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Emergency Scenario-Based Training Curriculum Development: Enhancement of Caregivers for the Elderly' Emergency Assistance Competency in a Rural Thai Community

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Abstract

Background: Caregivers for the elderly are a critical component of the health care system, especially in rural communities. They play a crucial role, assisting older people in confronting emergency illnesses.

Objective: The study describes the process of developing an emergency scenario-based training curriculum (ESBTC) for caregivers of the elderly, focusing on geriatric life-threatening surveillance and emergency assistance (GLTSEA) in rural communities.

Methods: The descriptive qualitative research utilized for developing the ESBTC followed Karn's six steps of curriculum development: (1) needs assessment, (2) targeted needs assessment, (3) goals and objectives, (4) educational strategies, (5) implementation, and (6) evaluation and feedback. The research sample comprised community representatives engaged in providing care during emergency illnesses, emergency experts, and health care providers. A group discussion and focus group were conducted along with semi-structured interviews. The data were analyzed by content analysis following Creswell's six steps.

Results: The results revealed problems and needs related to the care and management of emergency illnesses in rural communities. Five main themes emerged, including insufficient knowledge, difficulties in communication, mindfulness and self-confidence, Unable to assess the initial symptoms, and a need for skills development. In the development step, the curriculum focused on skill development and continued follow-up to ensure necessary skills, such as providing basic life support, using automated external defibrillators, through training scenarios. In the evaluation step, the participants indicated that their emergency assistance skills had improved. The six main themes that emerged regarding the training continuity, courses, and competencies needed to support the emergency system for caregivers were benefits and value, competence enhancements, upstreaming confidence, sustainable development, challenges in curriculum development, and effective strategies.

Conclusions: The ESBTC combines community-based and realistic scenarios, involving the participation of community stakeholders. It is crucial to gather community feedback and needs assessments to formulate potential strategies as part of the curriculum.

Keywords
Emergency, elderly, caregivers, curriculum, scenario

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Introduction

Myocardial infarction (MI) and stroke are two of the most harmful diseases affecting the health of individuals worldwide (Katan & Luft, 2018; Sharma et al., 2021), particularly older people (Kaufman et al., 2011; Suwanwela, 2014). These diseases negatively impact the health care system due to the demand they place on medical resources in both acute and long-term care (O'Brien et al., 2017). The elderly population is a vulnerable group that is at greater risk of

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experiencing MI and stroke (Rodgers et al., 2019). Many elderly individuals currently have no caregivers for a variety of conditions (Theeke et al., 2021), and most of them cannot identify the signs and symptoms of MI and stroke (Wolff et al., 2016). In addition, older people in rural communities struggle to access health care services for several reasons, including transportation limitations and large travel distances. This may lead to delayed treatment and a higher risk of mortality (Asante et al., 2023).

Literature Review

Caregivers for elderly are a critical component of the health care system, especially in rural communities (Qualls, 2016; Schulz et al., 2020). They play a crucial role, assisting older people in confronting emergency illnesses and providing acute care (Riffin et al., 2018), such as signs and symptoms assessment, first aid, and calling for help when needed (Soontorn et al., 2020). Therefore, health care agencies have focused on enhancing community caregivers' competencies related to providing emergency assistance in rural communities, which have limited medical resources may lack access to proper care (Ossey et al., 2017). Moreover, access to emergency medical services in many areas is not accessible due to problematic local conditions, barriers to transportation, and inadequate internet and/or cell phone infrastructure. Because of these limitations, current studies have begun to investigate the development of emergency medical service systems for local communities. Various studies have produced systematic development models and approaches to enhance the knowledge and competency development of volunteers in different areas. Most current research takes the form of quasi-experimental studies that compare the results of the various programs developed to measure the knowledge, attitudes, and competencies of people in communities, such as studies on the effectiveness of programs in developing the potential of village health volunteers to enhance public knowledge and attitudes about emergency medical service systems in communities. For example, (Limhoklai et al., 2015) conducted a two-group study comparing the effectiveness of community health volunteers and family representatives in changing the attitudes of community members toward and providing knowledge about the emergency medical system, focusing on developing the potential of individuals in the community. The study followed the conceptual framework of the United Nations Development Program. Testing revealed that the sample group had an average score in terms of attitude and knowledge. In addition, a one-group quasi-experimental study with a pre-/post-test design focused on developing individuals' abilities to promote knowledge, attitudes, and abilities in emergency medical practice (Nikorn et al., 2022). The study was conducted in accordance with self-efficacy theoretical framework. There was a two-day activity with follow-up at 4 and 12 weeks. The study demonstrated that after entering the program, the sample group had enhanced knowledge, attitudes, and competency in emergency services. The strengths of this study include the method of calculating the research sample size and organizing the follow-up activities for long-term monitoring. Some studies have focused on developing the competencies of trainees using simulations to develop useful skills and decision-making during emergency events. For example, a recent study created a program underpinned by experiential learning theory to develop community health volunteers' confidence and resuscitation skills, which was found to be successful on both counts (Worapanwisit et al., 2023). Another interesting study by Prabket (2021) used simulations of actual situations to build a program aimed at developing competency in emergency medical practice. The experimental results demonstrated that the participants had gained increased knowledge and competency in emergency operations after attending the program.

