Design of guidelines evidence-based nursing care in patients with angina pectoris

Maryam Nezamzadeh¹, Seyed Mohammad Khademolhosseini¹*, Jamileh Mokhtari Nouri¹, Abbas Ebadi¹

1. Faculty of Nursing, Baqiyatallah University of Medical Sciences, Tehran, Iran

Abstract
Aims: Evidence-based clinical guidelines effectively guide medical teams and nurses to increase the quality of clinical work. Designing evidence-based guidelines in critical care units, especially in cardiac care unit is much more needed. Therefore, this study was conducted to design evidence-based nursing care guidelines for patients with angina pectoris.

Methods: This descriptive-comparative study was conducted in two cardiac care units in Baqiyatallah Hospital in Tehran in 2011. First, the quality of 30 available care guidelines was investigated via a checklist designed by the researcher in three levels: good, average and poor.

Then nursing care guidelines were designed based on Stetler model with an evidence-based approach and their quality was re-investigated. Finally, the collected data was analyzed by the help of descriptive statistics and using SPSS 17 software.

Results: Quality of 26.7 % of the available guidelines was found out to be poor and 73.3 % was proven to be average. After designing the guidelines, this number increased to 100 %. Finally, an eight evidence-based nursing care guideline was designed for patients with angina pectoris.

Conclusion: Since the available guidelines are of low quality, designing evidence-based care guidelines can improve nursing care.

Key words: Care guidelines; Nursing; Evidence-based; Angina pectoris; Cardiac Care Unit

Introduction
In spite of the presence of different programs to prevent and cure heart disease, 1.9 million people in America and Europe die due to this disease every year. The most common symptom of cardiac ischemia is chest pain. Chest pain is a common symptom among the people admitted to the cardiac care unit and about 2 to 8 percent of these patients hospitalized in this section show it. About 30% of patients are re-hospitalized with symptoms of angina pectoris 2 to 3 years after their first hospitalization [1-3].

Nursing care is vital for patients with angina pectoris in critical care unit. Proper management can prevent the patients from re-hospitalization. Nurses play an important role in monitoring, supporting, investigating, and educating patients [3, 4].

If patients are treated based on scientific research results, care outcomes can significantly improve [5]. The application of scientific evidences to improve performance and clinical decisions is called evidence-based care [6-8]. Evidence-based care is a new concept with less than two decades of age. As a matter of fact, evidence-based process attempts to improve the quality of information on which a correct decision in health care can be taken [9-11].

Evidence-based nursing is a process which has appeared as a way for health and therapeutic care based on the latest findings in recent years. Through this process, nurses can improve their clinical skills and patients’ performances using the available research results and take proper clinical decisions. At any rate, providing effective care based on the best evidences is an international strategy for the health institutes today [13].

As it is hard for the health care personnel to use the huge amount of research results, clinical guidelines are advised as a facilitator. Implementing clinical guidelines helps appropriate clinical decisions to be taken and also saves time and costs [5]. Evidence-based guidelines explain administrative procedures of clinical care and prevent non-standard clinical work [14].

In 1990, Washington Medical Society stated that clinical guidelines systematically improve clinical care and care decisions for patients on
special conditions [15]. In 1996, Saket et al. designed clinical guidelines based on the best available evidences [13].

In 2002, National Institute for Clinical Excellence (NICE) expressed guideline production stages as follows:
- Developing the required criteria for designing guidelines
- Making regulations and establishing a work group
- Searching for credible evidence and analyzing evidences
- Asking experts and consulting about guidelines
- Developing and disseminating evidence-based care guidelines [13].

Taylor, in 2003, started to design nursing care guidelines for critical care units based on the best and most effective scientific evidences. Accordingly, a committee of the best clinical nurses was established to create guidelines and they followed the stages of clinical guidelines production. The stages included: creating clinical variables, establishing a program management group, search in scientific and research sources, considering experts and advisors’ viewpoints, and finally disseminating guidelines. These guidelines were followed in critical care units where patients needed more care. As a result, it could help nurses to take better decisions in caring for patients. Taylor expressed nursing care guidelines for each patient as well, so that the best decision is made in each situation [16].

International Health Society announced that it would support clinical guidelines application and use of evidences in clinics in order to develop nursing and midwifery; it also added that the guidelines needed to be updated based on the latest research. Some sources in 2004

![Diagram showing evidence hierarchy](Figure 1 [23])
said that only 38% of nursing care was based on research. Therefore, due to the fast changes in scientific fields, developing and updating high quality clinical guidelines and gaining access to valid sources seem necessary [12].

The results of the study conducted by Dero et al. in 2004 proved that the guidelines produced from the best sources could properly guide care in patients with heart disease [17]. Similarly, in their study in 2005, Gibler et al. stated that clinical guidelines performance was useful for patients with transient angina and myocardium infarcts. They also mentioned that evidence-based guidelines can be useful both for the hospitalized patients and those who are discharged. They expressed that if heart specialists and emergency service personnel follow these guidelines, they can provide better care for the patients with heart disease and this would result in better outcomes [18].

