Original Research Article

An increase in CPR awareness among first-year medical students: A pre and post basic life support BLS sensitization session survey

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Abstract

Background: Sensitization of first aid knowledge and skills among the first professional year medical students is central and much required. It is reasonable to assume that BLS knowledge would be lower in First Professional year medical students given that participants were relatively young and that BLS training initiatives have progressively increased. The sensitization programs are eye openers and creates awareness among the learner about the subject. However, there is a connection between self-confidence, CPR proficiency, and intent to perform resuscitation, and an absence of knowledge is unlikely to increase confidence. **Methodology:** The present study conducted for the first professional year medical students. In this study a pre and post questionnaire survey-based was conducted on the BLS session and analysed questionnaire form. Prior to receiving their first BLS training, the study aimed to evaluate the BLS knowledge of these first-year medical students pre and post workshop **Result:** Our research observed that as per the analysis of pre-test questionnaire survey various concepts are not clear to students which needs to be addressed well. And in Post -test 80% of the participants correctly remembered the medical emergency communication centre's phone number, but the majority had trouble identifying the criteria used to identify OHCA. Inaccurate OHCA identification could cause a call to the dispatch centre to be delayed, which would worsen the survival rate. **Conclusion:** The percentage of correct answers given by medical students was still low, despite the fact that they knew more about BLS-AED procedures than the general public. An alteration in the curriculum to meet global competencies to educate the budding First Professional year medical students about the first aid techniques could help them to provide the decent chest compressions which are essential to enhance the survival rates. The current study concluded that there is a strong recommendation for inclusion of such awareness programs for first professional year MBBS students.

Key words: BLS CPR, OHCA.

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INTRODUCTION

The survival rate following cardiac arrests that occur outside of a hospital has been shown to be significantly increased by basic life support (BLS) techniques and the use of automated external defibrillators (AEDs).[1] However, the rate at which they are applied varies greatly by region.[2,3] Despite the fact that India experiences more than 8000 Out of Hospital Cardiac Arrests (OHCA) each year, the majority of its regions lack a comprehensive BLS training programme for the general public.[4] Less than 40% of OHCA cases in India between 2009 and 2012 received BLS.[5] Outside of a hospital or academic set - up, medical students might come across OHCA cases without heads up, and given their status, they might be expected to deal with this situation. However, various researches in multiple medical education systems all over the globe have found that BLS knowledge among the first year medical students is typically low.[6-10] The study hypothesis was that the

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medical students might not have had the necessary background knowledge before taking MBBS course. However, given their chosen profession, these students may be unexpectedly confronted with OHCA and be required to act quickly and appropriately.[11] Prior to receiving their first BLS training, the study aimed to evaluate the BLS knowledge of these first-year medical students pre and post workshop. Study Design: Inclusion Criteria- First Professional Year Medical students (I-MBBS) pre and post BLS workshop.

METHODOLOGY

This study was conducted in the months of February and March 2022. Prior to beginning the study, the study protocol was submitted for approval to the institutional ethics committee and received a written response. Before and after the workshop, the questionnaire was distributed in hard copy to the first-year medical students. A standard questionnaire with 19 questions with both open or closed answers was developed. To reduce dropout attrition,[14-16] the number of questions was kept to a minimum of 19. To evaluate BLS knowledge, ten questions were used. The 2015 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations guided the preparation of these questions.[17]

Outcomes

The main result was the difference in score between pre and post sensitization of BLS workshop, which comprised of 19 questions. Every question carried the same weight and could only be answered correctly or incorrectly. As a result, the sum of all correct responses was used to evaluate each participant's overall score. Secondary outcomes included variations in the proportion of the valid responses for every question and in the degree of self-assessed confidence in resuscitation skills. Additionally, the study calculated a score called "essential BLS knowledge" that is based on the answers to six crucial BLS-related questions (Table 1) and is logically related to the chain of survival. In fact, the other factors used to calculate the primary outcome are either associated with other first aid techniques or are not thought to be crucial to the proper provision of resuscitative techniques.

