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Impact of Structured Teaching Programs on Awareness of Myocardial Infarction Symptoms among Undergraduate Students

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ABSTRACT

Myocardial infarction (MI), commonly known as a heart attack, remains a leading cause of morbidity and mortality worldwide. Timely and accurate assessment of its symptoms is crucial in preventing complications and saving lives. This paper focuses on the role of nursing professionals in recognizing, evaluating, and responding to the clinical manifestations of MI. It outlines the various signs and symptoms such as chest pain, dyspnea, fatigue, nausea, and atypical presentations—especially among women and the elderly. The study highlights the importance of early detection through effective patient history-taking, physical examination, and use of standardized assessment tools. It also explores the integration of evidence-based nursing practices in both emergency and long-term care settings. Emphasis is placed on the need for continuous education and clinical training among nurses to improve patient outcomes. This research underscores the pivotal role that nurses play in the early identification, triage, and management of MI, ultimately contributing to enhanced cardiovascular care and patient survival.

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1. Introduction:

Myocardial infarction (MI), commonly known as a heart attack, is one of the leading causes of morbidity and mortality worldwide. Early recognition of the symptoms associated with MI is critical for initiating timely treatment, which can significantly reduce the risk of complications or death. Myocardial infarction manifests with a variety of symptoms, including chest pain, shortness of breath, nausea, and dizziness. Despite its prevalence and the well-established treatment protocols, many individuals—particularly young adults—fail to recognize these symptoms in a timely manner, which delays medical intervention. This highlights the need for effective educational programs aimed at improving awareness of these symptoms.

Undergraduate students, particularly those pursuing health-related courses, represent an important demographic for educational interventions. As future healthcare professionals, it is essential that they possess a thorough understanding of cardiovascular diseases, including myocardial infarction, as they will encounter patients experiencing these symptoms in clinical settings. Structured teaching programs (STPs), which are systematic, planned educational activities, can enhance the knowledge and awareness of MI symptoms. These programs can include lectures, interactive sessions, case studies, and practical demonstrations, all designed to facilitate learning and improve retention.

Awareness of myocardial infarction symptoms among undergraduate students is crucial not only for personal health management but also for their professional development. It is imperative that nursing students, in particular, develop the competence to identify the early signs of a heart attack. Nurses play a key role in patient care and are often the first healthcare providers to encounter patients with acute symptoms. Therefore, equipping nursing students with the knowledge to recognize MI symptoms early could have a profound impact on patient outcomes.

This study aims to assess the impact of a structured teaching program on the awareness of myocardial infarction symptoms among undergraduate nursing students. By evaluating the effectiveness of such a program, this research seeks to determine whether structured education can significantly increase students' understanding of the early warning signs of myocardial infarction. The results of this study could inform the development of curriculum components and training strategies to enhance health education in nursing programs, ultimately contributing to better preparedness among future healthcare professionals.

In the following sections, this paper will delve into the existing literature on educational interventions in health awareness, outline the methodology of the study, present findings, and provide recommendations for improving the education of future healthcare providers on cardiovascular emergencies.

Literature Review

Education plays a vital role in improving awareness of health issues, and structured teaching programs (STPs) have been recognized as an effective tool for enhancing students' knowledge in various areas of healthcare. The awareness of myocardial infarction (MI) symptoms is of particular importance, as it can significantly influence the outcome of patients by ensuring timely medical intervention. Several studies have explored the impact of educational interventions on the recognition of MI symptoms, particularly among healthcare students.

Singh and Gupta (2018) examined digital and multimedia-based structured teaching programs for improving MI awareness among undergraduates. Their findings showed that students using digital modules retained information better and recognized MI symptoms more accurately than those taught through traditional lectures. This indicates that multimedia and interactive methods can enhance both learning and retention in structured teaching programs.

Kumar et al. (2019) found that STPs significantly improved nursing students' understanding of MI symptoms such as chest pain, shortness of breath, and dizziness. Their research highlighted the need for ongoing cardiovascular education within the nursing curriculum.

Choudhury et al. (2020) studied the impact of an educational intervention on medical students' awareness of MI symptoms. They found a notable improvement in students' understanding after completing a structured teaching program. The study concluded that STPs bridged the gap between theory and practice, helping students confidently identify MI symptoms in clinical settings.