In 2007, Ting et al. expressed that applying the standardized protocol can decrease the disease diagnosis time and increase the quality of care [19]. Jon Stanley also pointed out that developing discharge guidelines in patients suffering from heart failure would cause a reduction in the number of patients re-hospitalized in critical care units [20].

Today, it is essential to take good care of patients because of the emphasis on resource management, cost control, effectiveness of patients care, improving quality and responsibility [21]. Accordingly, frameworks, factors, and strategies which can assure patients care seem necessary. These frameworks can be presented in form of clinical guidelines in different units especially critical care units [14].

Since the most common symptom among patients who come to critical care units is chest pain, setting guidelines based on research can improve the quality of nursing care and reduce the possibility of these patients get re-hospitalized. Therefore, nursing clinical care guidelines for angina pectoris were designed with an evidence-based approach.

**Methods**

This descriptive, comparative, and analytical study was conducted with an evidence-based approach and based on Stetler model in two critical care units of Baqiyatallah Hospital in Tehran in 1389 and 1390. Stetler model includes:

- **Preparation:** Identifying goals and problems of care in patients with angina pectoris, investigating the quality of clinical care guidelines, designing the guidelines and reviewing the quality of guidelines
- **Validation:** Reading and reviewing the articles according to the evidence-based pyramid and guidelines approval by asking scientific board members, heart specialists and training teachers of cardiac care unit as nominal groups
- **Comparative study:** Determining the feasibility of guidelines in the unit by nurses through focus group discussion method
- **Application and Performance:** Since some time

### Table 1: Quality of nursing care guidelines

<table>
<thead>
<tr>
<th>Quality</th>
<th>Present condition</th>
<th>After designing</th>
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<tbody>
<tr>
<td></td>
<td>Number</td>
<td>Percent</td>
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<tr>
<td>Poor</td>
<td>8</td>
<td>26.7</td>
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<tr>
<td>Average</td>
<td>22</td>
<td>73.3</td>
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<tr>
<td>Good</td>
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<tr>
<td>Total</td>
<td>30</td>
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is required to execute guidelines, and it is beyond a student’s thesis range, guidelines were given to the hospital teaching officials [22].

To assess the quality of available nursing care guidelines, a checklist was designed by the researcher based on nursing process framework and two instruments were made: AGREE (Appraisal of Guidelines for Research & Evaluation), and GLIA (Guideline Implementability Appraisal). AGREE instrument contains 23 items and 6 domains, which has been used to assess the quality of care guidelines since 2003. GLIA is also an instrument that investigates the practicality of guidelines, and studies the measurability of guidelines in the fields of innovation, validity, flexibility, and amount of effect on care process.

The created instrument contained two sections and 26 (yes - no) questions, 11 questions to investigate the guideline status and 15 questions to evaluate the guideline quality. Intra-rater correlation coefficient (ICC) was found out to be 0.78.

To evaluate the quality of care guidelines, logic 33 was utilized. Final scores were assessed at three levels: low (0-33%), average (33-66%) and good (66-100%) and the quality of 30 available nursing care guidelines were evaluated.

To design guidelines, nursing diagnoses related to the angina pectoris disease were derived by a detailed review of articles and based on nurses’ clinical needs. Articles were prioritized in evidence-based pyramid (Figure 1). The articles were selected from Persian valid and international databases such as Pub Med, Cochran, Google scholar, Springer, Elsevier, SID, Magiran in form of whole article text between the years 2005-2010. Quality of the eight designed guidelines was measured by a checklist created by the researcher. The data was analyzed through descriptive statistics and SPSS17 software program.

Having prepared the guidelines, a validation group scientifically investigated them. The validation group included a nominal group consisting of scientific board members, heart specialists and cardiac care unit training teachers. Also, a focus group directly or indirectly provided clinical care in cardiac care unit, confirmed the practicality of the guidelines, and offered some suggestions for further explanation about some items. The focus group consisted of 15 nurses, whose average age was 36; 13 of them had a BS and 2 of them had an MS; and their average occupational background was 15 years.

**Results**

This study proved that none of the available guidelines were in a good level. However, after designing guidelines with an evidence-based approach and considering the previously identified variables in the checklist, it increased to 100% (table 1).

Designed guidelines have two parts: Guideline status: In this part, the purpose of designing guidelines is presented first. Eight nursing diagnoses related to patients with angina pectoris were derived based on articles:

- Risk for decrease cardiac output
- Chest pain
- Distress
- Risk for myocardial perfusion altered
- Anxiety
- Risk for activity intolerance
- Impaired in drug regimen
- Knowledge deficient

Then the purpose group, design experts, criteria for entering and exiting sources, design method, use and utilized sources were mentioned. In the end, regarding the fast development of science, it was declared that these guidelines would be valid by 1394 and after that they should be updated by new sources [24].
Designed guidelines: The guidelines were designed based on nursing process including 3 parts: diagnosis, evaluation criteria, and nursing interventions. As it is not possible to present all the care guidelines in this article, thus, just one diagnosis is given here as an example.

