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Effects of Community-Based CPR Education on Residents' Performance Confidence and Awareness of CPR Education Necessity

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Abstract

The purpose of this study was to empirically examine the effects of a community-based cardiopulmonary resuscitation (CPR) education program on residents' performance confidence and awareness of the necessity of CPR training. Although CPR is widely recognized as a critical intervention for improving survival and neurological outcomes after sudden cardiac arrest, previous research in South Korea has focused predominantly on students or healthcare professionals, resulting in limited evidence regarding educational outcomes among community-dwelling adults. To address this gap, this study evaluated changes in performance confidence and awareness before and after participation in a structured, practice-oriented CPR program delivered within a residential community. The analysis examined whether CPR training enhanced residents' confidence in performing CPR and whether it increased their recognition of the importance of CPR education for personal and community emergency preparedness. The findings provide empirical support for community-based CPR education as an accessible and sustainable public health strategy to strengthen emergency response capacity at the local level.

Keywords: Cardiopulmonary resuscitation (CPR); community-based education; performance confidence; awareness; CPR training necessity; emergency preparedness; public health education

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Introduction

Sudden cardiac arrest requires rapid bystander intervention to improve survival and neurological outcomes. Cardiopulmonary resuscitation (CPR) performed within the early minutes the “golden time” is essential for preventing irreversible brain injury. In South Korea, approximately 65% of out-of-hospital cardiac arrests occur in private homes, making it crucial for community residents to possess basic CPR skills and confidence (Korea Disease Control and Prevention Agency, 2023).

Although the value of CPR education is well established, most domestic CPR training programs have focused on healthcare professionals or students, resulting in limited evidence regarding outcomes among community-dwelling adults (Cho et al., 2012; Lewis et al., 1997). Unlike countries that widely implement community CPR education, such as the United States, regular CPR training opportunities for the general public remain limited in South Korea (American Heart Association, 2005).

Community-based CPR programs implemented within familiar residential settings may improve accessibility and participation among adults who do not typically engage in formal training. Such programs can strengthen individual preparedness and enhance local emergency response capacity. Therefore, this study examined the effects of a community-based CPR education program on residents’ performance confidence and awareness of the necessity of CPR training by comparing outcomes before and after the program.

Research Hypotheses

Based on this research framework, the following hypotheses were established:

- **H1**: Residents’ performance confidence will differ significantly before and after CPR training.
- **H2:** Awareness of the necessity of CPR training will differ significantly before and after the program.

Method

2.1 Participants

This study targeted local residents living in Gangnam-gu, Seoul, who voluntarily participated in a cardiopulmonary resuscitation (CPR) education program jointly organized by the Gangnam-gu Public Health Center. Among the total of 45 participants, data from 34 residents who completed both the pre- and post-training surveys were included in the final analysis. Eleven responses were excluded due to incomplete post-survey submissions. All participants were informed of the study purpose and procedure and voluntarily consented to participate in the online survey

2.2 Program Description

The community-based CPR education program was held on April 11, 2025, in the resident meeting hall. The three-hour session included:

1. theoretical instruction on cardiac arrest and CPR procedures,
2. automated external defibrillator (AED) training, and
3. repetitive hands-on practice using dummy.

Training was delivered by instructors certified by the Korea Association of Cardiopulmonary Resuscitation (KAHA).

2.3 Measurement Tools

Performance confidence and awareness were measured using an instrument adapted from the 10-cm Visual Analogue Scale (VAS) originally developed by Cho et al. (2012). To enhance usability for community residents, the VAS format was converted into a 10-point Likert-type scale ranging from 1 (“not confident/not necessary”) to 10 (“very confident/very necessary”). The instrument consisted of two domains:

- **CPR Performance Confidence**: nine items assessing confidence in performing the major steps of CPR.

- **Awareness of CPR Training Necessity:** three items measuring perceived importance of CPR education for personal emergency response, for others, and for regular community

2.4 Data Analysis

Data were analyzed using SPSS Statistics 26.0. Descriptive statistics summarized participant characteristics. Paired-samples t-tests assessed pre–post differences in performance confidence and awareness. Statistical significance was set at $p < .05$ all analyses.

