

Self-Reported Confidence with Cardiopulmonary Resuscitation on Final-Year Medical Students: A Survey Study

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Abstract

Background & Objective: Cardiopulmonary resuscitation is a key skill of physicians, and it is a clinical skill taught early on in the undergraduate curriculum. There is however extensive evidence showing that medical students and junior doctors alike struggle with their confidence when providing such interventions. Given this, there have been moderate curriculum developments over time, but there is little in the way of data to track students self-perceived confidence to assess, in one respect, the effectiveness of these interventions. Given this, the primary objective was to assess whether medical student confidence had improved since previous studies given a lack of existing research. A secondary objective was to assess whether exposure to cardiac arrests correlated with trends in confidence.

Methods: An online survey was sent to 134 final year medical students at a UK medical school. Questions were focussed around exposure to cardiac arrests, self-reported confidence and whether students felt there was sufficient inclusion of resuscitation training in the undergraduate curriculum.

Results: 101 responses were collected. Results showed only 12% (n=12) had seen a cardiac arrest in their medical training, and that 18% felt “not at all confident” to initially manage a cardiac arrest alone. 2% (n=2) however felt “extremely confident”. The mean confidence score was 2.38 using a Likert Scale ranging from 1 to 5 representing “not at all confident” to “extremely confident” respectively. 100% (n=101) of students felt the undergraduate curricula required more incorporation of resuscitation training.

Conclusion: Medical student confidence has not risen markedly since initial studies looking at this topic despite advances in training. There are however indicators that curricular development has become more standardised resulting in less disparity between students self-reported confidence levels. There still remains however a lack of firm research looking at underlying reasons for perceived low confidence, but a reduction in exposure is one such possible reason. Further research is required to identify and confirm such reasons.

Keywords: Resuscitation; CPR; Undergraduate; Medical student; Cardiac arrest; Confidence

Introduction

Cardiopulmonary resuscitation is one of the first skills taught to undergraduate medical students in the United Kingdom which is unsurprising given its importance in the role of delaying the onset to hypoxic brain injury and increasing the likelihood of a return of spontaneous circulation (ROSC) in the event of loss of cardiac output [1,2]. It is a skill that requires very little knowledge or equipment, but yet it is widely documented that medical students and junior clinicians alike have low confidence levels in their ability to perform it adequately, which, on previous analysis, stems largely from inadequate training and limited exposure [3-6]. Studies tracking students confidence and exposure over time however is limited which is perhaps surprising given recent curriculum advances to increase the training students receive in such areas such as mandating the completion of life support courses, increasing simulation based training and the development of more advanced resuscitation equipment [7-9]. This study was performed as part of a larger project to increase student exposure to medical emergencies, but unused and additional data collected from this provides an interesting opportunity to track confidence and exposure over time as well as attitudes and views on the undergraduate curriculum where resuscitation is concerned.

Methods and Participants

An online survey was distributed via one UK medical school to all 134 final-year medical students in 2019. The survey was voluntary in nature and responses were capped at one per participant. Eight questions were asked in total, but the answers to only 3 questions pertaining to self-perceived confidence and views of exposure to cardiac arrest and medical emergencies were included for this analysis. The full questions can be seen in Table 1. No students were excluded from the study. All students had completed basic life support (BLS) in year 1 of the medical course as well as advanced life support (ALS) in the year of the study. Data was collected over a 3-month period and reminder emails were sent to ensure maximum student capture. Ethical approval was received from the University of East Anglia’s Faculty of Medicine and Health Sciences Research Ethics Committee.

Data Analysis

Analyses for the data was performed by calculating the mean score for each Likert score value. Where the answers were binary, simple percentages were calculated to allow easy comparison.

Results

101 completed questionnaires were successfully completed resulting in a response rate of 75%. The results show that 88% (n=89) students had never seen a cardiac arrest and 100% (n=101) agreed that they feel the undergraduate curricula requires greater incorporation of teaching on topics surrounding cardiac arrests and medical emergencies. When the students were asked to assess their confidence on a Likert scale at managing a cardiac arrest alone, 18% (n=18) responded 1 (Not at all confident), whilst 2% (n=2) scored 5 (Extremely confident). The most common score was 2 (not confident) with 40% (n=39) of students scoring this. The median score was 2.38. The full results are shown in Table 2.

Table 1: Questions asked in the survey and their associated response measures.

Question	Response Measure
“In hospital, how confident do you feel in being the first person to initially manage a cardiac arrest”	1-5 Point Likert Scale
“Have you ever seen a cardiac arrest during your undergraduate training”	Yes / No
“Do you feel undergraduate medical curricula requires greater exposure to cardiac arrests & medical emergencies”	Yes / No

Table 2: Responses to the question “In hospital, how confident do you feel in being the first person to initially manage a cardiac arrest”.

