 1432/1433H at a higher rate than in those of the previous years.

In many areas, such as within the GCC, there is a lop-sided model where there are very few clinical educators but a huge number of trainees in universities and new-comers entering the workforce. For these individuals, hands-on training will be limited and therefore SBT should be actively supported to meet governmental targets. This reinforces on the importance of SBT in the rapidly growing field and the need of more hands-on training for healthcare professionals.

Simulation can be helpful in introducing trainees to teamwork and leadership skills. Recent literature has shown increased retention of knowledge and skills after SBT [6]. There are numerous examples of successful scenarios where simulation aided the advancement of non-technical skills and performance after training. One such example is the Igloo [2] at the Imperial College of London, which provides realistic scenarios for trainees with a rich educational environment where trainees can practice a higher level of communication skills with anesthetists, nurses, and surgeons in dealing with simulated advanced trauma cases.

SBT courses should serve all areas in Kingdom of Saudi Arabia (KSA) in order to establish and maintain a standardized level of patient care. The results of our survey however suggested that there is a large level of variation in the provision of SBT throughout the GCC. This disparity suggested that the central and western regions of KSA had superior levels of SBT delivery compared with all other areas of the GCC. Since there's a lack of centers and trainees, mobile training

centers and private centers can be used to cover the deficiency and to provide adequate coverage for all areas in the country.

In addition, support from health authorities is required to offer opportunities for private trainers to run courses in government institutions. Government funding should be diverted to develop the private sector SBT programs in KSA, which would encourage more diversion towards private sector training. This can give access to higher quality training from individuals motivated to share their knowledge. To promote higher attendance, maximization of CME hours awarded to SBT workshops should also be an initiative that health commissions' take on throughout the GCC.

Although SBT is emerging in a rapid trajectory, some challenges are still paralyzing the system. A major challenge in SBT is to prove that it has a marked influence on clinical outcomes [7]. For undergraduates, the application of theoretical knowledge to the care of patients is one of the remaining challenges. Although some studies have shown improved clinical outcomes after SBT, further research need to be conducted to validate where this teaching tool will in fact translate into benefits to the patient [6]. Moreover, A lot of simulators, especially those within surgery, focus on the way procedures being reproduced instead of the skills trainees need to conduct these procedures [8]. To overcome this obstacle, SBT educators should focus on providing high quality courses that target the skills a student gains rather than focusing on the procedure itself.

SBT courses can be helpful in most fields if applied sufficiently and efficiently. According to Saudi Heart Association (SHA), BLS & ACLS courses are provided 3-4 times/week in KSA with the availability of a class-based or online-based teaching. On the other hand, American heart association (AHA) provides courses regularly, with short intervals and feasible dates. Basic operative surgical skills (BOSS) are a course which is highly valued at the time being and it's likely to be a mandatory course in the near future for all surgeons in various fields.

More importantly, some courses are designed to standardize the management of care in critical situations across the world. Advanced Trauma Life Support (ATLS®) and Advanced Trauma Care for Nurses (ATCN) are such examples. The aim of ATLS is to teach learners how to approach and manage trauma patients in a simple way and to standardize this among all those involved in trauma management [9]. The course was developed by clinicians and educators nearly 30 years ago and has been utilized in up to 60 countries worldwide [10]. The ATCN course is taught conjointly with ATLS. The ATCN program is currently being provided in several countries locally and internationally. The ATCN program has been practicable for over 15 years and has an excellent record [11]. It's important that healthcare professionals be aware that these courses are available all the time and with reasonable prices.

The international trend is moving towards providing more SBT courses, recruiting high quality educators and exposing each and every healthcare professional to SBT courses one-way or another. In our survey, some respondents even went further by suggesting that more SBT courses should be a mandatory requirement for clinicians. Currently Basic Life Support is a mandatory requirement for registration as per the Saudi Commission for Health Specialties (SCHS), however many authors have advocated that certain specialist courses should also be made mandatory. One respondent stated "The government should consider making some first aid courses mandatory for a certain proportion of their employees." Another response was "For professionals, such as, nurses and physicians, the SCHS should make more courses mandatory and specific to certain specialties". Other non-mandatory courses can also be provided to assist the trainee to develop new skills or build on existing skills.

The SCHS is the legal authority in KSA establishing appropriate standards and criteria for the practice and classification of health professions into their appropriate professional levels [12]. SCHS bears the responsibility for both postgraduate education and assessment standards of specialist training. In order to pass the Saudi Medical License Exam (SMLE) OSCE section, the postgraduate student should be well prepared and trained ahead of time. The best way to make the students skilled and confident to take the OSCE is by providing simulated courses throughout the academic year.