Not only various academic studies but also research and development (R&D) activities have aimed to develop operating models for emergency medical personnel. Such endeavors, underpinned by the work of Zuber-Skerrit, have emphasized community participation via needs analysis, developing plans, implementing plans, and evaluating models. The development of such systems has been shown to yield positive results in emergency operations (Weerakhachon et al., 2017). However, a survey of the related literature showed that the majority of investigations in this area have been quasi-experimental studies aiming to develop knowledge, attitudes, and competencies related to emergency operations, with different strategies focused on either short- or long-term training.

A recent study suggests that government training projects, which represent a significant component of emergency system support, are needed to support the development of relevant skills to help community members experiencing emergency illnesses. For example, the basic life support training project, which must be continuously developed by the health care services, helps to improve caregiver competencies to support the emergency care system (Broccoli et al., 2016). Several conditions have challenged this development, including a lack of appropriate emergency training curricula within community contexts and the need for suitable learning activities in training programs for various target groups (Dolenc et al., 2022). The practical approach to community training curricula relies on the cultural context and involves a simulation-based decision-making strategy (Hites et al., 2012) and community-based intervention to enhance caregivers' competencies related to emergency assistance (Simmons et al., 2023). In addition, recent studies have shown that community training in first aid improves bystander cardiopulmonary resuscitation (CPR) (Scapigliati et al., 2021). However, while caregivers' emergency assistance skills are improved after such

trainings, competency and skills deterioration remains a challenge (Riggs et al., 2019).

The most recent studies in the literature reveal a knowledge gap that highlights the need to comprehend local contexts and community problems and concerns regarding sustainability in order to design the most appropriate approaches. Therefore, to be effective in developing individuals' potential to assist in emergencies such as stroke and myocardial infarction (MI), it is necessary to develop a curriculum that is specific to the target group and developed in accordance with relevant standards of care, while employing theoretical concepts that are appropriate to serve as guidelines for enhancing effectiveness in raising expected outcomes among the target population.

This article highlights the process of developing an emergency curriculum through realistic community-based scenarios to overcome the challenges and barriers related to emergency assistance competency development for caregivers for the elderly in rural Thai communities. Clarifying the steps in curricular development toward descriptive qualitative method would help to improve caregivers' competencies in rural communities and support the quality of out-of-hospital emergency care, improving outcomes and survival for older people with serious life-threatening conditions.

Methods

Design

This descriptive qualitative study is the first, second, and fourth phase of the "Development of Geriatric Life Support System of Caregivers in Community" project. The study aims to describe the process of developing an emergency scenario-based training curriculum (ESBTC) among caregivers for the elderly, focusing on geriatric life-threatening surveillance and emergency assistance (GLTSEA) in rural communities. The research was conducted between March 2021 and February 2022. The ESBTC was developed following Kern et al.'s (2016) six steps of curriculum development: (1) needs assessment, (2) targeted needs assessment, (3) establishment of goals and objectives, (4) educational strategies, (5) implementation, and (6) evaluation and feedback by following the research question: what are components and how feedbacks of the scenario-based emergency training curriculum (ESBTC) for the caregiver of elderly?

Participants

Steps 1, 2, and 3: (1) Needs Assessment, (2) Targeted Needs Assessment, and (3) Establishment of Goals and Objectives. The research sample consisted of community representatives engaged in providing care during emergency illnesses. The 25 participants selected through purposive sampling, included community leaders, health officials, community health volunteers (CHVs), and caregivers of older people who are residents of the Vibhavadi district, Surat Thani, Thailand, with experience in caring for patients with emergency illnesses. Their participation in a community meeting regarding the needs assessment was voluntary.

Step 4: Educational Strategies. The 16 participants in this phase consisted of health personnel with expertise in emergency medicine, including university lecturers, registered nurses, medical physicians, and public health technical officers, all of whom were purposively invited to participate voluntarily in group discussions interview to contribute to the curriculum structure.

Step 5: Implementation. In this step, 40 CHVs responsible for caring for elderly individuals and their relatives were selected by purposive sampling. The inclusion criteria were as follows: age between 18 and 50 years, no movement restrictions or congenital diseases (e.g., heart disease or asthma), capable of reading and writing in Thai, and willing to participate fully in the research, consisting of a three-day training program lasting eight hours each day. The exclusion criteria for this phase were abnormal physical symptoms like dizziness or an irregular heart rate while practicing CPR.

Step 6: Evaluation and Feedback. Fourteen participants from Step 5 were selected voluntarily to provide feedback on the curriculum developed for the final step. In this step (Step 6), the 14 participants were divided into two groups to conduct a focus group interview to explore their acceptability on training program of the curriculum and other views of curriculum development.

