

# The Development and Analysis of a Framework for Culturally Competent CPR Instruction



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## Abstract

This research study aims to evaluate the efficacy of culturally tailored CPR training in improving bystander CPR rates among an array of communities. Utilizing a quasi-experimental pre-post design, the study examines six essential components of culturally tailored CPR training: language variations, cultural adaptations, sex/age-specific instruction, community-designed training materials, socioeconomic adaptations, and consideration of cultural learning styles. More specifically, the study examines the effects of culturally competent CPR instruction on confidence levels and acceptability of CPR amongst citizens in cultural community centers, language centers, religious centers, and health fairs. Preliminary findings within specific subpopulations indicate a significant improvement in CPR knowledge and confidence levels among participants who underwent culturally tailored training. By expanding toward more communities, this study hopes to enhance CPR education rates in Orange County and improve cardiac arrest survival rates on a broader scale. By identifying effective and culturally sensitive approaches to CPR education, this research contributes to bridging existing disparities in CPR knowledge and outcomes. The findings hold significant implications for developing inclusive and accessible CPR training curricula, ultimately aiming to empower communities with the necessary skills and confidence to respond effectively during cardiac emergencies.

## Background

- As of 2022, the national survival rate for out-of-hospital cardiac arrest (OHCA) was 10.6%.
- Several studies have reported that racial and ethnic minorities are more likely to suffer OHCA and are less likely to survive to hospital discharge compared to white individuals.
- An internal assessment conducted by Orange County EMS (OCEMS) in 2022 revealed that the percentage of white individuals that received hands-only CPR at home after experiencing a cardiac arrest was 44% at home, whereas the percentage for people of color was only 17% at home in Orange County.
- The success of this project could yield universally applicable guidelines for designing inclusive CPR training, transcending cultural, linguistic, and socioeconomic barriers.