Thomas et al. (2021) stressed the importance of integrating cardiovascular disease education into medical curricula to improve early identification and response. These studies collectively affirm that STPs effectively increase awareness of MI symptoms, particularly among healthcare students.

Objectives of the Study

The primary objective of this study is to evaluate the effectiveness of a structured teaching program in enhancing the awareness of myocardial infarction (MI) symptoms among undergraduate students, particularly those in nursing programs. Given that early recognition of MI symptoms is crucial for timely medical intervention, this research seeks to determine whether structured educational interventions can significantly improve students' knowledge and understanding of the signs of a heart attack.

The specific objectives of this study are:

1. **To assess the baseline knowledge of undergraduate students regarding myocardial infarction symptoms** before undergoing the structured teaching program.

- This objective aims to gauge the initial level of awareness about MI symptoms, including chest pain, shortness of breath, sweating, dizziness, and nausea, among the students.

2. **To implement a structured teaching program designed to educate students about the symptoms of myocardial infarction.**
   - This includes the delivery of lectures, case studies, and demonstrations, which aim to provide students with comprehensive knowledge about the early warning signs of MI and the critical importance of early detection.
3. **To evaluate the effectiveness of the structured teaching program in improving students' awareness of myocardial infarction symptoms.**
   - This will be assessed through a post-test, comparing the knowledge levels before and after the intervention to identify any significant improvements in the students' ability to recognize the symptoms of MI.
4. **To determine the retention of knowledge over time.**
   - This objective will assess whether the improvements in awareness are sustained over a period, by conducting a follow-up test after a few weeks to gauge long-term knowledge retention.
5. **To identify gaps in students' knowledge and understanding of myocardial infarction symptoms.**
   - By analyzing pre-test and post-test results, this objective will help identify areas where students may still lack sufficient knowledge and where future educational efforts could be targeted.
6. **To explore students' confidence in recognizing myocardial infarction symptoms in real-life scenarios.**
   - This will be assessed through surveys or interviews, providing insight into whether the structured teaching program also enhances students' self-confidence in identifying and responding to MI symptoms in clinical or emergency settings.

The findings from these objectives will provide valuable insights into the effectiveness of structured teaching programs in improving health education among undergraduate students and may contribute to shaping future educational strategies in nursing and healthcare curricula.

Methodology

This study aims to evaluate the effectiveness of a structured teaching program (STP) in enhancing the awareness of myocardial infarction (MI) symptoms among undergraduate nursing students. A pre-test and post-test design was employed to assess the impact of the intervention on students' knowledge.

Study Design

The study follows a **quasi-experimental design** with a pre-test and post-test evaluation. This design allows for a comparison of students' knowledge of MI symptoms before and after the structured teaching program. The study is conducted in a single academic institution, with a focus on nursing students.

Sample Selection

The study's target population consists of **undergraduate nursing students** enrolled in the first or second year of their program. A total of **100 students** were selected through **convenience sampling**. Inclusion criteria for participation include:

- Enrollment in the undergraduate nursing program.
- Consent to participate in the study.

Students who were absent during the teaching sessions or who did not complete both the pre-test and post-test were excluded from the study.

Structured Teaching Program (Intervention)

The structured teaching program was developed to provide comprehensive information about myocardial infarction symptoms, including common signs like chest pain, shortness of breath, nausea, and other lesser-known symptoms. The program consisted of:

1. **Lecture Sessions**: A series of lectures on the physiological mechanisms of myocardial infarction, its symptoms, and the importance of early detection and intervention.
2. **Case Studies**: Interactive case studies that allowed students to apply their knowledge of MI symptoms in realistic clinical scenarios.
3. **Multimedia Presentations**: Videos and diagrams to visually demonstrate the typical and atypical symptoms of MI.
4. **Discussions and Q&A**: Opportunities for students to clarify doubts and engage in discussions about the significance of recognizing MI symptoms early.

The structured teaching program was delivered over the course of **three sessions**, each lasting approximately **90 minutes**. All sessions were conducted by qualified instructors with expertise in cardiology and nursing education.

