Evaluation of learning methods in acute myocardial infarction: an integrative review

Evaluación de métodos de aprendizaje en infarto agudo de miocardio: una revisión integradora

Avaliação de métodos de aprendizagem no infarto agudo do miocárdio: uma revisão integrativa

Julia Veiga Copertino Niro[1]
ORCID: 0000-0002-7489-4970
Nathalia Malaman Galhardi[2]
ORCID: 0000-0002-2064-4036
Anderson Neri Guido[1]
ORCID: 0000-0003-4541-2378
Rafaela Batista dos Santos Pedrosa[2]
ORCID: 0000-0003-2918-9778

[1]Hospital Municipal Dr. Mário Gatti. São Paulo, Brazil.
[2]Hospital de Clínicas da Universidade Estadual de Campinas. São Paulo, Brazil.

Corresponding author:
Julia Veiga Copertino Niro
E-mail: julia-niro@hotmail.com

Abstract

The aim was to analyze aspects related to realistic simulation training for nursing students and nurses, characterizing its advantages and disadvantages when compared to other teaching methods in caring for victims of infarction. It was an integrative literature review, including 14 articles. For the elaboration, some steps were followed: elaboration of the guiding question; definition of the search strategy; selection of studies; evaluation of selected studies; analysis and synthesis of included studies; review presentation. The realistic simulation method showed more satisfactory results when compared to other teaching methods, observing the development of skills such as clinical reasoning, decision-making ability, recognition of patient deterioration and self-reflection. The application of training prior to contact with the patient can benefit the assistance and it is expected that the results favor the use of evidence to influence the development of strategies that contribute to clinical practice.

Descriptors: Nursing Education; Realistic Simulation Training; Myocardial Infarction; Health Education; Nursing.

Resumén

El objetivo fue analizar los aspectos relacionados con el entrenamiento de simulación realista para estudiantes de enfermería y enfermeros, caracterizando sus ventajas y desventajas cuando se compara con otros métodos de enseñanza en el cuidado de víctimas de infarto. Fue una revisión integradora de la literatura, que incluyó 14 artículos. Para la elaboración se siguieron algunos pasos: elaboración de la pregunta guía; definición de la estrategia de búsqueda; selección de estudios; evaluación de estudios seleccionados; análisis y síntesis de los estudios incluidos; revisión de presentación. El método de simulación realista mostró resultados más satisfactorios en comparación con otros métodos de enseñanza, observando el desarrollo de habilidades como el razonamiento clínico, la capacidad de toma de decisiones, el reconocimiento del deterioro del paciente y la autorreflexión. La aplicación de entrenamiento previo al contacto con el paciente puede beneficiar la asistencia y se espera que los resultados favorezcan el uso de la evidencia para influir en el desarrollo de estrategias que contribuyan a la práctica clínica.

Descriptores: Enseñanza de Enfermería; Entrenamiento con Simulación Realista; Infarto de Miocardio. Educación para la Salud; Enfermería.

Resumo

Objetivou-se analisar os aspectos relacionados ao treinamento por simulação realística para acadêmicos de enfermagem e enfermeiros, caracterizando suas vantagens e desvantagens quando comparado a outros métodos de ensino no atendimento a vítimas de infarto. Tratou-se de uma revisão integrativa de literatura, incluindo-se 14 artigos. Para a elaboração seguiram-se algumas etapas: elaboração da questão norteadora; definição da estratégia de busca; seleção dos estudos; avaliação dos estudos selecionados; análise e síntese dos estudos incluídos; apresentação da revisão. O método de simulação realística apresentou resultados mais satisfatórios comparando-o aos outros métodos de ensino, observando-se o desenvolvimento de habilidades como raciocínio clínico, capacidade de tomada de decisão, reconhecimento de deterioração de paciente e autorreflexão. A aplicação de um treinamento prévio ao contato com o paciente pode beneficiar a assistência e espera-se que os resultados favoreçam a utilização de evidências para influenciar o desenvolvimento de estratégias contribuintes à prática clínica.

