



The Effectiveness of Role-Play Basic Life Support Training in Improving Knowledge and Attitudes Toward Cardiac Arrest Among the Laypersons

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ABSTRACT

Out-of-hospital cardiac arrest (OHCA) remains a leading cause of death worldwide, and early Basic Life Support (BLS) provided by laypeople is critical for improving survival before emergency medical services arrive. However, public knowledge and attitudes toward BLS remain inadequate because many individuals have never received formal training. This study aimed to evaluate the effectiveness of role play-based BLS training in improving laypeople's knowledge and attitudes toward cardiac arrest first aid. A quasi-experimental one-group pretest-posttest design was conducted among 68 lay participants recruited through consecutive sampling. Participants received role play-based BLS training, and knowledge and attitudes were assessed using structured questionnaires before and after the intervention. Data were analyzed using the Wilcoxon Signed Rank Test, with additional analyses examining associations between demographic characteristics and study outcomes. Following the intervention, participants demonstrated significant improvements in both knowledge and attitudes. The proportion with good knowledge increased from predominantly moderate (63.6%) to 97.0%, while positive attitudes increased from 72.7% to 93.9%. Significant differences were observed in knowledge and attitude scores (both $p < 0.001$), with a large intervention effect ($r = 0.62$). No significant associations were found between demographic factors and outcomes. Role play-based BLS training effectively improves laypeople's knowledge and attitudes regardless of demographic characteristics, supporting its implementation as an inclusive, practical strategy to strengthen community preparedness for cardiac arrest emergencies.

Keywords: Humans, First AID, Simulation Training.

ABSTRAK

Henti jantung di luar rumah sakit (*out-of-hospital cardiac arrest/OHCA*) masih menjadi salah satu penyebab utama kematian di dunia, dan pemberian Bantuan Hidup Dasar (*Basic Life Support/BLS*) secara dini oleh masyarakat umum sangat penting untuk meningkatkan peluang keselamatan sebelum tenaga medis tiba. Namun, pengetahuan dan sikap masyarakat terhadap BLS masih belum memadai karena banyak yang belum pernah memperoleh pelatihan formal. Penelitian ini bertujuan mengevaluasi efektivitas pelatihan BLS berbasis role play dalam meningkatkan pengetahuan dan sikap masyarakat umum terhadap pertolongan pertama pada kasus henti jantung. Penelitian menggunakan desain kuasi-eksperimental one-group pretest-posttest yang melibatkan 68 peserta umum yang direkrut dengan teknik consecutive sampling. Seluruh peserta mengikuti pelatihan BLS berbasis role play, kemudian pengetahuan dan sikap diukur menggunakan kuesioner terstruktur sebelum dan sesudah intervensi. Data dianalisis menggunakan *Wilcoxon Signed Rank Test*, disertai analisis hubungan antara karakteristik demografi dengan luaran penelitian. Setelah pelatihan, terjadi peningkatan yang bermakna pada pengetahuan dan sikap peserta. Proporsi peserta dengan pengetahuan baik meningkat dari mayoritas berpengetahuan sedang (63,6%) menjadi 97,0%, sedangkan sikap positif meningkat dari 72,7% menjadi 93,9%. Perbedaan skor pengetahuan dan sikap sebelum dan sesudah pelatihan signifikan secara statistik (keduanya $p < 0,001$), dengan ukuran efek yang besar ($r = 0,62$). Tidak ditemukan hubungan yang bermakna antara faktor demografi dan luaran penelitian. Pelatihan BLS berbasis role play efektif meningkatkan pengetahuan dan sikap masyarakat umum tanpa dipengaruhi karakteristik demografi, sehingga layak diterapkan sebagai strategi pembelajaran yang inklusif, praktis, dan interaktif untuk meningkatkan kesiapsiagaan masyarakat dalam menghadapi kegawatdaruratan henti jantung.

Kata kunci: Manusia, Pertolongan Pertama, Pelatihan Simulasi.