Research Instrument

Based on the qualitative study for curriculum development, the research instruments for each step were semi-structured interview questions and personal characteristics questions. The interview protocols were developed by the researchers based on open-ended questions underpinning the research question and designed for group discussions and focus groups. Five experts reviewed the 12 interview protocols and personal characteristics questions for all of the steps to confirm their content validity and ensure the quality of the protocol questions. The research was then revised following the experts' recommendations before conducting the interviews.

Data Collection

Steps 1, 2, and 3: (1) Needs Assessment, (2) Targeted Needs Assessment, and (3) Establishment of Goals and Objectives. In

these steps, the community situation and context of emergency care were examined to explore the challenge of providing care for older people, particularly those with MI and stroke. With this aim, the 25 informants, as community representatives involved in providing care and support for emergency illnesses, consisting of community leaders, health officials, CHVs, and caregivers for the elderly, were invited to participate in the one-time group interview. The two-hour group interview was conducted online in a Zoom meeting, which was audio-recorded. The semi-structured interview was utilized to explore the community representatives' views on needs, challenges, and strategies regarding improving the care of elderly patients with emergency illnesses. The researcher then summarized and analyzed the data to extract the critical community needs to further develop an emergency training curriculum.

Step 4: Educational Strategies. The results of the community context exploration and needs assessment were utilized to develop the ESBTC draft for the community training program. Sixteen experts and health professionals in emergency medicine were invited to the meeting to participate in a focus group to share and provide suggestions for developing a curriculum draft. In this step, the one-time focus group was conducted at a community hospital in a private meeting room to facilitate semi-structured group interview and to allow for audio recording. The interview and group discussion took approximately three hours, during which the curriculum was designed and developed in accordance with Bloom's learning theory (Bloom et al., 1956) The research team engaged in field note-taking, memoing, and drafting during the group discussion periods. A curriculum was designed focused on assessment and monitoring MI and stroke signs and symptoms, first aid, and communication strategies during emergency incidents. In addition, this involved learning about serious emergency conditions that commonly impact older people living at home, such as stroke and acute MI. Warning signs of cardiac arrest and BLS were given particular consideration in the curriculum development. The total duration of the course was 24 h, divided into an eight-hour development phase and a 16-h reskilling and follow-up phase. The group discussion, which was designed to create a curriculum development, focused on simulation scenarios, including Scenario 1: First Aid and Call for Help, Scenario 2: Stroke Fast Track and Call for Help, and Scenario 3: MI Fast Track Sign and First Aid and Call for Help.

Step 5: Program Implementation. This research step included a course to enhance knowledge, self-confidence, and competencies related to GLTSEA. Forty caregivers for the elderly in the community were selected based on the inclusion criteria. The training course was conducted through simulations (case scenarios) relevant to stroke, MI, and BLS. The training was conducted three times, eight hours each, for a total course duration of 24 hours in eight-week blocks. The knowledge, confidence, and skills of caregivers for the elderly (pre-test) related to monitoring life-threatening situations were assessed before and after the community training program.

Step 6: Program Evaluation. Program evaluation is essential for improving and developing curricula (O'Connor-Fleming et al., 2006). Therefore, community stakeholders' feedback, reflections, and recommendations were valuable for developing the ESBTC. In this phase, the one-time focus group took place in the private meeting room of the community hall. The 14 participants were invited to participate voluntarily, and they were divided into two separate groups to conduct semi-structured audio-recorded interviews to evaluate the curriculum development. The interviews took approximately 45–90 minutes.

Data Analysis

The audio was transcribed into an interview transcript by a third party who was not allowed to pass on or use the information. This information, including names, places, and organizations, was deleted to protect privacy and confidentiality. The researcher then read through the transcript and compared it with the audio to ensure the accuracy of the data before conducting content analysis. The data obtained from the interviews were organized in accordance with the NVIO program and analyzed following Creswell and Poth (2016) six-step qualitative data analysis process, including data organization, reading, memoing, describing the data into codes and themes, classifying the data, and interpretation and presenting. NVivo software was utilized to contribute to the code book, and the words, phrases, sentences, and paragraphs from the transcript were coded and themed into the relevant categories. The personal characteristics of the research participants were analyzed using descriptive statistics, such as frequency and percentage.

Research Rigor

Trustworthiness was a concern throughout the research process, and we sought to ensure the quality and accuracy of the results. This involved the selection of a diverse group of participants, who provided rich data relevant to the research aim, and multiple methods for data collection, including group discussions and focus groups. The research team reviewed all data, such as audio tapes and transcripts, to ensure data accuracy. In addition, transcripts randomly selected some participants to review their transcripts to confirm the accuracy.