Descritores: Educação em Enfermagem; Treinamento com Simulação Realística; Infarto do Miocárdio; Educação em Saúde; Enfermagem.

Introduction

Cardiovascular disease are responsible for approximately a third of all deaths in the world, of which 7.5 million estimated deaths are caused by ischemic heart disease. By 2020, 817.8 million deaths were attributed to cardiovascular disease globally, which represented an increase of 21.1% compared to 2007. Most deaths from acute myocardial infarction (AMI) occur in the first hours of manifestation of the disease, 40 to 65% in the first hour and approximately 80% in the first 24 hours[1-3].

In 2018 the fourth universal definition of AMI was established, being understood by myocardial cell ischemia due to the formation of a clot, responsible for interruption of blood flow. The clot can arise for several causes, but especially by the formation of an atherosclerotic plate, and may cause a partial or total obstruction of the coronary arteries that irrigate myocardium. Thus, acute myocardial lesion detected by abnormal heart biomarkers is present. The cells in the area affected by the clot are without oxygenation, leading from minutes to hours to develop the injury that can evolve ischemia[4,5].

It is important to note that 50% of the reductions observed in the coronary disease mortality rate are related to changes in risk factors and 40%, to improved treatments. The main treatment for AMI is myocardial reperfusion therapy. However, to obtain the benefit of treatment, early recognition of infarction through the electrocardiogram of 12 derivations and an effective direction of these patients is necessary[3,6].

Identification of the AMI-victim patient and its direction begins in prehospital care or the health service emergency room and often the professional nurse makes the first care, and should be able to make an assertive decision. Because it is an urgent situation, the professional must have knowledge and skills to direct a quick and effective decision making in order to ensure the best possible outcome in the case[7,8].

According to national guidelines, for the care of a victim with chest pain, suspected of acute myocardial infarction, one should first have a detailed anamnesis, which, together with physical examination and risk factors, will help the correct referral for the elaboration of diagnostic hypotheses and then proper management of the clinical case[3,6,8].

The nurse is responsible for the risk classification in the screening room, so in the face of complex situations it is required that the professional has some requirements such as: clinical reasoning, critical reasoning, security in decision making and problem solving. The correct direction of the patient has directly impacting morbidity and mortality, as well as minimizing unnecessary procedures and costs and an unfavorable clinical evolution[8-10].

For a safe decision and effective care for the patient, the nurse must be qualified and trained for the requirements' development. The method used for this type of training may vary, occurring at various times in the professional's life, from its initial training as in postgraduate courses or practical experience in service. One of the methods capable of training for skills such as clinical reasoning, critical reasoning, decision making and problem solving is believed to be through realistic simulation training; This technique is able to expand the student/professional's view for everyday situations in practice[10].

Realistic simulation consists of a learning method that encompasses low, medium and high complexity technologies, allowing practical experience through clinical cases and reflective post training. This technique allows the development of decision making, critical and reflective thinking. Studies show that the use of experimental learning methods, such as scenarios with actors and/or mannequins and simulation programs, can provide students with critical thinking training opportunities, as well as psychomotor skills[11-13].

Evidence demonstrates that realistic simulation training has become an important learning strategy in nursing teaching, as it offers the opportunity to often experience acute clinical situations without risk to the patient or student[10].

By addressing the care of AMI -victim patients, this strategy can be considered effective for improving the skills that make the care of these victims more efficient and safe because it is a method closer to the reality of practice. Moreover, it improves the learning results of nursing students, in the requirements of satisfaction, self - confidence and self -efficacy, as well as knowledge and performance[11,14].

Given the above, in the face of a complex situation that is the arrival of an AMI patient, it is believed that training through the realistic simulation method is best suited to enable the nurse in this situation, as it offers the professional/student more safety, agility and better effectiveness in decision making.

