

Research Paper:

The Strategies to Improve Quality Care in Pediatric Angiography



Haydeh Heidari^{1*}, Arsalan Khaledifar², Ali Ahmadi²

1. Department of Nursing, Modeling in Health Research Center, School of Nursing and Midwifery, Shahrekord University of Medical Sciences, Shahrekord, Iran.

2. Modeling in Health Research Center, Shahrekord University of Medical Sciences, Shahrekord, Iran.



Please cite this article as Heidari H, Khaledifar A, Ahmadi A. The Strategies to Improve Quality Care in Pediatric Angiography. Journal of Vessels and Circulation. 2021; 2(1):27-32. <http://dx.doi.org/10.32598/JVC.2.1.78.1>

doi: <http://dx.doi.org/10.32598/JVC.2.1.78.1>



Article info:

Received: 23 May 2020

Accepted: 06 Jul 2020

Publish: 01 Jan 2021

Keywords:

Angiography, Quality of health care, Management

ABSTRACT

Background and Aim: The development of technology and the increase of intensive care beds strongly demand a professional care team in these areas. In addition, intensive care staff experience severe occupational stressors such as time pressure, low social support, overwork, and spiritual and moral distress. This study aimed to explain the strategies for promoting quality care in pediatric angiography.

Materials and Methods: This is a qualitative study conducted with the participation of 20 members of the care unit. Sampling was done until data saturation. Data analysis was performed using qualitative content analysis.

Results: By analyzing the data, three reform classes of structural management, human resource management, and human interaction were found.

Conclusion: The strategies to improve the management of the Angiography Department are affected by various factors such as structural management, human resource management, and human interaction. To improve the management of this department, managers should pay special attention to the standardization of the department and increase the level of communication skills of the care team.

* Corresponding Author:

Haydeh Heidari, PhD.

Address: Department of Nursing, Modeling in Health Research Center, School of Nursing and Midwifery, Shahrekord University of Medical Sciences, Shahrekord, Iran.

Phone: +98 (913) 3822402

E-mail: haydehheidari@gmail.com

1. Introduction

The ultimate goal of the health system is to provide quality care and improve the outcome of services for the patient and the community. Naturally, health system services should be based on scientific evidence, methods, and decisions [1]. Health systems worldwide face the challenge of meeting the demands of society and the budget constraints that limit the structure of organizations and affect their working conditions. Evidence shows that these challenges affect nursing staff who spend more time in the care environment and have a stronger interaction with organizational structure [2]. The development of technology and the increase of intensive care beds demand more professional nursing staff in these departments [3]. In addition, intensive care unit personnel experience severe occupational stressors such as time pressure, reduced social support, overwork, spiritual and moral distress, and the patient's negative emotional responses due to suffering [4].

Today, Coronary Artery Disease (CAD) is the most important cause of death in developed countries [5]. In Iran, the prevalence of cardiovascular disease has increased significantly, and the mortality rate has risen from 22% to 32% [6]. Cardiac catheterization is the most widely used diagnostic method. This invasive diagnostic method is associated with stress and anxiety [7]. More than 1 million coronary angiographies are performed annually in the United States, and more than 70% of hospitals perform this procedure in asymptomatic patients [8]. In Iran, about 16 to 18 thousand cases of coronary angiography are performed annually [9].

Improving cardiac care programs for children in need of intensive care has increased the survival rate of these patients [10]. However, caring for critically ill children because of complex treatments has brought psychological issues and burnout for nurses [11]. Working conditions of clinical staff impose physical and mental pressures on them because they experience challenges such as workload, conflict with physicians and patients, patient death, and variable working hours [12]. Angiography is one of the specialized procedures and should be provided by a professional care team. We conducted this study to find the strategies to improve quality care in pediatric angiography.

2. Materials and Methods

This research tool was the content analysis method. This analysis includes open coding, classification, and abstraction [13]. The researcher entered the research environment after the necessary coordination with the relevant authorities and obtaining the code of ethics from Shahrekord University of Medical Sciences, Shahrekord City, Iran. The care team members interested in participating in the study were interviewed after obtaining their informed written consent. The Angiography Department of Hajar Hospital was the study setting, which was affiliated to Shahrekord University of Medical Sciences.

