

## The Effect of the Clinical Supervision Model on Nurses' Performance in Atrial Fibrillation Care

### Abstract

**Background:** A model of clinical education for reducing the theory-practice gap is the clinical supervision model. The purpose of this study was to evaluate the effect of the clinical supervision model on nurses' performance in Atrial Fibrillation (AF) care in a Critical Care Unit (CCU). **Materials and Methods:** This quasi-experimental study was conducted with a pretest-posttest design. Through stratified random sampling, 36 eligible nurses working in the CCU in Hospitals in Isfahan, Iran, were selected. The data gathering tools included a demographic questionnaire (7 items) and a performance checklist (44 items). Data were analyzed using descriptive (mean and standard deviation) and analytical statistics (ANOVA, LSD, post hoc test, and paired t-test). The level of statistical significance was  $p \leq 0.05$ . **Results:** Paired t-test showed that there was a significant difference between the mean total scores of nurses' performance and its dimension before and after the intervention ( $p < 0.001$ ). The results of ANOVA before the intervention showed that there was a significant difference between the mean (SD) scores of care [63.14 (13.08),  $t = 13.66$ ], pharmacologic [68.98 (13.15),  $t = 8.20$ ], and electrical cardioversion dimensions [63.37 (10.47),  $t = 16.82$ ,  $p < 0.001$ ]. The results of ANOVA showed that the mean (SD) scores of the all dimensions did not differ significantly after the intervention [82.91 (9.75), 84.95 (83.87), and 83.51 (8.07), respectively,  $p > 0.05$ ]. **Conclusions:** The clinical supervision model can be used as an educational model combined with supervision to improve nurses' performance in providing care to patients with AF.

**Keywords:** Atrial fibrillation, clinical supervision, nursing, nurses performance

Maryam Mokhtari<sup>1</sup>,  
Asghar  
Khalifehzadeh  
-Esfahani<sup>2</sup>,  
Shahla  
Mohamadirizi<sup>3</sup>

<sup>1</sup>Departments of Nursing, School of Nursing and Midwifery,

Isfahan University of Medical Sciences, Isfahan, Iran,

<sup>2</sup>Intensive Care Nursing, School of Nursing and Midwifery,

Isfahan University of Medical Sciences, Isfahan, Iran, <sup>3</sup>Nursing and Midwifery Care Research

Center, Isfahan University of Medical Sciences, Isfahan, Iran

### Introduction

Atrial Fibrillation (AF) is one of the most important public health issues, occurs in 1% of the general population, and is one of the most important causes of healthcare expenditure in western countries.<sup>[1]</sup> It is predicted to increase from 6.2 million in 2010 to 12.1 million by 2050.<sup>[2,3]</sup> AF management, in addition to preventing complications, focuses mainly on symptom control and quality of life improvement.<sup>[4,5]</sup> Nurses are often the first group to become aware of changes in the patient's vital signs and severe symptoms in patients admitted, and can reduce the death rate through rapid and correct caring and reporting to doctors.<sup>[6]</sup> Therefore, the services provided by nurses are essential for the patient's survival and should be maintained at a satisfactory rate.<sup>[7]</sup> Patients with AF have critical conditions with a wide range of medical treatments. Thus, maintaining

the current knowledge of the treatment recommendations will further aid the nurse in being a successful patient advocate and assuring the best possible patient outcomes.<sup>[8]</sup> Consideration of the quality of nursing care in the Critical Care Unit (CCU) is especially important since nurses, as a key member of the treatment team, can play an effective role in the rapid diagnosis and treatment of heart arrhythmia.<sup>[9-11]</sup>

In this regard, the findings of previous studies have shown that nurses' performance and the quality of care provided to heart patients admitted to the CCU is not acceptable. Al-Ftlawy showed that the performance of 15.8%, 42.1%, and 42.1% of nurses regarding the care of patients admitted to the CCU was, respectively, poor, moderate, and good.<sup>[12]</sup> Moradi *et al.*<sup>[13]</sup> also reported that nurses' performance in caring for heart patients was moderate. Khoeiniha *et al.*<sup>[14]</sup> reported poor

### Address for correspondence:

Dr. Shahla Mohamadirizi,  
Nursing and Midwifery Care  
Research Center, Isfahan  
University of Medical  
Sciences, Isfahan, Iran.