Audit Trial Process

Several abbreviations and symbols were utilized throughout the representative quotes to ensure the accuracy of the research process, including the following:

> (GD: CHV) This pattern was employed to define the data collection strategy, where the first term was GD (group discussion), FG1 (Focus group 1), or FG2 (Focus group 2), and the second term, indicating the informant's role in the community, was CHV (community health volunteer), CLD (community leader), ECG (elderly caregiver), CMB (community member), or PHO. (public health official)

… An ellipsis was used to indicate where two or more sentences were merged.

[text] Square brackets were utilized for defining and clarifying the meaning of reflection.

Ethical Considerations

This research was approved by the Human Research Ethics Committee of Suratthani Rajabhat University (SRU-EC 2021/055). The participants were informed of their rights to decide whether or not to participate in the research before signing the consent form and to withdraw from the research at any time without any negative consequences. All participant data were confidential and could not be identified individually. All data stored by the researcher in the locked cabinet at the Faculty of Nursing, Suratthani Rajabhat University and will be destroyed five years after data collection.

Results

Steps 1 and 2: Needs Assessment and Targeted Needs Assessment

General Information. The 25 community stakeholders involved in providing care and assistance in emergency illnesses included community leaders, health officials, CHVs, and caregivers for the elderly, who were primarily female (84%) and between 31–40 years of age (40%), as shown in Table 1.

Situation Analysis and Needs Assessment

The following topics emerged from reflecting on the problems and needs related to the care and management of emergency illnesses:

(1). *Insufficient knowledge.* Most informants reflected on the knowledge issues that influenced their decision to provide first aid. Based on the experiences of the informant group, when an emergency illness occurs among older people, they are initially unable to assist because they do not know how to help. This can affect the severity of the illness.

> Someone has fainted and falls … but we could not help. We did not know this injured to help him. So, I contacted the health officers. By that time, the officers were already there. Then I sent him to look after his condition, but we could not help him. (GD: CHV)

(2). *Difficulties in communication (call for help).* Another key finding related to communication and incident reporting. Most of the participants were unsure and did not have the confidence to make an emergency call when an illness occurred in the community, as exemplified by the following reflections:

> My brother-in-law has a congenital condition like a heart condition…He could not lift his whole limb or speak clearly, so we were not taken to the hospital. I thought it was not severe; I could wait, but I did not contact anyone. I waited for relatives to be sent to the hospital. … In the end, he was seriously ill and died. (GD: ECG)

> I was baffled and did not know how to tell them. I don't know how to start. … Back then, we had no idea. Nurses ask many

Table 1. The Personal Characteristics of the Participants, Classified by Gender, age, Role in the Community, and Affiliation ($n = 25$).

Personal characteristics	Frequency	Percentage
Sex		
Male	4	16.00
Female	21	84.00
Age (years)		
18–30	3	12.00
31–40	10	40.00
41–50	6	24.00
51–60	6	24.00
Role in the community		
Community health volunteers	7	28.00
Caregiver for elderly	4	16.00
Community leader	3	12.00
Health officials	7	28.00
Community member	4	16.00
Affiliation		
Subdistrict health promoting hospital	5	20.00
District public health office	2	8.00
Department of provincial administration	3	12.00
Subdistrict administrative organization	4	16.00
Community health volunteer foundation	7	28.00
No affiliation	4	16.00

questions. We were scared and told him not to ask too many questions. (GD: CHV)

(3). *Mindfulness and self-confidence.* The participants reflected on the issue of emergency assistance, relating it to mindfulness. They indicated that the reason for not being able to help or make decisions is a lack of mindfulness when encountering an event. In addition, trust is an essential factor that enables a person to decide whether or not to ask for help and to ensure the most appropriate treatment.

Many of you probably had this experience [facing emergency incident]. However, the most important thing everyone should have that is mindfulness. (GD: CLD)

Most of the time, we hesitate or procrastinate when an incident happens. We called to report the incident but did not know if someone had already called. (GD: CHV)

(4). *Unable to assess the initial symptoms (lack of assessment).* Most informants could not assess the initial symptoms when an emergency occurred, especially in cases of MI and stroke symptoms like overexertion and decreased consciousness. The informants understood chest pain as "faint," which is a critical condition requiring first aid. Attempting to relieve this symptom with the use of inhalers or essential oils and massages is inadequate, leading to delayed treatment and increasing the risk of mortality.

Many people have encountered patients who thought they [older people] had fainted [dizziness], but in fact, they had not fainted and were paralyzed … I experienced a real situation where a person close to me, my uncle, had symptoms but could not assess them. (GD: CHV)

(5). *Need for skills development.* A lack of knowledge, confidence, and competence to provide essential help and communicate effectively to request help quickly was problematic for most informants. They reflected on the need to develop knowledge and skills to have confidence in providing primary care and making decisions when assessing symptoms and asking for help, as evident in the following reflections:

We have never received any training, so we do not know how to help. I had the experience of my friend's mother falling in the bathroom. We did not dare to help, we did not dare to move, we just waited for the ambulance. (GD: ECG)

I had training in cardiopulmonary resuscitation while volunteering in a village, but it was long time ago. I have forgotten it. (GD: CHV)

In conclusion, most informants reflected problems related to a lack of knowledge during the initial assessment of abnormal patient symptoms. Such knowledge inadequacy makes it difficult to decide on basic treatment steps. This includes being unsure about asking for help or reporting an emergency and needing help communicating details related to the illness when encountering an emergency illness.