INTRODUCTION

Emergency conditions constitute situations requiring rapid and appropriate intervention to prevent severe morbidity and mortality. Such conditions frequently occur as a consequence of traffic accidents, natural disasters, and human conflict, and they often represent life-threatening situations that demand immediate action (American College of Surgeons, 2018). Emergencies may arise from traumatic or non-traumatic causes, both of which can result in respiratory failure and cardiac arrest. Cardiac arrest is defined as the sudden cessation of effective cardiac activity characterized by loss of consciousness, absence of normal breathing, and lack of detectable circulation (Hizrian et al., 2022). It may occur both outside hospital settings as Out-of-Hospital Cardiac Arrest (OHCA) and within healthcare facilities as In-Hospital Cardiac Arrest (IHCA) (Smeltzer & Bare, 2010). Without immediate intervention, cardiac arrest rapidly leads to death; however, timely Basic Life Support (BLS), particularly cardiopulmonary resuscitation (CPR), can significantly improve survival and neurological outcomes by maintaining circulation and oxygenation until advanced medical care becomes available (Tunny & Tunny, 2023).

The burden of cardiac arrest and emergency conditions continues to increase globally and nationally. Road traffic accidents remain one of the leading causes of trauma-related cardiac arrest, contributing to more than 1.2 million deaths annually worldwide (Rahmad et al., 2022). In Indonesia, traffic accidents rank among the leading causes of mortality, with accident rates increasing annually. Similarly, cardiovascular diseases continue to be a major public health problem. Data from the Institute for Health Metrics and Evaluation reported 756,660 cardiovascular-related deaths in Indonesia in 2021 (Perempuan Mahardhika, 2024). In East Kalimantan, cardiovascular mortality remains substantial, while the prevalence of hypertension increased from 25.8% in 2013 to 34.1% in 2018, and diagnosed heart disease reached 1.9%, exceeding the national average (Cristy et al., 2022). In Samarinda, cases of hypertension have increased considerably during recent years, accompanied by a growing number of traffic accidents and injury-related deaths (Perempuan Mahardhika, 2024). These conditions indicate that both traumatic and non-traumatic emergencies remain major contributors to morbidity and mortality in the community.

Despite the high incidence of cardiac arrest and emergency events, community response remains inadequate. Less than 40% of OHCA victims receive bystander CPR, while fewer than 12% receive assistance using an automated external defibrillator before emergency medical services arrive (Panchal et al., 2020). Survival rates of out-of-hospital cardiac arrest remain approximately 12%, mainly due to delayed recognition, inadequate emergency activation, and insufficient early CPR (Wnent et al., 2024). The Indonesian government has emphasized the importance of strengthening public health resilience through first aid education and training programs (President of the Republic of Indonesia, 2023). Previous studies have demonstrated that BLS training can improve knowledge, skills, attitudes, and self-confidence among laypersons (Darsini et al., 2019; Sasmito et al., 2023; García-Blaya et al., 2025). Likewise, adolescents and nursing students who received BLS training showed improved competencies, although deficiencies in practical performance and long-term retention remained evident (Gulle et al., 2023; Borovnik Lesjak et al., 2022; Kelly & Devaney, 2026).

Although numerous studies have evaluated BLS education, several research gaps remain. Previous investigations have primarily focused on healthcare students, adolescents, or professional trainees and have mainly examined knowledge, practical skills, or skill retention after conventional educational interventions (Borovnik Lesjak et al., 2022; Kelly & Devaney, 2026). Limited evidence is available regarding the effectiveness of interactive role play-based BLS training among laypersons, particularly within Indonesian communities and populations with diverse educational and occupational backgrounds. Furthermore, most previous studies emphasize psychomotor outcomes and skill retention, while fewer studies simultaneously assess changes in knowledge and attitudes toward cardiac arrest first aid. According to Schnaubelt et al. (2024), BLS training should be context-specific, accessible, practical, and tailored to local community needs to enhance willingness and preparedness to provide assistance during emergencies. Therefore, evidence regarding innovative and interactive educational approaches suitable for community settings remains insufficient.

The novelty of this study lies in the application of role play-based Basic Life Support training as an active and experiential learning strategy for laypersons in the community. Unlike

previous studies that primarily utilized conventional demonstrations or focused on healthcare students, this study evaluates the effectiveness of role play methods in improving both knowledge and attitudes toward cardiac arrest first aid among community members. In addition, this study explores whether demographic characteristics influence educational outcomes following the intervention. Therefore, this study aims to determine the effectiveness of role play–based Basic Life Support training in improving laypersons’ knowledge and attitudes toward first aid management of cardiac arrest.