Thus, assessing the importance of implementing protocols that assist in the rapid and effective decision-making of urgent situations and considering qualitative care to the patient victim of AMI to promote better prognosis and survival, the present study if it does necessary.

This study had as a research question: What are the scientific evidence available on the best learning results in teaching the care of acute myocardial infarction with realistic simulation versus other teaching methodologies for students/nursing professionals?

Also, it aimed to conduct an integrative literature review to analyze the realistic simulation method compared to other teaching methods in learning, skill development and performance for the care of the AMI victim, in undergraduate nursing and nurses students.

Methodology

This study was an integrative literature review. This is a method that brings together and summarizes research results on a delimited subject, systematically and ordered, deepening the knowledge of the investigated theme and allowing the incorporation of evidence in clinical practice[15].

For the preparation of the review, some steps were followed: (1) preparation of the guiding question; (2) definition of search strategy; (3) selection of studies; (4)

evaluation of selected studies; (5) analysis and synthesis of the included studies; (6) presentation of the review.

The guiding question of this review was elaborated based on the peak strategy (acronym for Patient, Intervention, Context) in which the letter "P" corresponds to the study population, the letter "I", to the phenomenon of interest, "Co", to context of comparison or control. This strategy is a proposal that helps in the elaboration of the clinical question and the identification of descriptors used in the location of the studies[15,16]. Based on this strategy, the structure was: P - undergraduate nursing and nurses; I - teaching with realistic simulation in the care of AMI; CO - Other teaching modalities.

The search for studies was thorough, objective and comprehensive, including several databases. The searches were done by two research nurses, and both used the same strategy.

The databases used were: PubMed, Virtual Health Library (BVS), Embase, Web of Science and Cumulative Index to Nursing and Allied Health Literature (CINAHL).

To access the databases it was necessary to use standard descriptors who could describe, organize and provide access to the necessary information. The selected terms were chosen from the descriptors available in the Medical Subject Headings (Mesh) and Health Science Descriptors (DECs) and were related to the research question. They were divided between controlled descriptors (used for indexing articles in the databases) and unstructured (textual and synonymous words, spelling variations, acronyms and correlates). Subsequently, the terms were organized according to the boolean connectors (words that allow the descriptors to combine and inform the search system how to combine the research terms) "AND" and "OR" and applied to each database, according to Chart 1.

Chart 1. Description of search strategies in the databases. Campinas, SP, Brazil, 2021

PubMed	
MeSH terms	#1 ((Nursing Education) OR (Students, Nursing)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
	#2 ((Inservice Training) OR (Professional Training)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
	#3 ((Simulation training) OR (High Fidelity Simulation Training) OR (Patient Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
dnc	#4 ((Education nursing) OR (Realistic Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
BVS	
MeSH terms/DeCs	#1 ((Nursing Education) OR (Students, Nursing)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
	#2 ((Inservice Training) OR (Professional Training)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
	#3 ((Simulation training) OR (High Fidelity Simulation Training) OR (Patient Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
dnc	#4 ((Education nursing) OR (Realistic Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
EMBASE	
MeSH terms	#1 ((Nursing Education) OR (Students, Nursing)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
	#2 ((Inservice Training) OR (Professional Training)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
	#3 ((Simulation training) OR (High Fidelity Simulation Training) OR (Patient Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
dnc	#4 ((Education nursing) OR (Realistic Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
Web of Science	
MeSH terms	#1 ((Nursing Education) OR (Students, Nursing)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
	#2 ((Inservice Training) OR (Professional Training)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
	#3 ((Simulation training) OR (High Fidelity Simulation Training) OR (Patient Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
dnc	#4 ((Education nursing) OR (Realistic Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
CINAHL	
MeSH terms	#1 ((Nursing Education) OR (Students, Nursing)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
	#2 ((Inservice Training) OR (Professional Training)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
	#3 ((Simulation training) OR (High Fidelity Simulation Training) OR (Patient Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))
dnc	#4 ((Education nursing) OR (Realistic Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))

Note: *dnc = UNCONCLIGATED DESCRIPTORS.