Step 3: Establishment of Goals and Objectives

The ESBTC goals follow the American Heart Association's aims to support BLS knowledge and skills to enhance the possibility caregivers for elderly of assisting with emergency illnesses in public areas. Moreover, ensuring good communication while calling the emergency dispatch is a priority in the curriculum.

Step 4: Educational Strategies

General Information. The majority of the participants were female (75%). Fifty percent were registered nurses, followed by medical physicians and public health technical officers. Most were involved in the curriculum development work for community hospitals (56.25%), followed by the Subdistrict Health Promoting Hospital (Table 2).

Curriculum Development. The ESBTC was developed based on the framework of Bloom's learning theory, which promotes learning through scenarios based on the context and lifestyle of people in the community. Along with developing knowledge, confidence, and skills, the curriculum focused on the actual practice of each skill, integrating activities and situations to increase the level of competence required to

Table 2. The Characteristics of the Step 4 Participants, Classified by Gender, Occupation, and Affiliation ($n = 16$).

General information	Frequency	Percentage
Sex		
Male	4	25.00
Female	12	75.00
Occupation		
lecturer	1	6.25
Registered nurse	8	50.00
Medical physician	3	18.75
Public health technical officer	1	6.25
Public health officer	3	18.75
Affiliation		
Ministry of higher education research and innovation	1	6.25
District hospital	9	56.25
Provincial hospital	1	6.25
Regional hospital	1	6.25
District Public Health	1	6.25
Subdistrict Health Promoting Hospital	3	18.75

support the emergency system. For example, this involved assessing symptoms in simulated situations, calling for help, and providing essential support before the health care team arrives to assist. This course focused on skill development and continued follow-up to enhance necessary skills, such as BLS, using automated external defibrillator (AED), calling to report an incident, symptom assessment, and first aid, as shown in Figure 1.

The ESBTC was divided into four hours of theoretical knowledge, four hours of practical training, eight hours of skills review, and eight hours of practice linked to the community guidelines of the emergency system. The learning process was divided into three eight-hour periods, with follow-up and practice. The second period was separated from the first training by one month and the third by an additional month.

Step 5: Program Implementation

Pilot Curriculum. Forty participants were recruited for the pilot curriculum stage. Most of the participants were female (90%), aged between 46 and 50 years. Over sixty percent had no experience helping emergency patients in the community. All participants received the eight-hour training program, which was divided into knowledge development related to stroke, MI, and first aid. The last part was skills development related to emergency assistance, calling for help, first aid, and CPR training. In the skills development session, the participants were separated into four training groups: (1) stroke signs and symptoms, (2) MI signs and symptoms, (3) first aid action, and (4) BLS. The training integrated the realistic emergency scenarios to facilitate the participants' learning in relation to action, active learning activities, and teamwork.

Figure 1. The Model of Emergency Scenario-Based Training Curriculum.

Step 6: Evaluations and Feedback

The Suggestions Based on the Pilot Curriculum. The pilot results of the ESBTC resulted in several suggestions for improving the curriculum:

1. The simulations should be adapted to the local context or community, such as the lifestyle of older people joining the temple, incidents occurring during a community meeting, and catching up with neighbors.
2. The topic of first aid/first aid guidelines should be added, as MI and stroke can lead to falls and injuries. Hence, proper first aid is necessary, including positioning and moving patients, stopping bleeding, and restricting movement with splints.

Revised Scenarios and Curriculum

1. Adapting two additional scenarios based on the context and lifestyle of the elderly in the community, with the required competencies integrated into one scenario to allow trainees to practice comprehensively, including Scenario 4, an incident in the temple (responding to an older person in cardiac arrest in the temple), and Scenario 5, an incident occurring in a community meeting.
2. Adjustments should be made to the activities and operations in Situation 1 in relation to first aid, positioning, and movement, stopping bleeding, and restricting movement with splints as well as proper communication guidelines for requesting help.
3. Increased interventions using an automated external defibrillator (AED) should be added.

Fourteen informants volunteered to participate in the focus group to provide feedback on the ESBTC curriculum. The informants' reflections revealed several issues related to the training continuity, courses, and competencies needed to support the elderly emergency system for community caregivers:

(1). *Benefits and value.* Most informants highlighted the benefits of attending training to develop skills related to the resuscitation of older people. This would enable caregivers of older individuals to care for and help people in the community in the event of an emergency illness. Based on many reflections, developing one's potential is crucial, as it impacts communities and local areas. Specifically, those who have completed the training can use their potential to provide care and help when illnesses occur in nearby areas in relation to various issues, such as symptom assessment, and requesting help.