Principal Findings

In this current study, first-year medical student performance was good for the post test, a 19-question quiz measuring BLS knowledge than the pre-test. The first thing to note is that given their chosen field, medical students may in fact be more interested in this area. Furthermore, despite the fact that our regional policies regarding the promotion of BLS training have not changed much, private initiatives have gradually emerged in an effort to raise public awareness of OHCA.

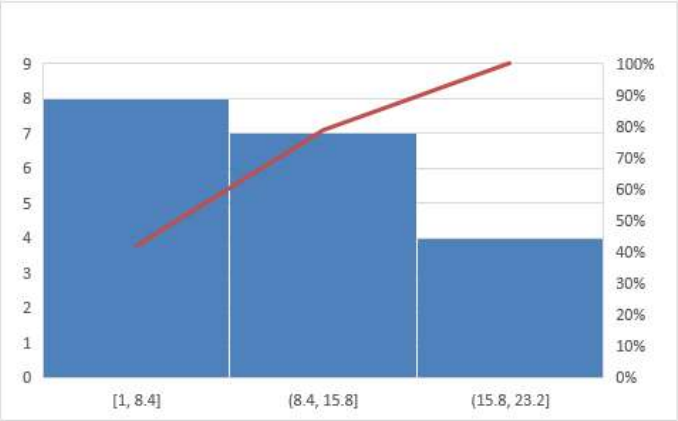

Figure 1: Difficulty Level of Questions

Our research points out flaws in the first three links of the chain of survival.[21] Post -test 80% of the participants correctly remembered the medical emergency communication centre's phone number, but the majority had trouble identifying the criteria used to identify OHCA. Inaccurate OHCA identification could cause a call to the dispatch centre to be delayed, which would worsen the survival rate.[22] Nevertheless, after being called, dispatchers ought to be able to direct the bystander to initiate the proper actions and assist in identifying OHCA.[23] Despite the possibility of starting Cardio-Pulmonary resuscitation (CPR), the study results indicate that compression may only be of a limited quality because the majority of the responses associated to compression rate and depth were variable. These results are concerning because it has been demonstrated that effective chest compressions increase the likelihood of survival.[24-26] Only one straightforward question focusing on the definition of the AED acronym was used to evaluate the third link in the chain, defibrillation. A defibrillator is commonly referred to by these three letters, but fewer than half of all participants knew this. One might reasonably anticipate that connecting the lightning pictograph to the abbreviation would help people recognise these gadgets.[27] AED localization, retrieval, and use assistance is now a common skill among emergency medical dispatchers.[28]

Although since the release of the 2010 CPR guidelines[29] lay rescuers, whether trained or untrained, have not been expected to check for a pulse, nevertheless we still chose to pose a question about pulse assessment. Indeed, our BLS teaching faculty views even junior medical students as healthcare providers, and as such, these students are expected to be able to check their own pulse, particularly to determine whether or not spontaneous circulation has returned.[30] However, since the pulse check has been

proven to be incredibly unreliable, it must be made clear that it should not be used to diagnose cardiac arrest.[31] Sensitization of first aid knowledge and skills among the First year Medical students is crucial to improve outcomes for patients with other acute illnesses or injuries as well as for OHCA victims,[32] despite the fact that emergency medical systems have evolved to address the lack of BLS training as much as possible.[33] The systematic teaching of BLS manoeuvres to school children is one of many possible strategies to raise the level of awareness about OHCA and CPR worldwide [34-36]. Students are willing to impart their newly acquired knowledge to their parents, siblings, and friends, making this strategy particularly effective.[37,38] Many European nations have endorsed the "KIDS SAVE LIVES" statement [39], which aims to provide BLS education to school children aged 12 and older. Training school children and giving them inexpensive, basic manikins has been shown to help disseminate CPR instruction among their relatives.[40] Medical students should be provided with first aid training earlier in their curriculum until such a change in BLS education policies takes place. It may be possible to implement BLS courses earlier in the undergraduate curriculum by using the recently published European Resuscitation Council guidance note regarding the CPR competencies required for MBBS students as per GMER guideline.[41] This note promotes, as do we, the requirement that BLS manoeuvres be taught to students pursuing careers in the healthcare industry as early as their first year of undergraduate study. To change public health policies, however, may take months or even years, and altering the undergraduate medical curriculum may take an equal amount of time. An accelerated first aid course was therefore developed by a group of senior medical students and faculty members in order to increase the knowledge of UGFM junior medical students regarding BLS issues.[42] During a brief intervention in February 2022, first-year medical students were invited to finish an eLearning module. Medical students' knowledge acquisition has been shown to be improved by asynchronous distance learning using interactive eLearning modules in the context of the ongoing COVID-19 pandemic.[43] First-year MBBS students were encouraged to sign up for practise sessions after finishing this module. Students who complete this learning path successfully will be qualified to apply for first responder positions. Future research should ascertain whether this approach is effective and can increase this population's understanding of BLS.