METHOD

This study employed a quantitative approach using a pre-experimental one-group pretest–posttest design. Although the absence of a control group limits the ability to establish causal relationships, the design allows assessment of changes in participants’ outcomes before and after the intervention through baseline measurements. The study was conducted in Neighborhood Unit (RT) 38, Sungai Pinang District, Samarinda, Indonesia. A preliminary assessment was undertaken to explore community experiences related to cardiac arrest events and to identify previous exposure to Basic Life Support (BLS) information. The findings from this assessment were used to tailor the educational materials to the local context.

Participants were recruited using consecutive sampling, whereby all eligible residents were enrolled sequentially until the required sample size was achieved. The minimum sample size of 66 participants was calculated using the Slovin formula with a 10% margin of error. Inclusion criteria consisted of community members aged 17–55 years who were willing to participate in the study. Respondent characteristics collected included age, sex, educational level, employment status, previous exposure to BLS information, and history of heart disease. The independent variable was role play–based BLS training, whereas the dependent variables were participants’ knowledge and attitudes toward cardiac arrest first aid.

Data were collected using structured questionnaires administered before and after the intervention. The knowledge questionnaire consisted of 20 dichotomous items developed according to the Indonesian Ministry of Health guidelines (2022), covering general BLS concepts and cardiac arrest management procedures (Ministry of Health of the Republic of Indonesia, 2022). Responses were scored using the Guttman scale, with correct responses receiving a score of 1 and incorrect responses receiving a score of 0. The attitude questionnaire initially comprised 15 Likert-scale items with four response categories ranging from strongly disagree to strongly agree and evaluated participants’ attitudes toward BLS provision. Demographic information was collected using a separate structured questionnaire.

Instrument validity and reliability were established prior to the main study. The knowledge questionnaire underwent item validity testing using a pilot sample of 30 respondents, with all items demonstrating acceptable validity based on the critical *r*-value threshold. Reliability analysis using the Kuder–Richardson Formula 21 yielded a coefficient of 0.69846, indicating acceptable internal consistency. For the attitude questionnaire, Pearson product–moment analysis identified two invalid items, which were excluded, resulting in 13 valid items. The final attitude instrument demonstrated high reliability with a Cronbach’s alpha coefficient of 0.833.

The intervention materials were developed according to the American Heart Association guidelines and subsequently reviewed and validated by emergency nursing experts to ensure clarity, relevance, and educational appropriateness for laypersons. The principal investigator, a certified instructor from the Indonesian Emergency and Disaster Nursing Association (HIPGABI) with approximately ten years of experience in emergency nursing education, facilitated the intervention. The training was conducted over two weeks and involved four training sessions consisting of 16, 16, 16, and 20 participants, respectively. Each session included a 30-minute pretest, a 120-minute role play–based BLS training session, and a 30-minute posttest. The training consisted of lectures, guided practice, and supervised independent practice, and participants received educational leaflets to support long-term knowledge retention.

Data were analyzed using IBM SPSS Statistics version 23. Descriptive statistics were used to summarize participants’ demographic characteristics and were presented as frequencies and percentages. The Wilcoxon Signed Rank Test was employed to compare pretest and posttest scores for knowledge and attitudes with a significance level of $\alpha = 0.05$ and a 95% confidence interval. Additional analyses were conducted to examine the associations between demographic

variables and participants' knowledge and attitude outcomes. Ethical approval was obtained from the Health Research Ethics Committee of the Faculty of Medicine, Mulawarman University, Samarinda (No. 307/KEPK/FK/XI/2024), and written informed consent was obtained from all participants prior to data collection. Confidentiality was maintained through participant coding, and all participants were informed of their right to withdraw from the study at any time without consequences.

RESULTS

Table 1. Characteristics respondent.