The United States Medical Licensing Examination (USMLE) evaluates student's ability in applying medical science, proficiency, and understanding of clinical knowledge in different situation [13]. Nowadays, most medical students aim to pass this exam with a high score in order to compete with the highly demanding fields. It's obligatory for all graduates to complete a simulated patient confrontation in order to pass USMLE. It's mandatory in the Accreditation Council for Graduate Medical Education that residency programs provide simulation training. Different specialties, however, have different prerequisites [14]. It is essential to keep in mind that simulation has been proven to be helpful as an educational tool for both practicing physicians as well as students [14].

As an international trend, medical colleges across the world are moving toward providing OSCEs similar to those provided in licensing examinations. This would help medical students acquire the skills they need earlier and be well prepared to pass these exams. Integration of mock exams and simulation training into medical curriculum is a vital initiative that's currently being applied. However, this application is missing proper organization and still needs better integration. Addressing this issue in a Canadian context, Leblanc et al. interpreted the available literature reviews and interviewed 15 Canadian simulation educators [15]. They concluded that simulation needs better integration with the currently existing postgraduate curriculum through partnership between the simulation instructors over disciplines and centers.

In obstetrics and gynecology, simulation can address technical skills and team-based management of medical emergencies, which are two key dimensions of clinical training, often referred to as crisis resource management [15]. Further research is needed to improve available simulation curriculums and establish certified assessment tools. Initiating centers aiming to train medical students on different forms of national and international OSCEs through simulation training is another way to apply the concept of OSCE training through mock exams. Furthermore, students would be able to gain the knowledge and skills needed before they take their license exams.

Conclusion

SBT is still at its infancy with a huge potential for national and international growth. The number and variety of courses should increase to meet educational demands. The number of available SBT instructors or course designers is extremely limited in the GCC and their quality should also improve. As expected the central and western regions of Saudi Arabia were the most equipped to provide SBT courses however the majority of our experts did not feel the overall infrastructure was adequate. The government and universities should do more to promote SBT with further involvement from medical specialty societies and the private sector.

References

1. Althubaiti A, Alkhazim M (2014) Medical colleges in Saudi Arabia: Can we predict graduate numbers? *Higher Education Studies* 4: 1.
2. Alotaibi NH, Oker N, Zafar M, AL-Qahtani KH, Higham H (2015) Surgical training in Saudi Arabia: Trainees' perspectives and the role of simulation. *Int J Surg Open* 1: 1-4.
3. Telmesani A, Zaini R, Ghazi H (2011) Medical education in Saudi Arabia: A review of recent developments and future challenges. *Eastern Mediterranean Health J* 17: 703-707.
4. Lababidi H, Al-Jubran K, Alahmari M, Alzahrani E, Nestel D, et al. (2015) Establishing a clinical simulation centre: Recommendations from an expert panel from the International Conference on Advanced Clinical Simulation, Dhahran, Saudi Arabia. *J Health Spec* 3: 212.
5. (2016) Statistics and Indicators - About the Ministry's Budget. Kingdom of Saudi Arabia - Ministry of Health Portal.
6. Ojha R, Liu A, Rai D, Nanan R (2015) Review of simulation in pediatrics: The evolution of a revolution. *Frontiers in Pediatrics* 3: 106.
7. Smith NA, Ashcrof E (2015) Effect of simulation training on the practice of medical students. University of Wollongong Research Online.
8. Is simulation training evolution or revolution? *Medical Protection* 8: 2.
9. Advanced trauma life support (ATLS) provider Programme - royal college of surgeons.

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10. The ATLS course is an American college of surgeons programme developed by clinicians and educators to teach the principles of early trauma management - royal college surgeons in Ireland.
 11. ATCN Course description. ATCN. <http://www.traumanurses.org/atcn>
 12. Saudi Commission for Health Specialties. Saudi Commission for Health Specialties. <http://www.scfhs.org.sa/en/registration/ClassAndRegister/Pages/default.aspx>
 13. United States medical licensing examination. <http://www.usmle.org/step-2-ck/>
 14. Simulation Training. <https://psnet.ahrq.gov/primers/primer/25/simulation-training>
 15. (2016) *Jogc.com* [http://www.jogc.com/article/S1701-2163\(15\)30782-9/fulltext](http://www.jogc.com/article/S1701-2163(15)30782-9/fulltext)