The researchers used the same strategy for conducting the searches and the same eligibility criteria for the selection of studies. Cases where disagreement occurred between the two researchers were subjected to a third reviewer. Thus, the amount of localized studies was described in Chart 2, comparing the results before and after the application of filters available in each database, following the chronological order of 10 years. For all descriptors the

titles and summaries were read and the articles that appeared to present the eligibility criteria were selected.

Chart 2. Description of search strategies in the databases and localized studies. Campinas, SP, Brazil, 2021

Data base	Descriptors	Number of localized studies	Number of studies located after filter application	Number of selected studies
PubMed				
MeSH terms	#1 ((Nursing Education) OR (Students, Nursing)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	828	308	34
	#2 ((Inservice Training) OR (Professional Training)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	541	275	3
	#3 ((Simulation training) OR (High Fidelity Simulation Training) OR (Patient Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	274	176	13
dnc	#4 ((Education nursing) OR (Realistic Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	863	332	22
BVS				
MeSH terms/DeCs	#1 ((Nursing Education) OR (Students, Nursing)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	658	175	10
	#2 ((Inservice Training) OR (Professional Training)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	166	86	5
	#3 ((Simulation training) OR (High Fidelity Simulation Training) OR (Patient Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	310	319	28
dnc	#4 ((Education nursing) OR (Realistic Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	687	201	11
EMBASE				
MeSH terms	#1 ((Nursing Education) OR (Students, Nursing)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	1112	751	7
	#2 ((Inservice Training) OR (Professional Training)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	158	106	2
	#3 ((Simulation training) OR (High Fidelity Simulation Training) OR (Patient Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	712	645	10
dnc	#4 ((Education nursing) OR (Realistic Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	1145	772	9
Web of Science				
MeSH terms	#1 ((Nursing Education) OR (Students, Nursing)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	353	783	6
	#2 ((Inservice Training) OR (Professional Training)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	194	159	4
	#3 ((Simulation training) OR (High Fidelity Simulation Training) OR (Patient Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	602	448	4
dnc	#4 ((Education nursing) OR (Realistic Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	397	794	5
CINAHL				
MeSH terms	#1 ((Nursing Education) OR (Students, Nursing)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	568	121	6
	#2 ((Inservice Training) OR (Professional Training)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	168	40	0
	#3 ((Simulation training) OR (High Fidelity Simulation Training) OR (Patient Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	301	99	7
dnc	#4 ((Education nursing) OR (Realistic Simulation)) AND ((Myocardial infarction) OR (Acute Coronary Syndrome))	503	88	4

After selection by the databases, the full reading articles were chosen, and then the articles for the preparation of the integrative review were selected.

The inclusion criteria used to select the set of eligible studies for final analysis were: (1) Studies that related teaching to patient care with acute myocardial infarction to nursing students or nurses. (2) Studies that compared teaching methods to patient care. (3) Studies had to preferably be quasi-experimental or experimental or random or random, including control groups, pretest and post test on teaching method for AMI patients. (4) The study had to provide information on the effects of teaching to care on nurses or nursing students. (5) The full text of the study

had to be available, preferably, in English, Portuguese or Spanish.

Studies that did not meet the research objectives were excluded.

The data were grouped and summarized in the form of figures, frames and descriptively in order to provide the reader a better understanding of primary studies and evidence presented. The detailed information of the search and inclusion of articles was described in Figure 1.