E-mail: mohamadirizi@nm.mui.  
ac.ir

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performance in 14.3% of nurses in the CCU. Negarandeh believes that factors such as workload and nursing shortage are effective on the quality of nursing care. However, one of the most important causes of poor performance in nurses regarding the care of patients with heart disease could be lack of knowledge.<sup>[15]</sup> Therefore, promotion of clinical skills and education with the aim to improve the quality of nursing performance is a key priority. Consequently, in addition to the management of costs and resources, nursing authorities strive to utilize educational methods that are tailored to nurses' needs and improve the quality and effectiveness of patient care.<sup>[16]</sup>

A model of clinical education for applying the learning process and reducing the gap between theory and practice is the clinical supervision model.<sup>[17,18]</sup> This model can lead to the better learning process knowledge by using a systemic process and positive feedback. This model has various forms, but the circular model is mostly used in critical care.<sup>[19]</sup> In this regard, the results of the study by Memarian and Vanaki<sup>†</sup> show that the clinical supervision model improved nurses' knowledge and skills in patient education by using organization, implementation, and feedback.<sup>[20]</sup> However, another study found that the clinical supervision model did not have a positive effect on nursing professional skills.<sup>[13]</sup> Considering the contradictory results reported in this field and the lack of any study about the effect of the clinical supervision model on nurses' performance in AF care in the CCU, this study was conducted with the aim to evaluate the effects of the clinical supervision model on the quality of nurses' performance in providing care to patients with AF in the CCU.

## Materials and Methods

This quasi-experimental, single-group study was performed with a pretest-posttest design on nurses working in the CCU in Amin and Khorshid hospitals affiliated to Isfahan University of Medical Sciences, Isfahan, Iran, from 2017 to 2018. Sample size was calculated using a sample size formula and considering the parameters  $Z_1 = 1.96$ ,  $Z_2 = 0.84$ , and  $d = 0.50$  s. It was estimated that a total of 32 subjects were needed. However, considering the possible attrition, we recruited 36 subjects. Sampling was performed through stratified random sampling based on the inclusion criteria. The study inclusion criteria were a minimum of 9 months of job experience in the CCU and a bachelor's degree in nursing. The exclusion criteria were reluctance to remain in the study and any absence from the study intervention sessions.

Data collection instruments consisted of a demographic questionnaire and a checklist on nurses' performance in providing care to patients with AF. The 7 items of the demographic questionnaire were related to age, gender, marital status, education level, CCU work experience, total work experience, and employment type. The nurses' performance checklist was a researcher-made questionnaire

developed based on the existing literature.<sup>[11]</sup> It included 48 items in 3 main dimensions, namely care, and pharmacologic and electrical cardioversion. Items were scored on a 3-point Likert scale ranging from 0 to 1 [yes (one), no (zero), and not applicable]. The possible total score of the checklist was 0–48. The face validity of the checklist was approved by 5 nursing experts (CVR = 0.85 and CVI = 0.83). The reliability of the checklist was also confirmed through inter-rater agreement method and by calculating Cohen's kappa coefficient ( $\kappa = 0.83$ ).