> It is a beneficial project. As public health officials, we are not directly responsible for CPR work. Although we receive

> annual training, we still feel inexperienced…when I came to this project. We feel that we should be able to help others in society. We feel that our lives are worth more. (FG2: PHO)

> Well, it is a good project … I remember if someone in the house or the village [emergency illness], I think it could help a little, or at least 1669 [emergency dispatcher … but now we think we can help. (FG1: CMB)

(2). *Competence enhancements.* The reflections from the informants who received competence development training based on the ESBTC revealed that their ability to manage, care for, and help older people in emergencies had improved in many areas, after the training. They highlighted a need for accurate practice skills. In addition, knowledge of MI and stroke is essential for saving lives in the event of emergency illnesses, and the participants indicated that the training improved their understanding of the sequence of steps to take in providing aid. The informants also reported a significant increase in competencies, specifically skills related to using an AED in actual practice. They emphasized that this is crucial and increases the chances of survival for individuals suffering from ischemic heart disease.

> This training has given me knowledge in many areas, including cardiopulmonary resuscitation and dealing with patients who have had an accident…Then, we can assess the situation and decide what to do first. What is the order of the first steps? like let us call the hospital, do we run to get AED. (FG2: CHV)

> The first step is to gain knowledge because we have no basic knowledge. It is like adding knowledge. That is, it is essential. We can recognize how to proceed to help him in a way that is safe for him as well as for us. (FG2: CHV)

(3). *Upstreaming confidence.* The participants indicated that after completing skills training in the ESBTC, they were more confident in assessing the severity of ischemic heart disease and stroke. Such confidence is vital for providing essential aid to patients, such as assessing symptoms, calling for help, performing chest compressions, and using AED. Many participants had experience providing emergency assistance to loved ones before the training, emphasizing the uncertainties when providing aid and the need for help in following the steps for reporting incidents and providing essential assistance.

> Before, we had no confidence in CPR at all. How much pressure should we put … this training gave us a lot … it was a good training. (FG1: CHV)

> The training … gives us more confidence to help others. We are confident that we can rush in and help if something happens. Unlike before, it was, 'Hey, should we go in, and do something like this? Now that we know, we are confident that we can intervene. (FG1: ECG)

(4). *Sustainable development.* The informant group considered and made recommendations regarding skills recovery and ongoing follow-up. To ensure sustainability and broad impact, most informants recognized the need to refresh skills and knowledge regularly once a month, presuming the availability of human resources, time, and budget. This has a positive impact on performance and is important since emergency incidents can occur at any time.

> There should be continuous monitoring [emergency assistance skills] … once a month or to train new people so they can pass on their knowledge to people in the community who are likely to benefit. (FG2: CHV)

> I think that the community training should be done once a month if possible. Because if it took longer, it would probably be forgotten. However, if we can find training for the new generation, thatwould be good. (FG2: ECG)

(5). *Challenges in curriculum development.* In terms of barriers that could affect learning, it was noted that the relatively large number of members in the training group could lead to incomplete practice. Therefore, it might be necessary to consider dividing the groups into smaller one, helping to ensure complete and adequate learning for all trainees.

In addition, selecting a suitable setting for the simulated scenario was a constraint that most informants highlighted. Training activities based on a realistic simulation. As a result, there were noise-related activities in each situation, which could cause interference between groups. Setting up a separate room so that the groups do not disturb each other would positively affect the participants' learning.

Another aspect that was considered was the allocation of time. It is crucial to consider the occupational context of most individuals in certain areas, such as the south of Thailand, where most people work in rubber agriculture. Therefore, it is crucial to schedule activities suitable for the specific context of the area residents context, as noted in the following feedback:

> When conducting community training, there may be many participants, which could limit the thoroughness of practice time. However, by incorporating a speaker or dividing participants into smaller groups, individuals will be more focused

> and dedicated to their practice. It will ensure that every position is properly executed. (FG2: CHV)

> Due to the predominant occupation in the area, most individuals work in the rubber agriculture. However, organizing activities in the afternoon would be suitable… (FG1: CMB)

(6). *Effective strategies.* The participants recognized that the main focus of the training program is on practical skills. They reflected on the effective strategies in the curriculum to enhance knowledge, confidence, and skills. For the participants, emphasizing realistic scenarios is the most effective strategy. An AED was a focal point in the informants' reflections on the advantages and learning derived from practical experiences:

> The highlight of this project is the hands-on experience. Unlike past teachings that involved sitting and watching, we actively practiced calling 1669 [emergency dispatcher], reporting a case, and providing location details this time. Similarly, using an AED was a practical application rarely encountered in my sanitation work. (FG1: ECG)

> Actually, I did not grasp the purpose of the training, expecting to sit through it sleepily. However, the actual engagement in activities turned out to be enjoyable…I am grateful to be part of this experience. (FG2: CMB)