Figure 1. Flowchart of the selection of articles included in the study. Campinas, SP, Brazil, 2021
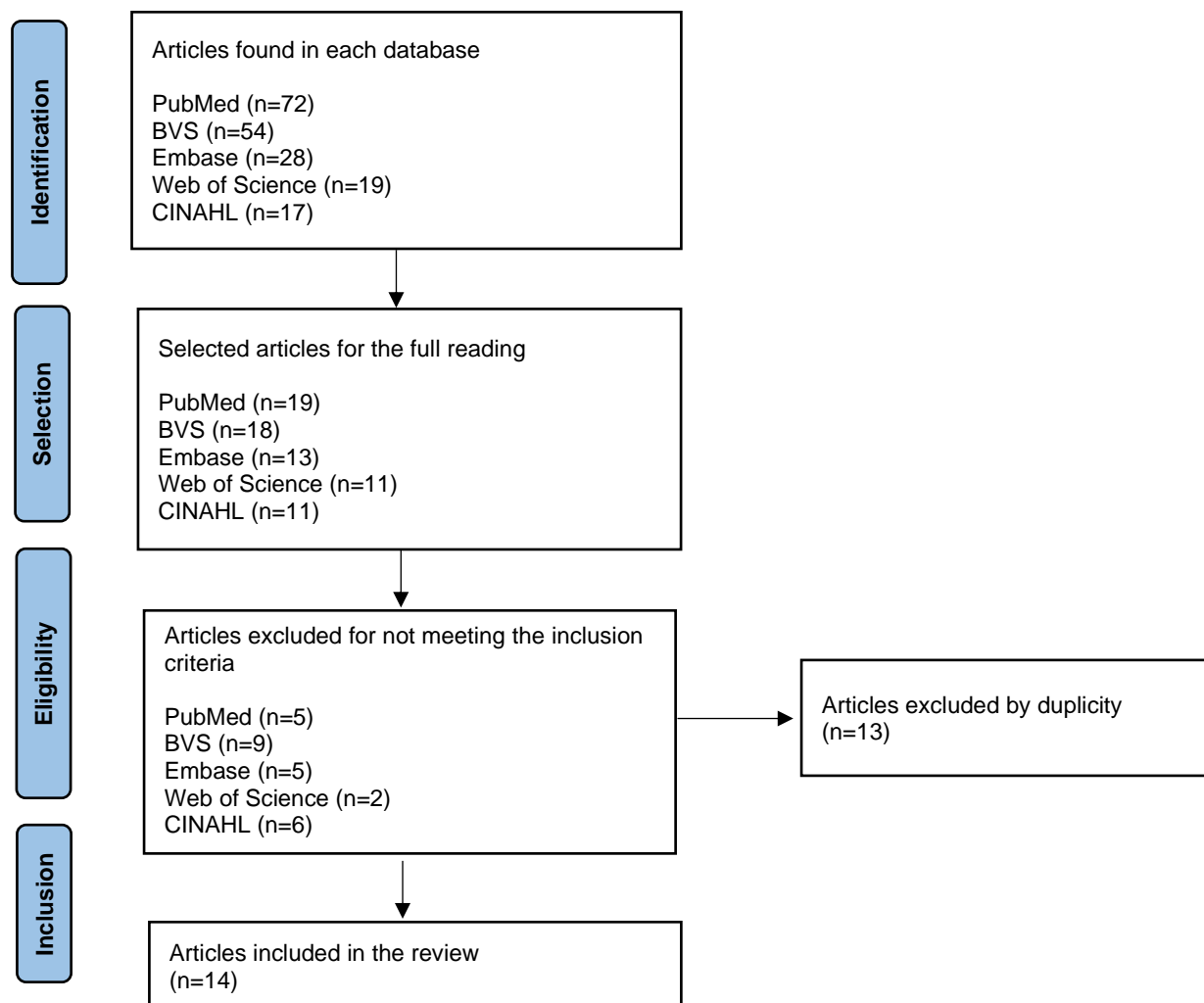
Results

After the search for the databases, the articles described in Figure 1 were selected, following the inclusion and exclusion criteria. By combining the descriptors in the five databases, 190 articles were found, 72 articles at PubMed, 54 at BVS, 28 on the Embase, 19 on the Web of Science and 17 at Cinahl. 27 articles were excluded because they did not meet the study criteria. The number of selected/recovered studies on the basis of the analysis was

72. Articles were excluded by duplicity and not to match the study population, totaling 58 full reading articles. Of these, 14 articles were included for the elaboration of the integrative literature review.