The checklist was completed by the research assistant in 2 stages, before and after the intervention. Before the implementation of the clinical supervision model, the researcher was present in the CCU and monitored the routine performance of the nurses while providing AF care and completed the performance checklist for each of the research units. After 1 week of the first evaluation, the researcher implemented the clinical supervision model. The study intervention was a clinical supervision model that was implemented in 3 stages. In the first stage or pre-action phase, a training session was held for the participants in groups of 3 to 5 individuals. The session included AF disease training including diagnosis method, causes of onset, predisposing factors, standard treatment, the consequences of non-treatment, the impact of nursing care on these patients, an introduction on the clinical supervision model, and presentation of checklists to participants. The duration of the session differed based on nurse's knowledge and skills (from 2 to 4 hours). In the second stage or action phase, the participants performed the care plan for patients based on the checklist. The researcher monitored their performance as an observer and answered their questions. In the third stage or post-action phase, the researcher interviewed the participants and recorded their views on the clinical supervision model. Data were analyzed using descriptive and analytical statistics [ANOVA, Least Significant Difference (LSD) post hoc test, and paired t-test] in SPSS software (version 11.5; SPSS Inc., Chicago, IL, USA). The level of statistical significance was  $p < 0.05$ .

## Ethical considerations

This study was approved by the Ethics Committee of Isfahan University of Medical Sciences (with the code of IR.MUI.REC.1397.385). Permissions for the study were also obtained from the authorities of the study setting. The purpose of the present study was explained to all participants, and they all provided written informed consent before recruitment. Moreover, all the nurses were assured that their data would remain confidential and their participation in and withdrawal from the study would be voluntary.

## Results

Among the nurses who participated in the study, 88.90% were women, 72.20% were married, and 94.40% had a

bachelor's degree in nursing. The nurses' mean (SD) age, total work experience, and CCU work experience were 33.97 (6.57) years, 9.34 (4.74) years, and 6.79 (4.24) years, respectively. The results showed that most of the nurses had good performance in the 3 dimensions after the intervention (model implementation) [Table 1]. In addition, paired t-test results showed that there was a significant difference between the mean total scores of nurse performance and its dimensions before and after intervention [83.54 (8.01) vs. 64.51 (11.20);  $t = 17.29$ ,  $p < 0.001$ ] [Table 2].

Furthermore, intragroup comparisons of the mean scores of nurse performance dimensions before and after the intervention show that the mean total scores of nurse performance and its dimensions after the intervention were significantly greater than the pre-intervention mean scores [Table 2]. ANOVA results before the intervention showed that there was a significant difference between the mean scores of the 3 dimensions of nurses' performance ( $p < 0.05$ ).

Moreover, LSD post hoc test showed that the mean score of nurses' performance in the dimension of pharmacologic cardioversion was significantly greater than that of the dimensions of care and electrical cardioversion ( $p < 0.05$ ), but there was no significant difference between care and electrical cardioversion dimensions ( $p > 0.05$ ) [Table 3]. However, the results of ANOVA showed that the mean score of different dimensions of nurse performance did not significantly change after the intervention (model implementation) ( $p > 0.05$ ).

## Discussion

The aim of this study was to investigate the effect of the clinical supervision model on nurses' performance in providing care to patients with AF. The present study findings show that nurse performance improved after implementing the clinical supervision model. In this

regard, the results of the study by Esfahani *et al.*<sup>[18]</sup> showed that the clinical supervision model can improve safety in the use of using high-risk drugs in the intensive care unit. In this study, the effect of the clinical supervision model was only investigated on drug safety, but in the present study, in addition to pharmacologic cardioversion, the nurses' performance in providing care and electrical cardioversion has been investigated in a larger sample. The results of the study by Memarian and Vanaki showed that the supervision model with organization, implementation, and feedback can be used to improve the nurses' knowledge and skills in patient education, which is in line with our findings.<sup>[20]</sup> Another study found that implementing a clinical supervision system through observation, feedback, discussion, and investigation developed nurses' knowledge and professional skills in patient education.<sup>[9]</sup>