Discussion

Following the research question regarding what are the components of and feedback on the scenario-based emergency training curriculum (ESBTC) for caregivers of the elderly, the research results indicate that the components of the ESBTC align with the international standards of the American Heart Association for First Aid in focusing on Basic Life Support and AED use. It is significant to follow the criteria and standard for the training program to ensure for the positive outcome of the curriculum development (Cheng et al., 2015). The other essential dimension of curriculum development in this study is that learning theory guided the development of strategies aimed at enhancing the knowledge, self-confidence, and relevant skills that facilitate emergency assistance for elderly people. This framework is a crucial component in mapping the structure of the curriculum. However, previous studies have varied in their use of theory and frameworks in training program development (e.g., Bandura's theory, the United Nations Development Program, or experiential learning theory (Janpilom & Tangkawanich, 2018; Limhoklai et al., 2015; Worapanwisit et al., 2023). Multiple repeated training and group activities were included in the curriculum to enhance competency in the long term. This aligns with a recent study that confirmed that training programs require multiple repetitions and reskilling to provide adequate practice (Anderson et al., 2019).

The result of the needs assessment step revealed that most of informants felt a need for knowledge, confidence, and the ability to assess symptoms during emergencies involving elderly patients. This is in line with a recent study indicating a need for more knowledge in the remote community regarding symptom assessment (Oslislo et al., 2021). Most caregivers are likely to have insufficient knowledge of symptoms, which can lead to inappropriate first aid practices, such as ineffective treatments. This can result in delayed or inadequate care for patients with symptoms of MI or stroke (Butdee et al., 2023; Nemeth et al., 2016). Therefore, caregivers for the elderly require support so that they can accurately assess the severity and provide timely assistance for elderly to reduce the risk of mortality in this vulnerable group. This study uncovered another problematic issue: a lack of self-confidence and mindfulness among caregivers when helping the elderly confront an emergency illness. This deficiency directly impacts their ability to make effective decisions when providing assistance during critical health crises. A recent study confirmed that self-confidence in CPR is the primary factor in enhancing the quality of emergency assistance (Ko et al., 2023). These findings align with those of other studies that found that self-confidence can be a barrier to performing CPR (Daud et al., 2023; Shams et al., 2016). Therefore, it is crucial to enhance self-confidence by means of an effective strategy for people in the community. Moreover, the significant findings relevant to this challenge highlight the need to manage emergency illnesses in rural residents. There have been instances of communication difficulties in which a participant needed help with communication patterns and details to make emergency calls. It can be a challenge for people in rural communities to confidently make a call to report emergency incidents to a professional dispatcher. In this regard, a recent study confirmed several factors that influence communication during an emergency call, such as directive language and the caller's emotions (Richards et al., 2022). These factors could lead to delays in emergency assistance, such as the delivery of DA-CPR instruction (Chien et al., 2019). In order to eliminate barriers to emergency calls, training programs should focus on strategies for improving calls in this group.

The findings in step 2 indicate that a specific curriculum is needed to address the targeted community's needs and challenges in developing the potential of individuals to support the emergency. This curriculum should be based on knowledge tailored to the community context, involving stakeholders from the community and local agencies to systematically enhance emergency care standards (Anthony, 2011). Consequently, the needs assessment led to the development of a comprehensive curriculum focusing on life-threatening conditions affecting the elderly. The curriculum was

developed through a methodical process based on a theoretical framework to address knowledge, confidence, and competency gaps related to monitoring these conditions.

Previous research has predominantly focused on officials or volunteers responding to emergencies, with limited emphasis on curriculum development or training tailored to community contexts (Xu et al., 2015). However, it is crucial to recognize the importance of preparing communities for emergencies. The curriculum is focused on building practitioners' confidence in resuscitation and instilling the necessary attitudes and skills through a concrete volunteer training support system (Dobbie et al., 2018; Ning et al., 2021; Shams et al., 2016; Shi et al., 2018). Traditional training approaches often lack continuous tracking, potentially impacting the retention of necessary knowledge and skills for resuscitation. Moreover, a notable finding of this study is the prevalent fear and uncertainty regarding resuscitation using chest compressions, which hinders caregivers' willingness to perform CPR (Breckwoldt et al., 2016; Pei-Chuan Huang et al., 2019; Schmid et al., 2016). Additionally, there are challenges related to using AEDs in Thailand due to low coverage and distribution, unlike developed areas, highlighting the need for comprehensive training to improve AED use in cardiac arrest situations (Berger, 2020; Kiyohara et al., 2019; Murakami et al., 2014; Nakashima et al., 2019).