**Nursing diagnosis**

**Chest pain (NANDA)**

- **Chest pain associated with**
  - Decrease in blood flow to heart
  - Increase in cardiac work and decrease in oxygenation

**Evaluation criterion / symptoms**

- Patients’ appearance, complaining about pain, insomnia, BP, RR, Pr, breathing pattern

**Nursing interventions**

1. Investigating pain intensity and quality through pain visual scale [2, 25]
2. Monitoring patients’ pain [2, 26]
3. Checking vital signs every 5 to 15 minutes during pain attacks until stabilization of the symptoms [26, 27]
4. Communicating with humor [26, 28]
5. Complete rest [29, 30]
6. Use of massage therapy as a non-pharmacologic anti-pain [31]
7. Use of relaxation as a non-medicinal anti-pain [32]
8. Change in position as a non-drug anti-pain [33]
9. Easing the situation [34]
10. Reducing environmental stimuli [35]
11. Restricting patient’s visitors [35]
12. Giving 4 to 6 liters of oxygen through nasal tube (2 to 3 liters in patients with COPD) [29]
13. Nitroglycerin 5 – 10 μ/min, during 15 to 20 minutes in patients with systolic pressure over 90 mmgh, on doctor’s prescription [29, 33]
14. Recommending the doctor to use drugs [29, 33]
15. Consulting with the doctor if no relief in pain [33]
16. Training low fat, low salt diet [36]
17. Training patients about not doing the Valsalva maneuver [37, 38]
18. Training about not smoking [39]
19. Training about cautious taking of caffeine [tea, chocolate, cola drinks] [33, 40]

**Discussion**

In this study, the quality of available guidelines in cardiac care units was proven to be in an average level. This is similar to the findings of the study done by Burgorz et al. In their study, the quality of available guidelines in oncology unit was measured via AGREE instrument and the obtained result was 42.2 % which is an average level [41].
The guidelines for angina pectoris were designed according to an evidence-based process. The evidence-based process can be helpful for the development of clinical care guidelines. Accordingly, in 2004, to create quality guarantee, Dero et al. used guidelines produced from the best sources in taking care of the patients with heart disease in hospitals [17]. In this study, the guidelines were developed after determining the nursing diagnoses, reviewing the articles based on an evidence-based process, and forming the validation groups. Taylor, in 2003, created nursing care guidelines for critical care units. In his paper, he has mentioned the production of guidelines based on the best and most effective clinical evidence. In this process, a committee consisting of the best clinical nurses was formed so that they make the guidelines. The process of making the clinical guidelines included some stages: creating clinical variables, forming a program management group, searching in scientific and research sources, considering the experts and advisors’ viewpoints, and finally, publication and dissemination of the guidelines [16].

Several studies confirm that these guidelines can improve quality of care. In 1388, Motehadian Tabrizi et al. suggested the effect of programmed care on reduction of the side effects of dialysis. In this study, care guidelines based on valid sources and confirmed by experts caused the reduction in side effects in patients treated by dialysis [4]. In 2007, Ting et al. implemented the protocol on 579 patients suffering from acute infarcts. This proved that implementing standardized protocol can reduce disease diagnosis time and increase the quality of care [19]. In 1384, Parvarzadeh et al. investigated the effect of standard clinical care guidelines on the result of pregnancy. The findings indicated that in mothers, who had been taken care of according to the standard care, childbirth factors increased and they faced fewer problems [42].

In 2005, Gibler et al. recognized clinical implementation of the guidelines for patients with transient angina and myocardium infarcts in the emergency unit useful. They also stated that evidence-based guidelines are good both for the hospitalized patients and the ones who are discharged. Following the guidelines by heart specialists and emergency service personnel results in better care for patients with heart disease and brings about better outcomes [18].

Conclusion
Low quality of available guidelines determines the necessity of reviewing and designing care guidelines. Evidence-based care has been emphasized on by the authorities of the health system as a way to improve services. Considering the outbreak of angina pectoris in critical care units, heavy costs for its treatment, and the attempts of clinics to increase the quality of care, nursing clinical guidelines based on an evidence-based process can be a valid source of giving nursing service and reduce the patients’ hospitalization time and costs.

With more research done on nursing care in cardiac care unit and encouraging personnel to use evidence-based guidelines, increase in the quality of nursing care can be reached. In addition, coding the guidelines facilitates their uses for clinical nurses and also saves the time dedicated to their registration. Finally, it seems necessary for all the hospital units to develop the latest evidence-based guidelines, so that by implementing them in clinical units, nursing care quality improves.

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