Furthermore, the results showed that the highest mean before the intervention was pharmacologic cardioversion. Supervision of nurses' attention to pharmacotherapy and guidelines for drug errors in hospitals can be one of the reasons for this high score. In addition, the results showed that the highest mean changes in the score of performance after the intervention was in the electrical cardioversion dimension. One of the reasons for this increase was increase in the self-confidence of nurses after implementing the clinical supervision model and the increase in their skills in this field. In this regard, Cross *et al.*,<sup>[21]</sup> in a qualitative study, examined the experiences of nurses by implementing a clinical supervision model in the Intensive Care Unit (ICU). A more accurate understanding of the issues and solutions, correction of errors, and attention to strengths were expressed after implementing this model. In general, correct education and using new educational technique are other factors affecting the quality of nursing care.<sup>[22,23]</sup> Therefore, using the clinical supervision model can be useful for nursing education in CCUs. Moreover, providing a clinical and theoretical education system based on this model increases the interaction between students and nursing staff, and can prepare them to better understand the content of patient care, provide patient care, and achieve maximum results.

The results of the study should be considered along with its limitations. This study was conducted in a small community on the care provided for 1 disease and in 3 performance domains. Therefore, it is recommended that the assessment be extended to larger statistical populations and to other types of care in different patients. Previous experience of nurses, their level of knowledge and skills in AF, suitable and effective care in this field, fatigue, job stress, and the family and economic problems of personnel that are the cause of lack of focus on care could not be controlled in this study. Furthermore, because the nurse's performance was monitored during the AF care

**Table 1: Comparison of the distribution frequency of nurse's performance and its dimensions before and after the implementation of the clinical supervision model**

Stages Dimensions	Performance levels	Before the intervention	After the intervention
		n (%)	n (%)
Caring	Poor	0 (0)	0 (0)
	Moderate	20 (55.60)	4 (11.10)
	Good	16 (44.40)	32 (88.90)
Pharmacologic cardioversion	Poor	0 (0)	0 (0)
	Moderate	10 (27.80)	0 (0)
	Good	26 (72.20)	36 (100)
Electrical cardioversion	Poor	0 (0)	0 (0)
	Moderate	20 (55.60)	0 (0)
	Good	16 (44.40)	36 (100)

**Table 2: Intergroup and intragroup comparisons respecting the mean scores of nurses; nurse performance and its dimensions**

	Before	ANOVA*		After	ANOVA		Paired t-test **	
	Mean (SD)	F	p	Mean (SD)	F	p	t	p
Caring	63.14 (13.08)	0.98	0.39	82.91 (9.75)	5.45	0.009	13.66	<0.001
Pharmacologic cardioversion	68.98 (13.15)			84.95 (8.87)		8.20	8.20	
Electrical cardioversion	63.37 (10.47)			83.051 (8.07)		16.82	8.20	
Total score	64.51 (11.20)			83.54 (8.01)		17.29	17.29	

\*ANOVA \*\*Paired t-test

**Table 3: Intergroup comparisons respecting the mean scores of the nurse performance dimensions before and after the intervention**

Nurse performance quality dimensions	LSD* post hoc test	
	Before (p)	After (p)
Care and pharmacologic cardioversion	0.005	0.004
Care and electrical cardioversion	0.840	0.800
Pharmacologic cardioversion and electrical cardioversion	0.002	0.002

\*LSD: Least significant difference

process, the nurses may have tried to follow the standards and take better care of patients than usual, and this was one of the limitations of the research. The findings of this study can be a guide for further research on the quality of patient care in order to identify existing weaknesses, to plan for better care delivery, and to improve the quality of services. Since the quality of care delivery is directly related to the way nurses work in health care institutions and the role of nursing services management in promoting the quality of nursing care is undeniable, this model may be used to unify the notions of the parties concerned regarding the prerequisites, content, and influence of clinical supervision, and to clarify the supervision process and its management.

## Conclusion

The results of this study show that the clinical supervision model can improve the nurses' performance in providing care to patients with AF in CCUs. It is noteworthy that the purpose of clinical supervision is to assist health care providers such as nurses in performing effective professional activities and providing the best care for patients. Clinical supervision, as part of the quality control process, is achieved in a participatory manner. Therefore, managers can take crucial steps in patient care by using a clinical supervision model. More research is needed to find the long-term benefits of clinical monitoring and how other factors affect burnout in this group of nurses.

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## Conflicting of Interest

Nothing to declare.

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