Data Collection Tools

The following tools were used to collect data:

1. **Pre-Test**: A knowledge assessment questionnaire was administered to the students before the intervention. The questionnaire consisted of 20 multiple-choice questions (MCQs) designed to evaluate their baseline knowledge of myocardial infarction symptoms.

2. **Post-Test**: The same questionnaire was administered to the students immediately after the structured teaching program to evaluate any improvements in their knowledge.
3. **Follow-Up Test**: A follow-up test was conducted one month later to assess the retention of knowledge gained from the structured teaching program.

In addition to the pre-test and post-test, a **feedback survey** was administered to students at the end of the program to assess their perceptions of the teaching sessions and their confidence in recognizing MI symptoms in clinical practice.

Data Analysis

The data collected from the pre-test and post-test were analyzed using **descriptive statistics** (mean, standard deviation) and **paired t-tests** to compare the knowledge scores before and after the intervention. The follow-up test results were analyzed to assess knowledge retention. The feedback survey responses were analyzed qualitatively to gain insights into students' perceptions of the teaching program.

Ethical Considerations

The study was conducted following ethical guidelines, ensuring that participation was voluntary, and informed consent was obtained from all participants. Confidentiality of student information was maintained throughout the study, and students were assured that their responses would be used solely for research purposes. Ethical approval for the study was obtained from the institutional review board (IRB) of the respective academic institution.

Results

This section presents the findings of the study conducted to assess the impact of a structured teaching program on the awareness of myocardial infarction (MI) symptoms among undergraduate nursing students. The analysis compares the pre-test, post-test, and follow-up test results to evaluate improvements in students' knowledge of MI symptoms, as well as their retention of this knowledge over time.

Demographic Characteristics of Participants

A total of 100 undergraduate nursing students participated in the study. The participants included both male and female students from the first and second years of their nursing program. The age range of participants was between 18 and 22 years. The demographic characteristics of the participants are summarized in

Table 1.

Demographic Characteristic	Frequency (n)	Percentage (%)
Gender		
Male	30	30%
Female	70	70%
Year of Study		
First Year	60	60%
Second Year	40	40%

Pre-Test Results

The baseline knowledge of myocardial infarction symptoms was assessed using a pre-test administered to all participants before the structured teaching program. The average score on the pre-test was **45%**, indicating that many students had limited knowledge about the symptoms of MI. The distribution of pre-test scores is shown in **Figure 1**.

- The most commonly known symptoms were chest pain (80% of participants), while less familiar symptoms, such as nausea (32%) and dizziness (40%), were less recognized.
- Most students (70%) had limited or no knowledge about atypical MI symptoms such as shortness of breath and discomfort in areas other than the chest.

Post-Test Results

After the structured teaching program, the same questionnaire was administered to assess any improvements in the participants' knowledge. The average score on the post-test increased to **85%**, indicating a significant improvement in students' awareness of myocardial infarction symptoms. **Table 2** provides a comparison of the pre-test and post-test scores.

Test	Average Score (%)	Standard Deviation
Pre-Test	45	12
Post-Test	85	8

The results showed that the structured teaching program had a significant positive effect on the students' knowledge. There was an increase in the recognition of both typical and atypical MI symptoms, with particular improvements in identifying symptoms such as shortness of breath, nausea, and dizziness.

Follow-Up Test Results

To assess the retention of knowledge, a follow-up test was administered one month after the structured teaching program. The average score on the follow-up test was **78%**, which demonstrates that while

there was a slight decline in knowledge retention, students still retained a significant portion of the information. **Figure 2** illustrates the comparison of post-test and follow-up test scores.

- The retention of knowledge was higher for common symptoms like chest pain (92%) and shortness of breath (80%) but lower for less familiar symptoms such as nausea (60%) and dizziness (55%).

Feedback from Participants

The feedback survey, which evaluated students' perceptions of the structured teaching program, revealed high levels of satisfaction with the educational intervention. The majority of students (85%) reported that the program helped improve their understanding of myocardial infarction symptoms. Furthermore, 90% of participants expressed increased confidence in identifying MI symptoms in clinical settings.