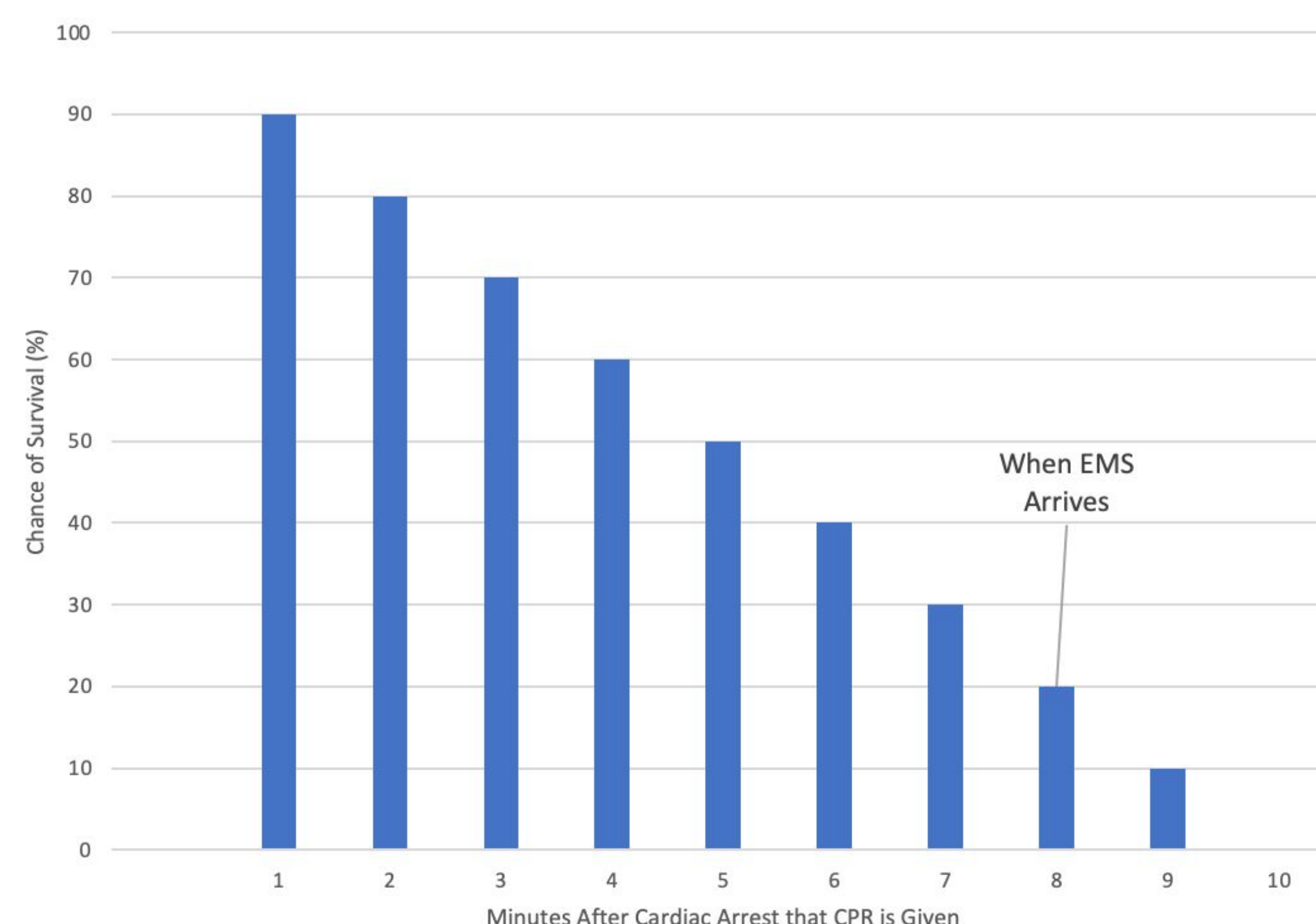


Figure 1: Cardiac arrest survival rates by time before resuscitation efforts.

## Methods

**CPR Instruction** - Participants are first requested to complete a pre-class survey. All CPR courses are taught using a standard Orange County Emergency Services CPR education curriculum with six main topics: data quick hits, communication with 911, common myths, advanced directives, who can deliver and receive CPR, and 4 C's of CPR. Citizens are then given the opportunity to practice the 4 C's: check, call, compress, and connect an AED. During the discussion portion, citizens are provided with the opportunity to discuss fears, misconceptions, and anxieties associated with CPR. At the end of the course, participants are requested to complete a post-class survey.

