Comparison of Psychomotor CPR Compressions Between Students Enrolled in Allied Health Care and Non-Allied Health Care Curricula

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Abstract

Context: Effective compression-only cardiopulmonary resuscitation (CPR) has been proven to increase the chance of survival. Research has suggested CPR performance is ineffective by lay public and health care professionals even after certification.

Objective: The goal of the research was to compare the quality of compression-only CPR among students who declared majors in allied health care professions to students who identified as non-allied health care majors.

Participants: Sixty participants were recruited via campus email.

Interventions: Participants were divided into three groups of 20; (1) allied health care, (2) non-allied health, no intervention, (3) non-allied health students who were taught compression-only CPR via a 2-minute video and received feedback as they practiced compressions on the high-fidelity manikin (Resusci Anne QCPR). All participants performed 2 minutes of compression-only CPR while quality of compressions was assessed. Data were analyzed using a MANOVA to compare differences of compressions between groups.

Results: The omnibus MANOVA was significant, Wilks $\Lambda = .006$, $F (5, 53) = 999.660$, $P < 0.001$. Univariate tests showed overall score mean differences between groups were significant ($F (2, 57) = 32.645$, $P = 0.001$, partial $\eta^2 = .534$). Tukey post hoc adjustments were applied; examining between group differences for overall score. Mean differences (MD) between groups are as follows: Groups 1 and 2 (MD = .268, $P = 0.005$), Groups 1 and 3 (MD = .395, $P = 0.001$), Groups 2 and 3 (MD = .6675, $P < 0.001$).

Conclusions: Students associated with non-allied health care professions who received video-based training and visual feedback regarding their performance on compression-only CPR (Group 3), performed better than those who were currently CPR certified and identified as future allied health care professionals (Group 1).

Methods

Participants (N= 60, 29 females, 31 males, mean age = 21.8 ± 3.4) were divided into three groups of 20:
1. Allied health care students (nursing, athletic training, pharmacy etc., currently CPR certified from traditional 4-6 hour course)
2. Non-allied health care students (engineering, education etc.)
3. No intervention (no prior CPR certifications)

Interventions: Students who were non-allied health care students (no prior CPR certifications) received an intervention of compression-only CPR training via a 2-minute video and received feedback as they practiced compressions on the high-fidelity manikin for no more than 30 seconds (Laerdal Resusci Anne Wireless Skill Reporter QCPR).

Results: All participants performed 2 minutes of compression-only CPR while aspects of the quality of compressions were assessed using the Resusci Anne Wireless SkillReporter QCPR (Laerdel Ver 2.0.0.14).

Quality aspects of compressions that were recorded included:
- overall score
- mean rate
- mean depth
- % compressions fully released
- % compressions with appropriate depths.

Discussion/Conclusion

• Students associated with non-allied health care professions who received video-based training and visual feedback regarding their performance on compression-only CPR had better than those who were currently CPR certified and identified as future allied health care professionals (Group 1).

• Students in health care programs should train with high-fidelity equipment to ensure proper compressions are being conducted.

• This research also suggests college students who are unfamiliar with CPR and not in allied health care majors can learn quality compression-only CPR with a two-minute video and real-time feedback of their performance on high-fidelity equipment.

Future Research

• Research should be conducted to compare longitudinal retention rate differences in skill performance between individuals who receive traditional CPR training and those who receive training via high fidelity equipment.

• Research must also be completed on patient outcomes comparing when cardiac emergency victims are treated by individuals who were CPR trained in ways that included the use of high-fidelity equipment compared to those who are CPR certified through traditional CPR courses.

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References


Figure 1: Participant performing compression-only CPR

Figure 2: Example of feedback and output from Laerdal Resusci Anne Wireless Skill Reporter high-fidelity equipment

Figure 3. Quality of compression rate, depth and recoil scores of each group

Figure 4. Average overall CPR performance score for each group, with visual representation of the outliers in the groups.