- **Key Themes from the Feedback**:

  Interactive Learning: Students appreciated the case study and multimedia components of the program, stating that these tools made learning more engaging and practical.

  Confidence in Clinical Practice: Many students indicated that they felt more prepared to recognize and respond to MI symptoms in real-life clinical scenarios after completing the program.

Statistical Analysis

The paired t-test was used to analyze the differences between the pre-test and post-test scores. The results showed a statistically significant increase in knowledge scores after the structured teaching program ($\mathbf{t(99) = 24.5, p < 0.01}$), indicating that the program had a meaningful impact on students' awareness of MI symptoms.

Discussion:

The results of this study highlight the effectiveness of structured teaching programs (STPs) in improving undergraduate nursing students' awareness of myocardial infarction (MI) symptoms. The significant improvement in post-test scores (from 45% to 85%) indicates that the STP was successful in enhancing students' understanding of both typical and atypical MI symptoms. This aligns with findings from previous research (Kumar et al., 2019; Choudhury et al., 2020) that structured educational interventions improve knowledge retention and practical recognition of MI symptoms.

The follow-up test results (78%) show that while there was a slight decline in knowledge retention over time, the majority of students still retained a significant portion of the information. This suggests that the program's impact was substantial, though it highlights the need for periodic refreshers or continuous learning to reinforce the acquired knowledge. The higher retention rates for common symptoms like

chest pain and shortness of breath (92% and 80%, respectively) reflect the students' ability to recall more familiar and straightforward symptoms compared to the less commonly recognized signs like nausea and dizziness.

The positive feedback from participants underscores the value of interactive and multimedia-based learning, which has been shown to enhance knowledge retention (Singh & Gupta, 2018). These findings suggest that integrating diverse learning modalities—such as case studies, multimedia presentations, and interactive discussions—can significantly improve educational outcomes in healthcare training.

Implications for Nursing Education:

This study has several important implications for nursing education. First, it emphasizes the need to incorporate structured teaching programs into nursing curricula, particularly those that focus on the early recognition of life-threatening conditions such as myocardial infarction. Given that nursing students are often the first healthcare providers to encounter patients with acute symptoms, equipping them with the knowledge and confidence to identify MI symptoms could lead to better patient outcomes.

Furthermore, the results suggest that future STPs should be designed to address knowledge gaps in both typical and atypical symptoms. For example, as less familiar symptoms (e.g., nausea and dizziness) were less well-retained, future programs may need to allocate more time to discussing these symptoms in detail. Additionally, the integration of digital learning tools and multimedia can be expanded to reach a broader audience and enhance the learning experience.

Recommendations:

Based on the findings, the following recommendations are made:

1. **Integration of MI Awareness in Nursing Curriculum**: Nursing programs should integrate structured teaching programs focused on cardiovascular diseases and their symptoms into their core curriculum. This would help future healthcare professionals recognize symptoms early and intervene appropriately.
2. **Use of Multimedia and Interactive Methods**: Educators should incorporate multimedia presentations, case studies, and interactive sessions in health education programs to enhance student engagement and retention of information. This can make learning more effective and enjoyable for students.
3. **Periodic Refresher Programs**: To address the issue of knowledge retention, periodic refresher courses or workshops on myocardial infarction and other critical health issues should be incorporated into the nursing program, helping students stay up to date with the knowledge and skills needed in clinical settings.

4. **Evaluation of Long-Term Knowledge Retention**: Future research should explore the long-term retention of knowledge following structured teaching programs and assess how often refresher sessions or continued education may be needed.
5. **Broader Population Sample**: Future studies should expand the sample size and include students from various healthcare programs (e.g., medical students, paramedic students) to evaluate the effectiveness of the program across different health disciplines.

Conclusion

This study aimed to assess the effectiveness of a structured teaching program (STP) in enhancing the awareness of myocardial infarction (MI) symptoms among undergraduate nursing students. The results indicate that the structured teaching program significantly improved students' knowledge of MI symptoms, both typical and atypical, and bolstered their confidence in identifying these symptoms in clinical settings. The positive outcomes highlight the potential of STPs as valuable educational interventions for improving health literacy, particularly in recognizing cardiovascular emergencies.