Score	No. of Students
1	18
2	40
3	31
4	10
5	2
Total	101

Discussion

This study shows that students still lack the confidence to manage a cardiac arrest initially by themselves. Whilst this is perhaps unsurprising to some degree given the severity and time-critical nature of the situation, it is disappointing to see that confidence has done little to improve over the years with changes to training. This said however, it should be noted that when compared to similar studies undertaken, the data from this survey shows a clustering of responses around the scores of 2-3 (70% of students, n=70). When compared to Graham et al., the most directly comparable previous study (1994), the proportion of students self-assessing as “confident” was less in this study (2% vs. 38%), however, the proportion saying they were “not at all confident” was less here (18% vs. 58%) [3]. This can perhaps provide some reassurance that despite students not feeling confident, current training is becoming more standardised. It should be noted however that this study was looking at final year medical students as supposed to third years, which provides multiple confounding variables which reduces the ability to make direct comparisons or firm conclusions. The reality of students ranking themselves as “extremely confident” in great number also has to be questioned.

This study still supports however an underlying hypothesis that lack of exposure is one of many reasons underlying this lack of confidence, and indeed, if anything this survey strengthens this. Again, Graham et al. report 43% of students questioned had seen a cardiac arrest in the preceding year, whilst this survey shows only 12% had ever seen a cardiac arrest in the preceding 5 years [3]. This fits with current trends in healthcare to encourage both patients and clinicians to participate in do not resuscitate discussions and decreasing numbers of in-hospital cardiac arrests [10,11]. In light of this reduced exposure, it is perhaps unsurprising therefore that confidence has fallen overall, especially in view of the growing evidence base reinforcing the view that there is no substitute for real world “hands-on” learning [12]. It is important to note as well that students still put a strong emphasis on resuscitation teaching as evidenced by the fact 100% of students of feel more is warranted.

It is undeniable that undergraduate curricula and resuscitation has come on since the first studies assessing confidence, but it is clear from this survey that there is still a lot scope for improvement and that further studies are warranted to assess if there are any other issues underlying this sub-optimal rise in confidence.

Limitations

This survey has several limitations most of which are attributable to the fact the data was collected under a larger project. As a result, the data is not directly comparable to previous studies due to differing years of student, differing question design with a different focus. The data also uses self-reported confidence which is known to correlate poorly with competence [13]. This being said however, the data does add to existing literature and does allow some indirect comparisons to be made about medical student confidence over time which allows

, to some extent, assessment of curricula development and changing themes. This survey was also not aimed at assessing individual competence, or indeed changing competencies over time.

Conclusion

Medical student confidence has not risen markedly since initial studies looking at this topic despite advances in training. There are however indicators that curricular development has become more standardised resulting in less disparity between students self-reported confidence levels. There still remains however a lack of firm research looking at underlying reasons for perceived low confidence, but a reduction in exposure is one such possible reason. Further research is required to identify and confirm such reasons.

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References

- Hasselqvist-Ax I, Riva G, Herlitz J, Rosenqvist M, Hollenburg J, Nordberg P, et al. Early cardiopulmonary resuscitation in out of hospital cardiac arrest. *N Engl J Med*. 2015; 372:2307-15.
- Wissenberg M, Lippert F, Folke F, Weeke P, Hansen C, Christensen E, et al. Association of national initiatives to improve cardiac arrest management with rates of bystander intervention and patient survival after out-of-hospital cardiac arrest. *JAMA* 2013; 310:1377-84.
- Graham C, Guest K, Scollon D. Cardiopulmonary resuscitation. paper 2: a survey of basic life support training for medical students. *J Accid Emerg Med*. 1994; 11:165-167.
- Morgan R, Westmoreland C. Survey of junior hospital doctors' attitudes to cardiopulmonary resuscitation. *Postgraduate Medical Journey*. 2002; 78:413-415.
- Aggarwal A, Khan I. Medical students' experiences of resuscitation and discussions surrounding resuscitation status. *Adv Med Educ Pract*. 2018; 9:31-37.
- Willmore R, Veljanoski D, Ozdes F, Stephens B, Mooney J, Crumley S, et al. Do medical students studying in the United Kingdom have an adequate factual knowledge of basic life support? *World J Emerg Med*. 2019; 10:75-80.
- What are the mandatory certificates for the Foundation Programme?: Horus ePortfolio Support.
- McCoy C, Rahman A, Rendon J, Anderson C, Langdorf M, Lotfipor S, et al. Randomized Controlled Trial of Simulation vs. Standard Training for Teaching Medical Students High-Quality Cardiopulmonary Resuscitation. *West J Emerg Med*. 2019; 20:15-22.
- Bobrow B, Vadeboncoeur T, Stolz U, Silver A, Tobin J, Crawford S, et al. The influence of scenario-based training and real-time audiovisual feedback on out-of-hospital cardiopulmonary resuscitation quality and survival from out-of-hospital cardiac arrest. *Ann of Emergency Medicine*. 2013; 62:47-56.
- Cardiopulmonary resuscitation (CPR) [Internet]. *Gmc-uk.org*. 2020.
- Royal College of Physicians. Talking about dying: How to begin honest conversations about what lies ahead. 2018.
- Bokken L, Rethans JJ, Vander Vleuten CP. Strengths and Weaknesses of Stimulated and Real Patients in the Teaching of Skills to Medical Students: A Review. *Society for Simulation in Healthcare*. 2008; 3:161-169.
- Duvivier R, Geel K, Dalen J, Scherpbier A, Vleuten C. Learning physical examination skills outside timetabled training sessions: what happens and why? *Adv Health Sci Educ theory Pract*. 2012; 17:339-355