Variable	Frequency (n)	Percentage (%)
Age		
19-25 years	7	10.3
26-35 years	24	35.3
36-45 years	22	32.3
46-54 years	15	22.1
Gender		
Female	56	82.6
Male	12	17.6
Level Education		
Elementary School	3	4.4
Junior High School	13	19.1
High School	43	63.2
University	9	13.2
Employment Status		
Working	23	33.8
Not working	45	66.2
Information about BLS		
Health worker	6	8.8
TV/Smartphone	11	16.2
Magazine	0	0
No	53	77.9

Table 1 presents the demographic characteristics of the 68 participants included in the study. Based on age, most participants were 26–35 years old (24 participants; 35.3%), followed by those aged 36–45 years (22 participants; 32.3%), 46–54 years (15 participants; 22.1%), and 19–25 years (7 participants; 10.3%). These findings indicate that the majority of respondents were adults of productive working age. Regarding gender, the sample was predominantly female, with 56 participants (82.6%), while 12 participants (17.6%) were male. This demonstrates that women constituted the majority of the study population.

In terms of educational attainment, most participants had completed high school (43 participants; 63.2%), followed by junior high school (13 participants; 19.1%), university education (9 participants; 13.2%), and elementary school (3 participants; 4.4%). This indicates that the majority of respondents had a secondary level of education. Based on employment status, 45 participants (66.2%) were unemployed, whereas 23 participants (33.8%) were employed. Thus, most respondents were not working at the time of the study.

Regarding previous information about Basic Life Support (BLS), the majority of participants (53; 77.9%) had never received any BLS information. Only 11 participants (16.2%) reported obtaining BLS information through television or smartphones, while 6 participants (8.8%) received information from healthcare professionals. None of the participants reported magazines as a source of BLS information (0%). These findings suggest that community exposure to BLS education remains limited, highlighting the need for accessible and practical BLS training programs to improve public preparedness for cardiac arrest emergencies.

Table 2. Analysis univariate.

Variable	Frequency (n)	Percentage (%)
Pre-test Knowledge		
Good	22	32.4
Moderate	42	61.8
Inadequate	4	5.9
Post-test Knowledge		
Good	64	94.1
Moderate	4	5.9
Inadequate	0	0
Pre-test attitude		
Good	50	73.5
Fair	16	23.5
Poor	2	2.9
Post-test attitude		
Good	64	94.1
Fair	4	5.9
Poor	0	0

Table 2 presents the univariate distribution of participants' knowledge and attitudes toward Basic Life Support (BLS) before and after the role play-based training. Prior to the intervention, most participants demonstrated moderate knowledge (42 participants; 61.8%), followed by good knowledge (22 participants; 32.4%), while only 4 participants (5.9%) had inadequate knowledge. After the training, a substantial improvement was observed, with 64 participants (94.1%) achieving good knowledge and only 4 participants (5.9%) remaining in the moderate category. No participants were classified as having inadequate knowledge after the intervention.

Similarly, participants' attitudes toward BLS improved following the training. Before the intervention, 50 participants (73.5%) exhibited good attitudes, 16 (23.5%) had fair attitudes, and 2 (2.9%) had poor attitudes. Following the role play-based BLS training, the proportion of participants with good attitudes increased to 64 (94.1%), while only 4 participants (5.9%) remained in the fair category, and none demonstrated poor attitudes.

The findings indicate a marked shift from moderate or inadequate knowledge and fair or poor attitudes toward predominantly good knowledge and positive attitudes after the intervention. These descriptive results suggest that role play-based BLS training effectively enhanced participants' cognitive understanding and fostered more positive attitudes toward providing first aid in cases of cardiac arrest.

Table 3. Bivariate analysis of pretest and posttest knowledge and attitude scores.

Variable	N	Median Pretest	Median Posttest	95% CI	Z	p-value	Effect size (r)
Knowledge	68	75.00	100	20.22 - 24.17	-7.232	0.000	0.62
Attitude	68	83.00	94.00	8.79-11.94	-7.181	0.000	0.62

The Wilcoxon Signed Rank Test was conducted to evaluate the impact of the Basic Life Support (BLS) training on participants' knowledge (Table 3). The results indicated a statistically significant increase in knowledge scores from pretest (Median 75.00) to posttest Median 100, 95%CI 20.22-24.17, with $Z = -7.232$, $p < 0.001$. Attitude scores significantly improved from the baseline Median pretest of 83.00 to the post-intervention phase Median 94.00, 95%CI 8.79-11.94, with $Z = -7.181$, $p < 0.001$. To provide a more comprehensive understanding of the magnitude of change, effect sizes (r) were calculated. The educational intervention yielded a large effect size for both knowledge ($r = 0.62$) and attitude ($r = 0.62$). These values signify that the BLS training not only produced statistically significant differences but also demonstrated a robust and practically meaningful impact on the community members.