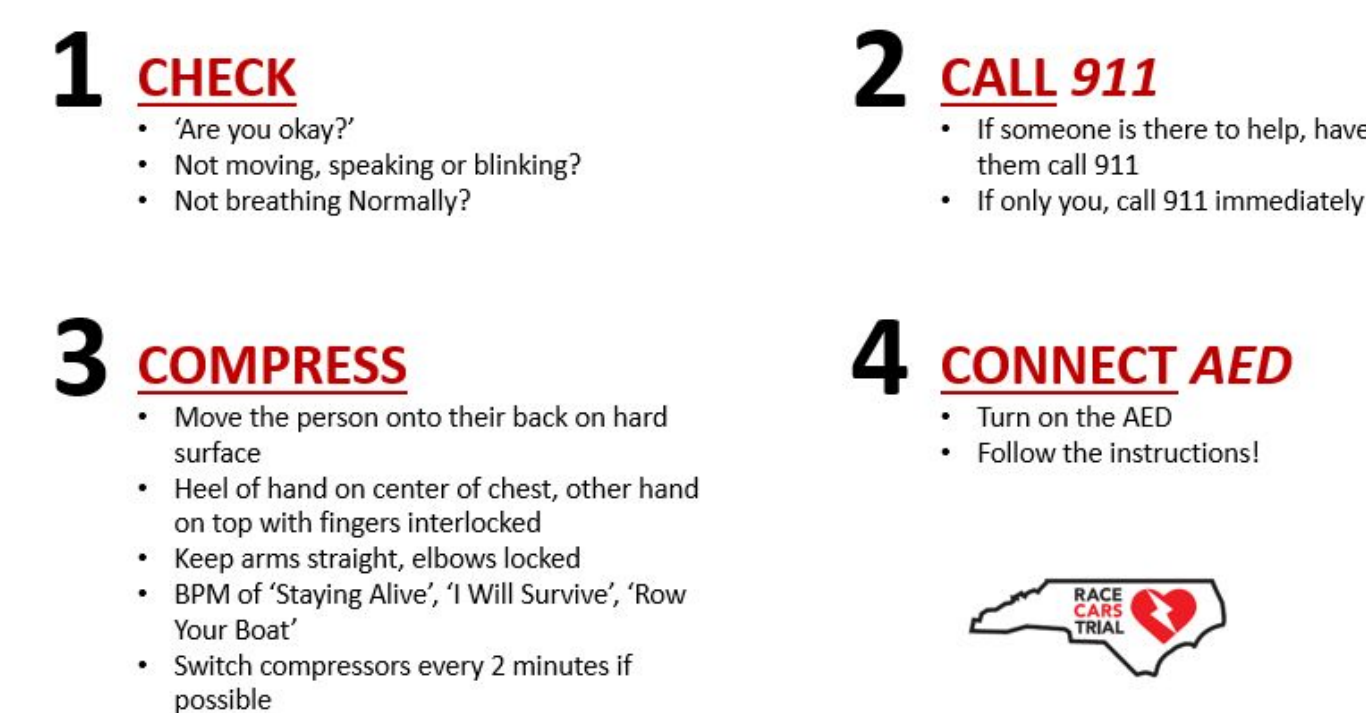


Figure 2: 4 C's of CPR

**Data Measurement:** All participants complete a pre/post class survey asking about confidence levels (scale of 1-10) with each of the four skills and acceptability on similar scale with the following question: "In your opinion, how challenging is CPR?" Select participants are also interviewed and asked open-ended questions on the inclusivity of educational practice. Instructors took detailed notes following the course.

**Cultural Competence:** Cultural competence is embedded in various portions of the standard curriculum as well as holistically. All components are uniquely tailored according to the course site and citizen subgroup. Below is an example of CPR instruction with cultural competence for a CPR course at University Baptist Church at Chapel Hill:

- Language variation - Chinese
- Cultural adaptation - refraining from offensive chinese terminology
- Consideration of cultural learning style - in-depth explanation of cardiac physiology
- Community-designed training materials - \_\_\_\_ song during compressions practice
- Sex/age specific instruction - focus on lower-body force generation during compressions for a middle-aged audience