The articles selected and included in the review underwent a descriptive analysis according to authors, year and place of publication, objectives, type of study and main results, according to Chart 3.

Chart 3. Descriptive analysis of articles included in the review. Campinas, SP, Brazil, 2021

Title	Authors	Place and year of publication	Objective	Type of study	Results
High-fidelity mannequin simulation versus virtual simulation for recognition of critical events by student registered nurse anesthetists	Erlinger LR, Bartlett A, Perez A.	AANA Journal, 2019.	Compare the use of high-fidelity simulation based on dummy vs virtual simulation for intraoperative AMI recognition.	Observational	Students of the second year recognized faster intraoperative age by using high loyalty simulation with dummy regarding the use of virtual simulation. There was no significant difference between third year students.

Implementation of an acute coronary syndrome simulation training strategy for emergency healthcare professionals	Souza-Silva MVR, Passos PFO, Lemos TR, et al.	International Journal of Cardiovascular Sciences, 2019.	Describe a simulation training strategy for emergency health professionals.	Observational	Of the participants, 70% improved their results after the simulation; 95% reported feeling more security after the simulation. There was an impact on student knowledge and trust, as well as performance after training.
Managing deteriorating patients: registered nurses' performance in a simulated setting	Cooper S, McConnell-Henry T, Cant R, et al.	The Open Nursing Journal, 2011.	Examine, in a simulated environment, the capacity of rural nurses to evaluate and manage patients deterioration.	Exploratory quantitative	It was observed that the decline in performance may be related to high levels of anxiety in the face of urgent situations; Participants focused on classic signs and symptoms, failing to use a systematic approach. It was noted that the performance of the skill was inferior to the knowledge in 50%.
Mobile emergency simulation training for rural health providers	Martin D, Bekiaris B, Hansen G.	Rural and Remote Health, 2017.	Evaluate the satisfaction of workers of Canadian rural providers with high fidelity emergency simulation training.	Quasi-experimental	A high level of satisfaction was reported among participants regarding the simulation method, as well as development of decision-making skills, clinical reasoning, and rapid recognition of deteriorating patients.
Simulação in situ, uma metodologia de treinamento multidisciplinar para identificar oportunidades de melhoria na segurança do paciente em uma unidade de alto risco	Kaneko RMU, Couto TB, Coelho MM, et al.	Rev. bras. educ. med., abril-jun 2015.	Describe in situ simulation pilot experience in an emergency unit.	Experience report	The understanding of the simulation was not uniform, which showed little effectiveness in some cases, especially in the final minutes of training. There was guided reflection on teamwork.
Students' perceptions on an interprofessional ward round training – a qualitative pilot study	Nikendei C, Huhn D, Pittius G, et al.	GMS J Med Educ, 2016.	Analyze the opinions of students of the last year of nursing, physical therapy and medicine on a simulation - based training.	Qualitative	Participants agreed that simulation has a potential benefit for patients but expressed that simulation training was artificial and far from reality.
The effects of scenario-based communication training on nurses' communication competence and self-efficacy and myocardial infarction knowledge	Hsu LL, Huang YH, Hsieh SI.	Patient Education and Counseling, 2014.	Determine the effects of simulated communication training on competence, communication, self - efficacy, performance and knowledge about AMI.	Randomized clinical trial	The experimental group had better results in competence and communication of self-efficacy from pre to post-test and the control group had greater knowledge about AMI. Higher student performance was observed when they received instructions before the simulation.
The use of human patient simulators to enhance clinical decision-making of nursing students	Powell-Laney S, Keen C, Hall K.	Education for Health, 2012.	Assess whether simulation leads to greater clinical decision making capacity and higher performance compared to paper case study.	Quasi-experimental	There was greater performance in the group that participated in the simulation, managing to perform CPR 30sec faster than the case study group.
Effect of an integrated problem-based learning and simulation course for nursing students	Roh YS, Kim SS, Kim SH.	Nursing & Health Sciences, 2013.	Evaluate and compare student stress levels by undergraduate levels in nursing students in the second year.	Comparative study	Students' stress levels were rated as moderate at 2.75 on a scale of 5. Students reported favorable perceptions of learning in small groups.
Comparing the effect of simulated patient and lecture training methods in the clinical self-efficacy of nurses caring for patients with acute coronary syndrome	Khalifehzadeh A, Jahromi HRR, Jahromi MK.	Acta Medica Iranica, 2020.	Evaluate the effect of simulation and expository training methods on clinical nurses.	Quasi-experimental	There was a significant improvement in self-efficacy using the standardized patient method compared to the exposure method. The standardized patient method is effective for developing sustainable analytical, problem-solving, critical thinking, and learning skills.
Effect of education on a chest pain mnemonic on door-to-ECG time	Ballard N, Bairan A, Newberry L, et al.	Journal of Emergency Nursing, 2011.	Evaluate the effect of a mnemonic thoracic pain as a teaching tool for the rapid recognition of patients with AMI.	Quantitative, quasi-experimental, longitudinal	After 12 months of the intervention, there was a difference in the percentage of patients who received an ECG in the initial 10 minutes upon arrival at the emergency room.
Improvement of door-to-electrocardiogram time using the first-nurse role in the ED setting	Stanfield L.	Journal of Emergency Nursing, 2018.	Evaluate whether training and implementation of guidelines and improve the time-holder.	Literature review	There was a favorable improvement in door-to-ECG time after the intervention, compared to monthly averages.
Effectiveness of scenario-based education on the performance of the nurses in the critical cardiac care unit	Rahmani A, Mohammadi A, Moradi Y.	International Journal of Medical Research &	Study the effectiveness of scenario -based education.	Semi-empirical	The average performance of the nurses who participated in the intervention was higher than the record prior to the intervention.