Table 4. Bivariate analysis correlation of age with knowledge and attitude scores.

Variable	N	r	p-value
Age and knowledge	68	0.130	0.291
Age and attitude	68	0.052	0.676

Table 4 shows that the results of the correlation analysis showed that age was not significantly associated with participants' knowledge scores following the Basic Life Support (BLS) training ($r = 0.130$, $p = 0.291$). Although the correlation coefficient was positive, its magnitude was very weak, indicating that increasing age was not meaningfully related to higher knowledge levels. Likewise, no significant correlation was found between age and attitude scores ($r = 0.052$, $p = 0.676$). The very weak positive correlation suggests that participants' attitudes toward providing BLS were not influenced by age. Overall, these findings indicate that the effectiveness of the role play-based BLS training in improving knowledge and attitudes was comparable across different age groups.

Table 5. Bivariate analysis correlation of last education with knowledge and attitude scores.

Variable	N	df	p-value
Last education and knowledge	68	3	0.116
Last education and attitude	68	3	0.077

Table 5 presents the association between participants' educational level and their knowledge and attitude scores. No statistically significant differences in knowledge scores across educational levels ($df = 3$, $p = 0.116$). Similarly, no significant differences were observed in attitude scores among participants with different educational backgrounds ($df = 3$, $p = 0.077$). Although participants with higher educational attainment may have tended to achieve slightly better scores, these differences were not statistically significant. These findings suggest that role play-based BLS training was equally effective regardless of participants' educational level.

Table 6. Bivariate analysis correlation of occupation with knowledge and attitude scores.

Occupation and knowledge	N	Mean	p-value
Working	25	37.00	0.079
Not Working	43	33.05	
Last education and attitude			
Working	25	35.14	0.618
Not Working	43	34.14	

Table 6 shows that the knowledge scores, employed participants had a slightly higher mean rank than unemployed participants (37.00 vs. 33.05); however, the difference was not statistically significant ($p = 0.079$). Similarly, for attitude scores, employed participants also demonstrated a marginally higher mean rank (35.14 vs. 34.14), but the difference was not significant ($p = 0.618$). These results indicate that employment status did not significantly influence participants' knowledge or attitudes following the role play-based BLS training. Therefore, the intervention appears to be equally beneficial for both employed and unemployed individuals.

DISCUSSION

The results of this study indicate that the majority of respondents (23 participants; 34.8%) were within the 26–35-year age group. According to the age classification of the Indonesian Ministry of Health, as cited by (Hakim, 2018) this range falls within the category of early adulthood. Individuals in this phase are generally considered to be in a productive stage of life, characterized by high levels of social participation and engagement. Consequently, they possess substantial potential to contribute to community knowledge enhancement through various actions and social roles. As individuals age, they tend to accumulate more diverse experiences and information, which supports cognitive maturation, reflective thinking, and continuous learning capacity.

Age-related development is also marked by an increasing desire for self identity formation and a growing interest in abstract thinking processes, which subsequently influence attitudes and behaviors. The accumulation of life experiences allows individuals to acquire broader information resources. However, although cognitive maturity may be reached at a relatively young age, it

does not necessarily guarantee accurate comprehension or appropriate application of information provided (Shidqi et al., 2021). This highlights that age alone is insufficient to predict knowledge acquisition or attitudinal change.

In terms of gender distribution, the majority of respondents were female (55 participants; 83.3%), while males accounted for 11 participants (16.7%). Fundamentally, both men and women have equal opportunities to acquire knowledge, as access to scientific education is increasingly equitable across genders. This finding is consistent with the study by (Hizrian et al., 2022), which evaluated the effectiveness of Basic Life Support (BLS) training related to traffic accident management and reported that females constituted the majority of participants (60.0%). Although no definitive gender-based comparison can be established, women in many communities tend to be more actively involved in family and community roles, making them more likely to seek, receive, and disseminate health-related information, including BLS knowledge. Conversely, in some contexts, men may dominate formal education or technical training, which can influence the type and scope of information they access and share.

