

The Impact of an Interactive Mobile Application on the Quality of Cardiopulmonary Resuscitation

Arif, Adeel (School: Ardsley High School)

Arif, Amber (School: Ardsley High School)

Cardiopulmonary resuscitation (CPR) is a lifesaving procedure involving chest compressions used to resuscitate those that undergo a cardiac arrest. Although Basic Life Support (BLS) classes teach CPR skills, CPR performed by bystanders is often suboptimal due to a lack of retention from these classes. Mobile applications have the capability to augment CPR skills as low-cost and accessible training methods. We developed a hands-on mobile application simulating real-time CPR procedures with the goal of improving skill retention. Our mobile application was programmed using the Swift 4 Programming Language corresponding with the accelerometer feature on the iPhone. Proper hand placement, rate of compressions, quick feedback, and recurring tips to reinforce CPR information were emphasized. We conducted a randomized study by recruiting local high school teachers and parents. Half of the participants received the standard BLS pamphlet given after a BLS course while the other half received the pamphlet in addition to our developed mobile application. After a 1 month trial period, CPR performance was assessed through a high fidelity QCPR Manikin with software capability allowing for measurement of compression accuracy and compression rate. Comfort level of CPR was measured through survey data. It was found that there was an increase in accuracy of compressions, a more defined range of compression rate, and an increased comfort level of the mobile application group as compared to the pamphlet group. Our findings suggest that mobile applications may have promising implications as augmentative tools for CPR curriculums.