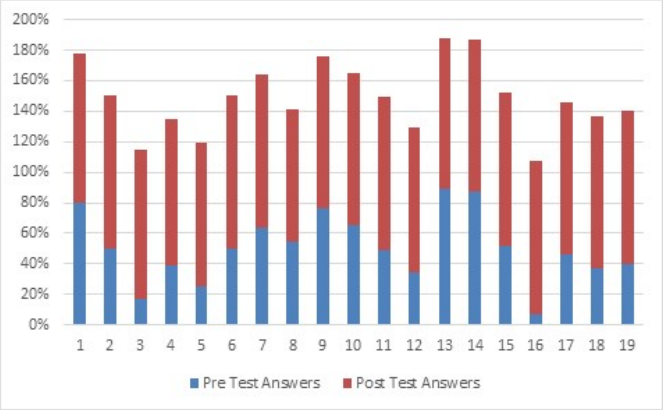

Figure 2: Pre and Post Test Correct Reponces

Our post hoc analysis's findings on the impact of taking a BLS course before taking the survey are cause for concern. Indeed, no matter the study group, participants who acknowledged having taken a similar course in the past did not significantly outperform those who did not. Although it is possible to hypothesise that the guidelines have changed between a previous course and the time of the survey, it is unlikely given the participants' youth, especially the group of medical students. Relatively lower scores were noted for important components that were also included in the 2010 guidelines (i.e., the standards for identifying OHCA[29]). There are a variety of factors that could explain the apparent lack of BLS knowledge retention, including the length of time since the last BLS course.[44-46] There are additional limitations to this study that must also be acknowledged. First, the study's design made it impossible to send email reminders, which resulted in a rather low participation rate, especially among lay rescuers. Selection bias may have caused an overestimation of BLS knowledge in both groups as a result of this. The recruitment strategy significantly affects participation rates,[47,48] and prior research has indicated that paper questionnaires receive slightly higher response rates than those distributed online.[49] However, using paper questionnaires has much higher costs and a higher chance of resulting in missing values. In addition, it was impossible for us to confirm that the questionnaire had been finished prior to the course. It is reasonable to assume that BLS knowledge would be lower in First Professional year medical students given that participants were relatively young and that BLS training initiatives have progressively increased. The peculiarities of the UGFM curriculum are responsible for yet another restriction. Up until the end of their second year of undergraduate training, medical and dental medicine students in our curriculum follow the same study path. Actually, studying dental medicine makes up about one-fifth of second-year UGFM students.

However, there isn't much evidence to suggest that these students' interest in BLS procedures should differ from that of medical students whose interests are in fields other than acute medicine. Additionally, at this point, the majority of junior medical students have not chosen a specific career.[50] However, there is a connection between self-confidence, CPR proficiency, and intent to perform resuscitation, and an absence of knowledge is unlikely to increase confidence[51]

CONCLUSION

The percentage of correct answers given by medical students was still low, despite the fact that they knew more about BLS-AED procedures than the general public. An alteration in the curriculum to meet global competencies to educate the budding First Professional year medical students about the first aid techniques could help them to provide the decent chest compressions which are essential to enhance the survival rates.

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