Regarding educational background, most respondents had completed senior high school (42 participants; 63.6%). Educational attainment plays a critical role in shaping an individual's capacity to comprehend, analyze, and evaluate information. Individuals with a high school education are generally capable of understanding situational contexts and responding appropriately, which may explain the observed improvement in knowledge and attitudes following the intervention. Formal education provides a foundation for rational thinking, openness, and responsiveness to social change. It also facilitates social interaction, exposure to diversity, and understanding of multiple perspectives, thereby fostering inclusive and tolerant attitudes (Rinawati et al., 2024).

In terms of employment status, most respondents were not formally employed (43 participants; 65.2%), while 25 participants (34.8%) were employed. Work culture reflects shared mental frameworks and values that shape collaboration, efficiency, and attitudes within a group. Quality of work life can influence not only professional behavior but also attitudes expressed in everyday social interactions. Individuals who experience positive work environments tend to exhibit constructive attitudes in broader social contexts. Organizational work culture can shape attitudes and behaviors of human resources, and positive work culture implementation is often reflected in daily life attitudes (Indayani et al., 2024).

This study also revealed that the majority of respondents (49 participants; 74.2%) had never received prior information about Basic Life Support. Only 11 participants (16.7%) reported receiving BLS information through smartphones or television, while 6 participants (9.1%) obtained information from healthcare professionals. None of the respondents reported receiving BLS information from print media. These findings underscore the limited dissemination of formal BLS education within the community. Given that laypersons play a crucial role in providing BLS during out-of-hospital cardiac arrest, adequate community knowledge is essential. Information regarding cardiac arrest management can be accessed through digital platforms, social media, and structured training programs. However, a substantial proportion of the population remains insufficiently informed. Even among those with some knowledge, hesitation and lack of confidence often prevent active intervention, resulting in delayed assistance and reliance on transporting victims directly to healthcare facilities (Marbun et al., 2022).

Consistent with previous studies, Darsini et al. (2019) emphasized that education and training are effective in enhancing BLS knowledge and skills. Experience-based training methods, including the use of simulation tools, have been shown to improve both theoretical understanding and practical competence. Practical exposure allows participants to apply theoretical knowledge and develop essential life-saving skills. This is further supported by (Qodir, 2020), whose study demonstrated that BLS training significantly improved knowledge and skills among laypersons, with a p-value of 0.000 (<0.005). The role-play approach was particularly effective, as participants actively engaged in discussions, demonstrations, and repeated practice, reinforcing learning outcomes.

Both individuals with and without a history of heart disease have comparable risks of experiencing cardiac arrest (Brown, 2023). Despite advances in emergency care, out-of-hospital cardiac arrest (OHCA) survival rates remain low, at approximately 12%. Delayed reporting and delayed initiation of cardiopulmonary resuscitation (CPR) are primary contributors to poor survival

outcomes. OHCA most commonly occurs at or near the home environment (73.9%). Less than 10% of individuals survive out-of-hospital cardiac arrest among approximately 360,000 cases recorded annually. In the United States, about 40% of the 325,000 sudden cardiac deaths occur before adequate assistance can be provided (Panchal et al., 2020).

The findings of this study demonstrated a statistically significant improvement in community attitudes toward providing BLS following role-play training, with a p-value of 0.000 (<0.05). Positive attitudes toward BLS are essential for successful emergency response implementation. (Bastoni et al., 2024) reported that individuals with positive attitudes are more likely to act promptly in emergency situations, thereby increasing survival chances. Similarly, (Qodir, 2020) found that repeated BLS education programs significantly improved attitudes and CPR performance among workers. (Cristy et al., 2022) also confirmed a significant relationship between BLS training and improved attitudes and skills among students.