Result

3.1 General Characteristics

A total of 34 residents participated in the final analysis. Among them, 15 (44.1%) were male and 19 (55.9%) were female. Twelve participants (35.3%) were under 50 years of age, and 22 (64.7%) were 50 or older. Additionally, 12 participants (35.3%) had previous CPR training experience, while 22 (64.7%) had no prior exposure. Participant characteristics are summarized in Table 1.

Table 1. General Characteristics of Participants

Variable	Category	N (%)
Gender	Male	15 (44.1)
	Female	19 (55.9)
AGE	Uuder50	12(35.3)
	Over50	22(64.7)
Previous CPR Training	Yes	12 (35.3)
	No	22 (64.7)

3.2 Changes in CPR Performance Confidence

Paired-samples t-tests indicated significant improvements across all nine CPR performance confidence items following the training. Mean scores for each item increased from pre- to post-training with statistical significance ($p < .001$). The total performance confidence score increased from 3.04 before training to 7.89 after training, $t(33) = –14.14$, $p < .001$. Detailed results are presented in Table 2.

Table 2. Paired t-test Results for CPR Self- Efficacy

Confidence	Pre-test (M)	Post-test (M)	*t*	*p*
Early assessment	2.85	7.27	-12.06	<.001
Response checking	2.97	7.53	-12.98	<.001
Calling for help	5.62	9.12	-10.51	<.001
Airway maintenance	2.56	6.74	-10.58	<.001
Breathing check	3.44	7.88	-12.56	<.001
Artificial respiration	2.09	6.06	-9.73	<.001
Pulse check	3.74	7.77	-12.81	<.001
Chest compression	2.94	7.94	-12.62	<.001
AED use	2.18	7.62	-12.28	<.001
Total Mean	**3.04**	**7.89**	**-14.14**	**<.001**

3.3 Changes in Awareness of CPR Training Necessity

Paired-samples t-tests also revealed significant increases across all three awareness items after the training ($p < .001$). The total awareness score increased from **5.82** pre-training to **9.57** post-training, $t(33) = –10.36$, **$p < .001$**. Detailed results are presented in Table 3.

Table 3. Paired t-test Results for Awareness of CPR Training Necessity

Confidence	Pre-test (M)	Post-test(M)	*t*	*p*
emergency response	5.53	9.32	-7.86	< .001
Need for others' CPR education	6.03	9.77	-8.10	< .001
Need for regular CPR education	5.91	9.62	-9.72	< .001
Total Mean	**5.82**	**9.57**	**-10.36**	**< .001**

Discussion

This study examined the effects of a community-based CPR education program on residents' performance confidence and awareness of the necessity of CPR training. Both outcomes showed significant improvement after the training. The increase in performance confidence aligns with previous findings that structured and hands-on CPR training enhances learners' confidence and performance (Cho et al., 2012; Lewis et al., 1997). This supports Bandura's view that mastery experience is essential for strengthening performance confidence.

Awareness of CPR training necessity also improved, reflecting participants' heightened recognition of CPR as a critical life-saving intervention. This is consistent with the American Heart Association (2005), which emphasizes early CPR as a key factor in improving survival. Given that most out-of-hospital cardiac arrests in Korea occur in private homes (Korea Disease Control and Prevention Agency, 2023), increased awareness among community residents is particularly meaningful. They recognized CPR education as not only personally beneficial but also socially necessary, emphasizing the value of regular and community-level training.

This attitudinal change suggests that accessible education programs can raise collective responsibility and preparedness in health emergencies Although limited by a small, single-site sample and short-term evaluation, the study provides evidence that community-based CPR programs delivered in familiar residential settings can effectively enhance public preparedness. Future research should examine long-term outcomes and broader participant groups. These findings should be interpreted as reflecting short-term effects observed among residents from a specific local community.

Conclusion

This study confirms that community-based CPR education significantly improves residents' CPR performance confidence and awareness of the importance of CPR training. These findings highlight the value of accessible CPR programs as a practical strategy to strengthen community emergency readiness. Expanding such initiatives and assessing long-term retention may further enhance public capacity to respond effectively to cardiac emergencies.

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