for patients with acute coronary syndrome		Health Sciences, 2016.			
Interprofessional simulation training improves knowledge and teamwork in nursing and medical students during internal medicine clerkship	Tofil NM, Morris JL, Peterson DT, et al.	Journal of Hospital Medicine, 2014.	Evaluate self-efficacy, communication skills and understanding the role of each profession after simulation environments.	Quasi-experimental	Compared to the pretest and posttest groups, there was a higher score in the posttest of self-efficacy and knowledge for medical and nursing students. Both groups demonstrated greater confidence to "correct a colleague at the bedside" and "end patient care".

Seven different types of teaching method for patient care of acute myocardial infarction were identified, seven studies on realistic simulation, two on scenario-based education, and one for each of these: virtual simulation, in situ simulation, study of case in paper, implementation of mnemonics and implementation of guidelines.

Five studies were done only with students, five, only with professionals, and four with both categories, showing a balance in the training index for the population of this review.

Discussion

Most deaths from acute myocardial infarction occurs in the first hours of manifestation of the disease. Symptoms can often be confused with symptoms of other diseases, slowing early recognition. Facts such as these reinforce the importance of having a specific teaching for management of this disease, in order to bring better results for assistance and minimize the risks arising from the same[3,18].

The realistic simulation method was the main teaching method found in this research, and this has been an important integrated and experiential learning component for the education of health professionals in the last two decades. Several studies have been identified that apply this method as a form of training to students and professionals, using actors and/or mannequins[19].

In addition to this method, other teaching strategies were identified, such as virtual simulation, in situ simulation, scenario-based education, case study and mnemonic implementations and guidelines. The small amount of studies with different methods made it impossible to compare one by one, but it was observed that in general, there is a predominance of positive results in the post test phase, regardless of the strategy applied, showing the need for teaching and specific training for the subject.

Comparing the various types of interventions implemented -realistic simulation, virtual simulation, in situ simulation, scenario-based education, case study and mnemonic and guidelines implementations -it was observed that realistic simulation with actors and/or mannequins brought one most satisfactory result in most studies of this review. Realistic simulation allows for better performance of participants because it is a prior training to contact with the patient and close to reality, thus allowing chances of errors and hits without causing unnecessary damage[10,20-33].