Correlation analysis in this study revealed no significant relationship between age and knowledge ($r = 0.130$; $p = 0.291$), nor between age and attitude ($r = 0.052$; $p = 0.676$). These findings suggest that age is not a primary determinant of knowledge or attitude in the studied population. This aligns with Saputro & Jadmiko, (2017), who argued that in the era of democratized information access, age is less influential than intrinsic motivation and information-seeking behavior. Similarly, (Pangandaheng, 2020) reported that attitudes are more strongly influenced by socio-cognitive factors such as subjective norms, perceived behavioral control, and personal beliefs rather than age.

The study also found that formal education level did not significantly determine knowledge or attitudes. In contemporary digital societies, knowledge authority has diversified beyond formal education institutions. Digital information access, non-formal training, workplace experience, and self-directed learning have emerged as competitive knowledge channels, potentially diminishing the exclusive influence of formal education (Hariwirawan, 2020). Attitudes, as multidimensional constructs, are shaped by complex interactions among personal experience, social norms, cultural context, and media exposure (Koulouvari et al., 2025).

Similarly, employment status did not significantly influence knowledge or attitudes. Although employed participants tended to score slightly higher in knowledge, the difference was not statistically significant ($p > 0.05$). A near-significant p-value (0.079) suggests a potential trend warranting further investigation. As noted by (Simonsmeier et al., 2022), the contribution of work experience to knowledge is marginal and highly dependent on relevance to the knowledge domain. The measurement of applied contextual knowledge in this study may explain the limited influence of employment status (Bastoni et al., 2024).

Although this study found no statistically significant associations between demographic factors (such as age, education level, and employment status) and the learning outcomes, these findings should be interpreted with caution. The demographic analysis in this study may be underpowered due to the relatively small sample size ($N = 68$). This limited statistical power increases the risk of a Type II error, meaning that meaningful associations might exist in the broader population but could not be detected within this specific cohort. Future studies with larger, adequately powered sample sizes are required to more rigorously investigate the impact of demographic variables on BLS education outcomes.

Implications for Nursing Practice. Nursing professionals should design BLS education programs that are accessible to all community members regardless of age, gender, education level, or employment status. Given that these demographic factors were not significant determinants of knowledge or attitudes, training strategies should be universal and adaptive. Educational materials should use clear language, appropriate health literacy levels, and diverse delivery methods, including face-to-face and digital platforms.

Given the effectiveness of role-play in improving attitudes, nurses as educators should prioritize hands-on approaches such as demonstrations and simulations. Repetitive training focused on procedural skills is essential for improving knowledge retention. The use of mannequins and visual media can further enhance comprehension and memory.

Since attitudes toward BLS are strongly influenced by socio-cognitive factors, community nurses should identify cultural barriers and local beliefs that may affect readiness to provide assistance. Engaging community leaders and cardiac arrest survivors may help establish

supportive social norms. Digital technologies should also be leveraged to expand educational outreach, particularly among productive age populations.

CONCLUSION

The findings of this study demonstrate that Basic Life Support (BLS) training using a role-play simulation approach is an effective educational strategy for improving community knowledge and fostering positive attitudes toward cardiac arrest management. The intervention resulted in significant improvements in participants' post-training knowledge and attitudes, highlighting the value of experiential learning in emergency preparedness. Furthermore, demographic characteristics, including age, educational level, and employment status, were not significantly associated with participants' learning outcomes, suggesting that the training is effective across diverse population groups. These findings support the implementation of role play-based BLS training as an inclusive and practical community education strategy to strengthen public readiness and confidence in responding to out-of-hospital cardiac arrest emergencies.

Based on these results, community BLS education programs should be designed using an inclusive approach that emphasizes hands-on practical training and is implemented on a sustainable basis. Educational content should not be limited by demographic considerations but should instead focus on mastery of core life-saving skills through repetition and repeated simulation. To expand program reach and enhance knowledge retention, dissemination strategies should integrate both face-to-face instruction and digital platforms, ensuring equitable access. However, recommendations for large-scale implementation should be made cautiously. Future studies utilizing randomized controlled trials or quasi-experimental designs are necessary to definitively confirm the effectiveness of this intervention before widespread adoption is recommended. Further research is also warranted to explore psychosocial factors influencing community readiness to provide emergency assistance, with the aim of strengthening community-level emergency response systems

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