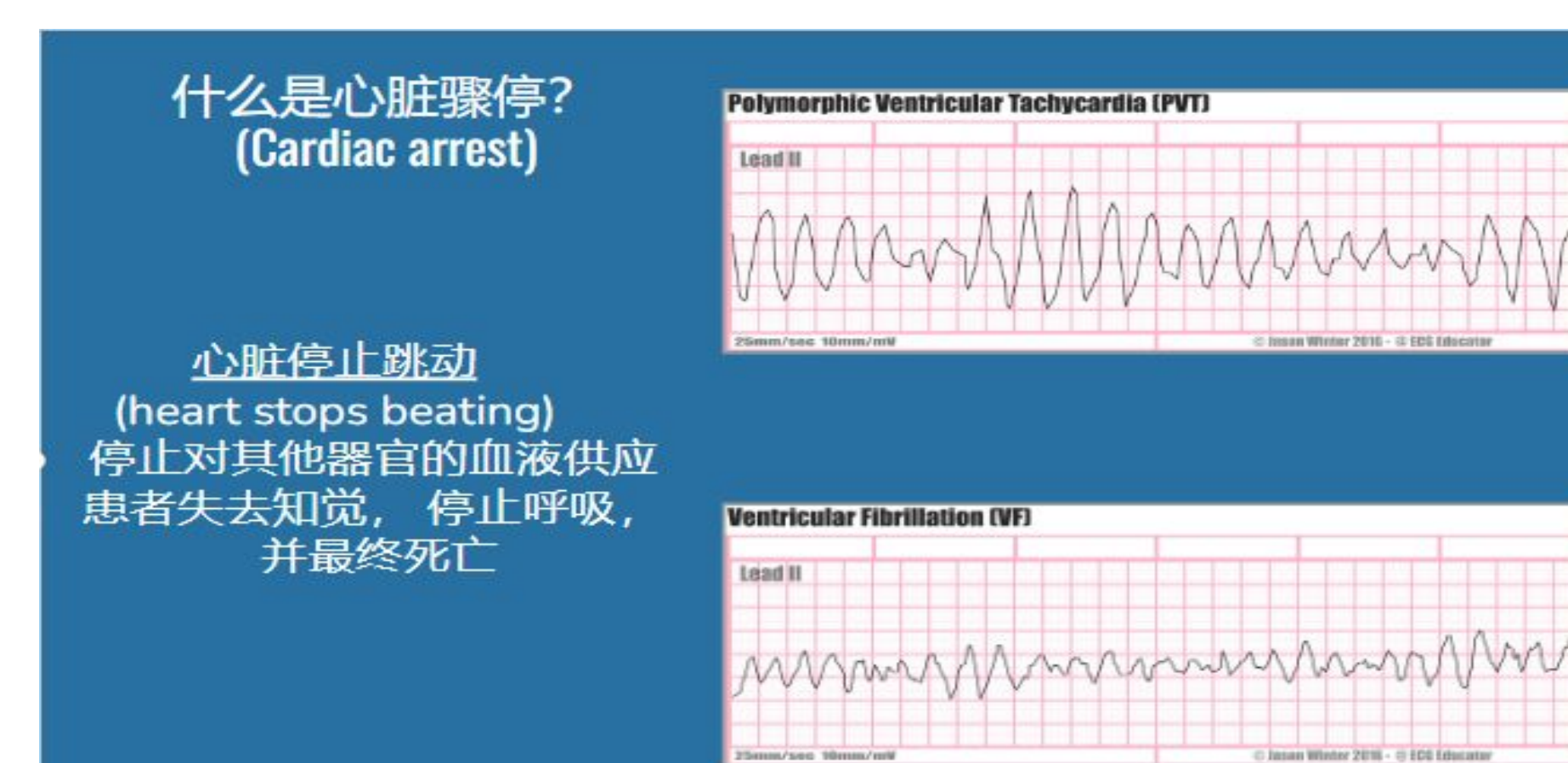


Figure 3: Cardiac arrest physiology presentation slide in Chinese

## Results

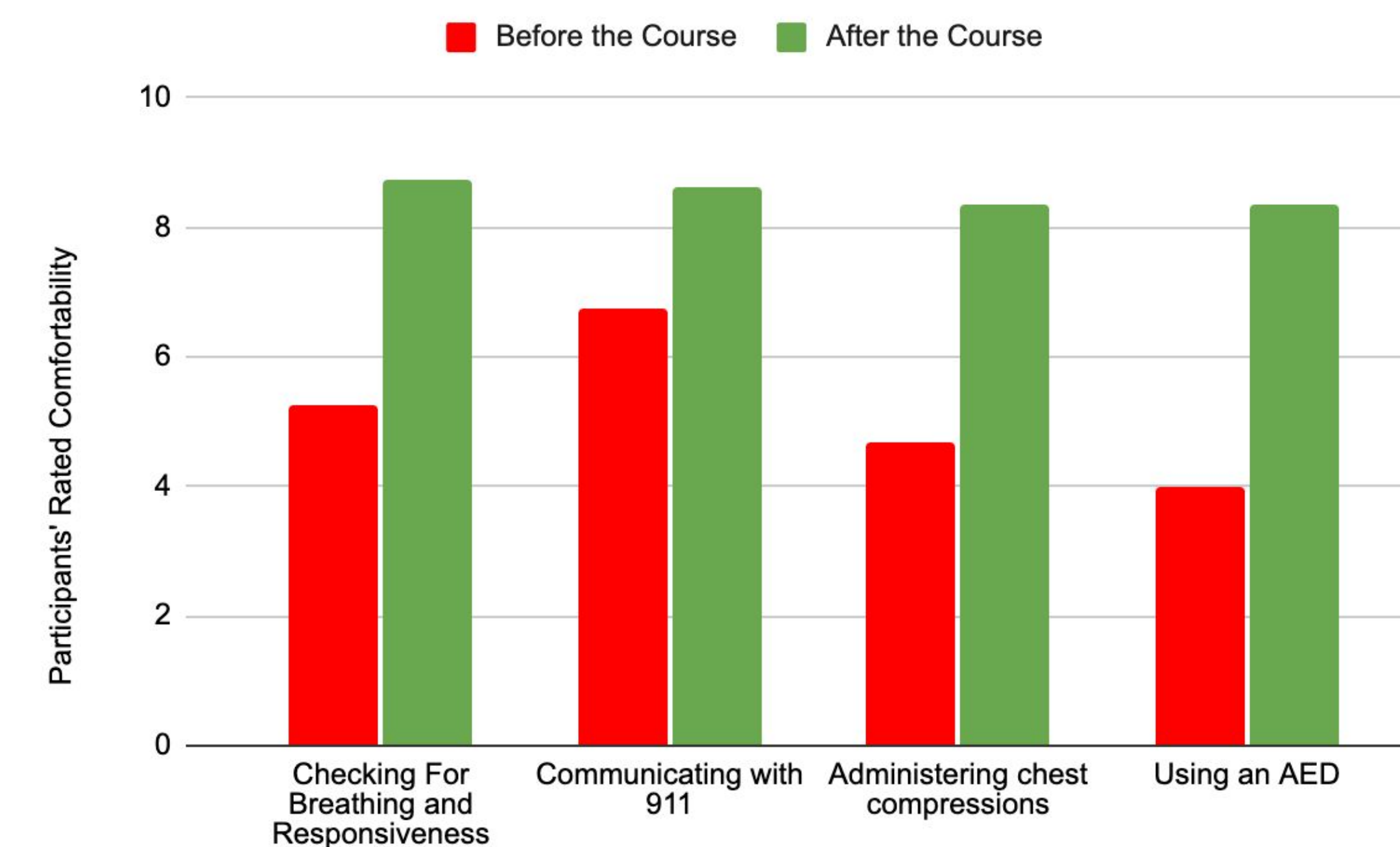


Figure 4: Participants' levels of comfort in performing the Four C's of CPR before and after the course. Participants on average demonstrated an overall increase in levels of comfort with all four skills taught in the course.

### University Baptist Church Sample Cultural Competence Analysis

- Instructing in Chinese appeared to facilitate a communal and social atmosphere for citizens who enjoyed learning the skills alongside members they frequent church with.
- Participants at the Cary Chinese School displayed a high level of interest in learning about the electrical system of the heart
- Adapting to cultural considerations appeared to fill an unmet need (e.g. At the Cary Chinese School, instead of incorporating the standard song "Stayin' Alive" to determine tempo of compressions, famous Chinese songs with the same tempo were used, increasing acceptability and engagement with the participants).

## Future Works

Future efforts are geared toward designing and assessing cultural tailored CPR instruction for a variety of additional subpopulations. Outreach efforts have allowed for partnerships with community sites and organizations so that culturally competent CPR courses can be administered in a systematic and streamlined fashion. While majority of courses have remained in Orange County, the goal is to expand trainings throughout the state. Rigid definitions of community subpopulations based on race, religion, ethnicity and more must also be elucidated in future work. Listed below are hypothesized interventions for respective subpopulations.

Community Subpopulation	Intervention
Latino or Hispanic Citizens	Spanish Course + Spanish AED instruction
Followers of Islam	Sensitivity to Islamic Values
Native American Citizens	Adaptations for CPR on Reservations

Figure 4: Potential targeted interventions for subpopulations grouped by ethnicity, race, or religion

## Conclusion

- Culturally competent and inclusive CPR instruction holds promise in improving confidence levels with CPR skills and acceptability of CPR. Preliminary observations suggest that citizens appear more engaged and interactive at community-focused sites.
- Cultural modifications help facilitate a more comforting and inclusive atmosphere for citizens to develop confidence in CPR performance.
- Further investigations must be conducted on the efficacy of cultural competence for various additional subgroups.
- Future research findings may potentially indicate the need incorporate culturally competent elements of CPR instruction in trainings around the country.
- The ability to improve citizen confidence and acceptability of CPR are critical in improving bystander CPR rates and cardiac arrest outcomes.

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