The issues identified above prompted the development of a curriculum tailored to ensure effective learning, focusing on knowledge, confidence, and practical skills. When considering educational strategies, the curriculum development emerged from a collaborative process that involved exploring spatial problems and needs, engaging health officials and community stakeholders, and aligning with learning theories. The resulting curriculum emphasizes practical skills through realistic simulations to stimulate continuous learning and alertness in practice. Notably, the curriculum addresses the shortcomings of traditional one-time training methods and aligns with previous studies showing that practicing and reviewing skills increase the efficiency of resuscitation (Abelairas-Gómez et al., 2021; Anderson et al., 2019; Gonzï Lez-Salvado et al., 2019; Oermann et al., 2020). Furthermore, it is essential to prioritize the monitoring and evaluation of CPR skills (Cross et al., 2019), while also emphasizing the widespread placement of AEDs in key public locations as a critical implementation measure (Smith et al., 2017).

This study's findings also revealed participants' effective strategies to emphasize realistic scenarios to improve their emergency assistance competencies. This is similar to a recent study that conducted scenario training and short theoretical inputs, resulting in skill improvement (Häske et al., 2022). The realistic scenario blended cultural, traditional, and everyday life contexts, which are critical to the success of the curriculum component. Moreover, a similar study indicated that the training module should be practical, with social, cultural, and real-life conditions integrated into the training scenario (Hites et al., 2012). The present study was conducted via face-to-face traditional training in a realistic environment when running scenarios. The literature also contains some recent studies that have integrated online and virtual CPR training for remote communities. Although the CPR quality results did not differ between online and face-to-face training, and although online training required more days to improve competency, they nevertheless recommended online training as their first choice (Chong et al., 2023; Lin et al., 2021). However, online CPR training might be limited by the internet connection and technology support in rural communities; moreover, most participants prefer traditional face-to-face training (Jaskiewicz & Timler, 2023). Therefore, an effective strategy to improve training quality calls for an assessment of the community context. Then, based on the specific context, such resources and support that are relevant to emergency systems can be gathered to foster successful development.

The critical success of curriculum development hinges not solely on the improvement of the target goal competency regarding knowledge, self-confidence, and skills in emergency assistance but also on the sustainability of those skills, which require updating and development (Anderson et al., 2019). Therefore, emergency assistant competencies, particularly self-confidence and skills, need continuous training to ensure adherence to standards in emergency illness response (Riggs et al., 2019). In addition, the relevant government agencies should pay attention to the public in BLS and AED training (Delhomme et al., 2019), and they should adopt policy-driven approaches to initiate and support relevant projects for emergency systems in rural communities.

The critical components of curriculum development outlined above are essential for analyzing and synthesizing the community context and the target group's perspectives on the strengths, limitations, supports, and resources associated with providing a suitable program. The stakeholder-relevant emergency care system is a crucial component of a participatory approach to developing a curriculum that underpins an appropriate theoretical framework to ensure the expected positive outcome.

Strength and Limitation

The study's strengths include realistic scenarios in the rural Thai community as part of the curriculum development. It leads to the curricula being unique and appropriate for local training. However, some issues could be improved in this research study. Firstly, the curricula evaluation needs to be conducted in the long-term outcomes of the caregiver. Lastly, the study requires an evaluation of the satisfaction and feedback of nurses who utilize and follow the curriculum instructions in community training.

Implications for Practice

The results of the curriculum implementation show that the caregivers' emergency competencies improved. However,

the sustainability of these competencies is also crucial to ensure excellent care for older people in rural areas, who often have difficulty accessing health care services. Nurses play a crucial role in implementing the curriculum and training program. Thus, nurses should follow the curriculum guidelines and adjust the scenarios to adapt to specific community contexts, fostering their emergency assistance competencies in the targeted communities. In addition, AED accessibility must be implemented through policy-driven initiatives of the Thai government to expand AED capacity in public areas throughout the country. Further research could examine the effects of training programs focusing on effective communication in emergency calls. The study of integrating new technologies, such as virtual reality, to enhance the quality CPR also needs to be trialed.

Conclusion

The ESBTC combines community-based and realistic scenarios, consistent with Bloom's learning theory, involving the participation of community stakeholders. It is crucial to gather community feedback and needs assessments to formulate potential strategies as part of the curriculum. Scenarios based on realistic rural lifestyles and cultural contexts were integrated into the training program, thereby enhancing the knowledge, self-confidence, and competencies relevant for caregivers for the elderly when providing emergency assistance.

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Author Contributions

PP, TS, JS and PS conceived and designed the study. PP and TS contributed the literature review. PP, TS, JS and NC collected the data. PP contributed research instrument. PP performed data analysis. PP wrote the paper as drafted the manuscript, reference check and final proved. The final version of manuscript was approved by all authors.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Considerations

This research was approved by the Human Research Ethics Committee of Suratthani Rajabhat University (SRU-EC 2021/055). The participants were informed of their rights to decide whether or not to participate in the research before signing the consent form and to withdraw from the research at any time without any negative consequences. All participant data were confidential and could not be identified individually. All data stored by the researcher in the locked cabinet at the Faculty of Nursing, Suratthani Rajabhat University and will be destroyed five years after data collection.

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