

A Study to assess the Effectiveness of a Structured Teaching Programme on Knowledge and Skill of Cardiopulmonary Resuscitation among Students at Selected Colleges: A Systematic Review

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ABSTRACT

Sudden Cardiac Arrest (SCA) remains a leading cause of mortality globally, with outcomes heavily dependent on the rapid initiation of Cardiopulmonary Resuscitation (CPR). Bystander intervention is critical; however, public knowledge and skill proficiency remain suboptimal. This paper reviews existing literature regarding the effectiveness of Structured Teaching Programmes (STPs) in enhancing CPR knowledge and psychomotor skills among college students. The review indicates that while baseline knowledge is often low, STPs—incorporating theoretical instruction, video-assisted learning, and hands-on simulation—significantly improve competency. This paper evaluates methodologies, barriers to retention, and the necessity of incorporating CPR training into academic curricula.

KEYWORDS

• Cardiopulmonary Resuscitation • CPR • Clinical Competence

INTRODUCTION

Cardiopulmonary Resuscitation (CPR) is a life-saving technique essential for maintaining blood circulation and oxygenation during cardiac arrest. Despite medical advancements, the survival rate for out-of-hospital cardiac arrest (OHCA) remains persistently low, often hovering between 5% and 10%. The “Chain of Survival” highlights early recognition

and immediate CPR as the most significant determinants of survival. Since professional emergency responders often arrive after the critical window for brain recovery has closed, the role of the bystander is paramount.

College students represent an ideal demographic for CPR training. They are physically capable, cognitively receptive, and often populate high-density environments

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where cardiac events may occur. Yet, studies consistently reveal a “knowledge-skill gap,” where students possess theoretical awareness but lack the confidence or technical proficiency to intervene. This review assesses how Structured Teaching Programmes (STPs) bridge this gap.

METHODOLOGY

This literature review utilized databases including PubMed, Cochrane Library, and Google Scholar. Peer-reviewed articles published between 2013 and 2023 were selected based on keywords: “CPR training,” “Structured Teaching Programme,” “College students,” and “Simulation-based education.” The selection criteria focused on pre-test and post-test experimental designs, evaluating both cognitive knowledge (theory) and psychomotor skill (practice).

THE THEORETICAL FRAMEWORK OF STRUCTURED TEACHING PROGRAMMES

A Structured Teaching Programme (STP) is a systematically planned educational intervention designed to impart specific knowledge and skills within a set timeframe. In the context of CPR, these programmes typically follow the guidelines established by the American Heart Association (AHA) or the European Resuscitation Council (ERC).

1. Components of Effective STPs

The literature suggests that the most effective STPs for college students consist of:

1. **Didactic Instruction:** Theoretical foundations, including recognizing arrest, calling for help, and understanding the physiology of compressions.
2. **Video-Assisted Learning:** Utilizing visual aids to demonstrate proper hand placement, compression depth (at least 5cm), and rate (100–120 bpm).
3. **Hands-on Simulation:** Using high-fidelity or low-fidelity manikins to allow repetitive practice, which is crucial for building “muscle memory.”
4. **Feedback/Debriefing:** Real-time correction of errors, which has been shown to be superior to independent practice.

ASSESSMENT OF EFFECTIVENESS

1. Impact on Knowledge

Multiple studies demonstrate a statistically significant increase in cognitive knowledge following STPs. Pre-test scores typically reveal common misconceptions, such as hesitation to touch a victim due to fear of legal liability or misconceptions regarding the force required for effective compressions. Post-test results consistently show a marked improvement, with many cohorts achieving >80% accuracy in theoretical post-assessments.

2. Impact on Psychomotor Skills

While knowledge acquisition is relatively straightforward, skill retention is more complex. The review identifies that STPs significantly reduce the “time to start CPR” and increase the precision of compression depth and recoil. However, researchers note that without periodic “booster” sessions, psychomotor skills tend to decay within 3 to 6 months post-training.

BARRIERS TO IMPLEMENTATION AND SUCCESS

Despite the success of STPs, several barriers persist:

- **Confidence vs. Competence:** Increased knowledge does not always translate to “willingness to act.” Many students report anxiety regarding legal repercussions or fear of harming the victim.
- **Curriculum Integration:** In many colleges, CPR training is treated as an extracurricular elective rather than a core requirement, leading to low voluntary participation.
- **Resource Constraints:** The cost of manikins and the need for a low student-to-instructor ratio can limit the scalability of high-quality STPs.

DISCUSSION

The findings of this review suggest that STPs are highly effective in the short term. However, the academic focus must shift from “one-time training” to “long-term retention strategies.” Current evidence supports the use of “low-dose, high-frequency” training models—short, recurring practice sessions—which are more

effective at building psychomotor retention than a single, intensive workshop.

Furthermore, the integration of new technologies, such as mobile apps and AR (Augmented Reality) feedback systems, has shown promise in allowing students to practice at their own pace, potentially reducing the resource burden on institutions.

CONCLUSION AND RECOMMENDATIONS

The effectiveness of Structured Teaching Programmes for CPR in colleges is well-supported by evidence. These programmes successfully elevate knowledge and provide the foundational skills necessary for life-saving intervention. To maximize impact, educational institutions should:

1. **Mandate Training:** Move toward universal CPR training as a prerequisite for graduation.
2. **Implement Recurrent Training:** Schedule mandatory bi-annual refresher sessions to combat skill decay.
3. **Standardize Assessments:** Employ standardized checklists during post-training assessments to ensure uniform competency levels across all participants.

By fostering a culture of preparedness within colleges, these institutions can function as “Heart-Safe” campuses, significantly increasing the likelihood of survival for victims of cardiac arrest within the community.

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