Performing a general analysis of the results obtained in the research, it can be said that the realistic simulation method has been shown to be effective for the development of technical capacities such as knowledge and skills, as well as non-technical capacities such as communication, attitude and work in a team. It was observed the miscarriage of the theme, self-efficacy in disease management, team communication, knowledge on the subject, confidence for conduct, performance in conduct and critical thinking for problem solving[20,21].

A balance was observed in the training index for students and professionals, but no result difference was found between the categories. It is believed that the academic environment and the continuing education of health institutions favor the studies and improvement and the development of new strategies and technologies[20-33].

Realistic simulation is a learning method by experiences conducted through a computer-guided simulator. As study[22], the fidelity of simulations depends on how much they approach reality. A study, by Nikendei and collaborators[23], identified that training participants did not perform well in simulations that were distant from the reality found in clinical practice.

Insecurity before contact with the patient is also present. Studies have shown that students have high levels of stress and anxiety about urgent situations, which negatively implies decision making and skill performance and reasoning[24,26]. In the study of Copper and Collaborators[24], for example, there was a 50% result compromise due to participants' anxiety levels.

Another point observed was the development of trust and teamwork. A study with medical and nursing students showed greater performance in the bedside performance, in which the groups showed greater confidence for decision making and to correct colleagues when they identified an error. It was also observed an improved sense of work and team communication by both groups. The nurse plays an important role in the issue of leadership and teamwork. Effective training of the entire multiprofessional team will bring good results in the dynamics of the service, prioritizing patient safety[27,28,34].

A study by Neumann and collaborators[35] reinforces the importance of effective decision making, in order to emphasize that the best choice is that will bring security when providing patient care. Nurses deal with ethical, legal and technical issues inherent to the profession, generating the development of skills and abilities to deal with the reality that is submitted to them.

Applying training before direct contact with the patient can bring benefits to care. Three studies have brought a positive result regarding agility in attending the victim of acute myocardial infarction. Reduction of the ECG holder was observed, and the exam was performed in the first ten minutes of the service after the simulation[29,30].

Already in another study, there was a quick service when there was a simulated cardiorespiratory arrest compared to the conduct choices against a CPR in a case study on paper[31]. A study, compared to these three of the review, confirms that the rapid service, among the first 60 to 90 minutes, avoids damage and loss of myocardial muscle, and may be recovered[5]. If it exceeds this time, in addition to non-regeneration of the muscles, myocardium undergoes a process of healing and muscle fibrosis, impairing muscle elasticity and reducing blood pumping[5,36]. Studies have also shown a reduction in the ECG holder after the implementation of interventions that assist in early detection and proper AMI management[36,37], reinforcing the importance of applying training.

Low amount of evidence was observed on training in Brazil. This demonstrates a gap of this type of research in the country, which makes suggestive the improvement of the simulation technique in teaching to attend the acute myocardial infarction victim in order to bring good results and better prognosis.

As a limitation of the study, it was not possible to compare the different methods of teaching to patient care victims of acute myocardial infarction due to the low amount of studies found related to different training of realistic simulation.

Conclusion

This study found the existence of several training methods for patient care victims of acute myocardial infarction. Among them, the method of realistic simulation was highlighted, which was more effective for the development of skills such as clinical reasoning, communication and teamwork and agility in care.

It has been evaluated that the closer to reality the training, the more satisfactory results it will bring. It was also observed that the application of any training brings positive results, as it allows students and professionals to have more confidence and safety before having direct contact with the patient, minimizing the chances of errors caused by insecurity and unpreparedness.

The application of interventions for training for the care of AMI victim is extremely relevant to provide fast, safe, effective and quality assistance to patients in this clinical condition. Results are expected to favor the use of evidence to influence the development of strategies that will contribute to clinical practice.

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