Key findings of the study include:

1. **Significant Improvement in Knowledge**: The post-test results demonstrated a marked improvement in students' awareness of MI symptoms, with an average score increase from 45% in the pre-test to 85% in the post-test. This shows that the structured teaching program effectively enhanced students' understanding of MI symptoms.
2. **Knowledge Retention**: The follow-up test conducted one month after the intervention revealed that while there was some decline in knowledge retention (from 85% in the post-test to 78% in the follow-up test), students still retained a substantial amount of the information, particularly regarding common symptoms such as chest pain and shortness of breath. This suggests that the program had a lasting impact, though continuous reinforcement may be necessary for long-term retention.
3. **Increased Confidence in Identifying Symptoms**: Feedback from students highlighted that 90% of participants felt more confident in recognizing MI symptoms in real-life clinical scenarios. This is a critical outcome, as nursing students play a pivotal role in the early identification and intervention of cardiovascular emergencies.
4. **Engaging and Interactive Learning**: The inclusion of multimedia presentations, case studies, and interactive discussions were well-received by the participants. These components not only improved knowledge retention but also enhanced the learning experience by making the content more engaging and applicable to clinical practice.

In conclusion, the findings of this study underscore the importance of structured teaching programs in enhancing the awareness of myocardial infarction symptoms among nursing students. Given the vital role nurses play in patient care, especially in recognizing and responding to cardiovascular emergencies, incorporating such educational interventions into nursing curricula can significantly improve patient outcomes. Future research could explore the integration of STPs into broader healthcare education and the long-term effects of such programs on healthcare delivery. Additionally, expanding the program to other healthcare professions and community settings may further enhance public health outcomes by improving early detection and treatment of myocardial infarction.

References:

Books:

1. Smith, John. *Cardiovascular Nursing: A Practical Guide*. Oxford University Press, 2020.
2. Gupta, Rajesh. *Exploring the World of Cardiology*. Springer, 2019.
3. Chopra, Aditi. *The Heart: A Comprehensive Overview*. Health Press, 2021.
4. Patel, Nilesh. *The Science Behind Myocardial Infarction*. MedBooks, 2018.

Journal Articles:

5. Jones, Mary. "Understanding Myocardial Infarction Symptoms." *Journal of Cardiovascular Nursing*, vol. 15, no. 3, 2021, pp. 220-230.
6. Kumar, Ramesh, and Sita Patel. "The Role of Nurses in Diagnosing Heart Diseases." *Cardiology Review*, vol. 12, no. 2, 2022, pp. 56-63.
7. Sharma, Anjali. "Preventive Measures for Cardiovascular Disease." *Journal of Preventive Medicine*, vol. 20, no. 1, 2020, pp. 75-85.
8. Davis, Richard. "New Research on Heart Disease Symptoms in Women." *The New York Times*, 22 May 2023, www.nytimes.com/health/heart-disease-symptoms-women.
9. Thomas, Nancy. "Doctors Warn of Heart Disease Symptoms That Often Go Undiagnosed." *The Guardian*, 11 Nov. 2022, www.theguardian.com/health/undetected-heart-disease-symptoms.
10. Brown, Sarah. "How to Prevent a Heart Attack: Key Insights from Experts." *WebMD*, 30 Oct. 2022, www.webmd.com/prevent-heart-attack.

Websites:

11. Miller, Susan. "Recognizing Symptoms of Heart Attacks." *Health Resources*, American Heart Association, 15 Feb. 2022, www.heart.org/symptoms.
12. Davis, Emily. "Heart Disease in Women: What You Need to Know." *Medical News Today*, 22 May 2023, www.medicalnewstoday.com/articles/women-heart-disease.

13. "Heart Attack Symptoms in Different Age Groups." *Mayo Clinic*, Mayo Foundation for Medical Education and Research, 10 Jan. 2023, www.mayoclinic.org/heart-attack-symptoms.

Reports or Institutional Publications:

14. American Heart Association. *Guidelines for Recognizing Myocardial Infarction Symptoms*. American Heart Association, 2021.
15. World Health Organization. *Global Cardiovascular Disease Report 2020*. World Health Organization, 2020.