Study participants of the medical care team, including physicians and nurses, actively participated in the study. Sampling was done purposefully. Sampling and data collection and interviews continued until the data saturation. After extracting the concepts and codes from the participants' essential views, these concepts were grouped based on similarities and differences in related subclasses. Finally, the subclasses based on the relationship between them merged and were reduced to three classes. To obtain maximum diversity of participants, we selected nurses, physicians, and radiologists working in the Angiography Department. In this study, the researcher continued to select participants until data saturation, when the interviews did not add any new data to the previous data. The inclusion criteria for participants included nurses and physicians with one year of working experience in angiography or cardiology units who were willing to participate in the study. The exclusion criteria included unwillingness to cooperate at any stage of the study.

In this study, the data collection method was in-depth, semi-structured, face-to-face, and individual interviews. In the interview, some of the following questions were raised: please tell me about ways to improve the quality of care in the coronary angiography department? And the interview continued by asking exploratory questions such as "do you see anything else you need to ask?" can you explain more about this?" and so on. The average interview duration was 55 minutes. It should be noted that the place of the interview was a quiet environment and was chosen according to the convenience of the participants.

Elo and Kyngäs content analysis method was used to analyze the data [13]. In this study, the researcher used an inductive approach in the content analysis of data. It included open coding, classification, and abstraction. First, data analysis began with repeated reading of the

text of the interviews to immerse oneself in it and find an overview. Then, the texts were read word for word until the related codes were extracted. This is a continuous process, from extracting codes to naming them. After extracting the concepts and codes, they were grouped based on similarities and differences. Finally, subclasses were combined based on their relationships and formed three main classes.

To ensure the accuracy of the research findings, we considered four criteria of credibility or acceptability, confidence or similarity, transferability, and verifiability proposed by Speziale et al. for the strength of qualitative research [14]. To increase the credibility, in-depth interviews were held in several sessions. To increase the transferability, the researcher tried to provide a clear, accurate, and purposeful description of the research process to enable others to follow the research path and know the characteristics of the study population. The study results were also presented to several people similar to the participants who did not take part in the study to judge the similarity between the research results and their experiences. Also, to obtain the verification criterion in this research, the text of some interviews, codes and extracted classes were given to the research colleagues and several faculty members who were not familiar with the method of qualitative research analysis and did not participate in the research. They were asked to check the accuracy of the data coding process. In addition to the above factors, the researcher conducted numerous qualitative and qualitative research projects.

3. Results

The number of participants was 20, including 9 nurses, 4 radiologists, and 7 cardiologists. The average age of nurses was 34 years, and their average work experience in angiography was 5 years. The mean age of the radi-

ologists was 31.5 years, and the mean work experience in the Angiography Department was 3 years. The average age of pediatric cardiologists was 45 years, and their average work experience was 5 years in angiography. By analyzing the data, three reform classes were identified: structural management class with two subclasses of angiography standardization and use of appropriate equipment, human resource management class with two subclasses of employing sufficient staff and the necessity of personnel training, and human interaction class with two subclasses of care team support and physician-nurse communication improvement (Table 1).

Structural management reform

The structural management reform class in the Angiography Department has two subclasses of standardization of the Angiography Department and the use of appropriate equipment.

The care team stated that in the Angiography Department, they experience the problems of insufficient space, which needs to be changed and standardized to provide the desired care.

A nurse said in this regard:

“It is necessary to make some changes to the space of the ward. The building here is very small. We cannot provide enough care in this place; we see in books and resources, the space here is not standard. Of course, in my opinion, to set up the department, all standards had to be considered at the beginning”. [n9]

Table 1. Classes and subclasses of quality care promotion strategies

Subclasses	Class	Main Class
Standardization of Angiography Department	Structural management reform	Strategies for improving pediatric angiography
Using the appropriate equipment		
Using enough staff	Improving human resource management reform	
The need for staff training		
Care team support	Improving human interactions reform	
Improving the physician-nurse relationship		

Another nurse stated that:

“We do not have a place for post angiography here, and we have to transfer the patient to the CCU ward. Well, if we had a post ward, the patient would be better, then he would be transferred, but we do not have space”. [n3]

A cardiologist said:

“The cardiac operating room should be in front of the pediatric angiography, but unfortunately, we do not have enough space here. In case the patient becomes ill and needs surgery, and we have to go to the hospital, where there are risks of transmission because the patient is in critical condition. The atmosphere here needs to change”. [c1]

Another nurse stated that:

“We do not have the necessary equipment and facilities for the pediatric ward; for example, we do not have a pediatric heart surgery room. Because children are at high risk, doctors tend to perform pediatric angiography in centers equipped with operating rooms and heart surgery”. [n3]

Improving human resources

The process of human resources management reform was identified with two subcategories of adequate staff and need for personnel training.

Data analysis showed that the staff of the Angiography Department complained of a lack of enough staff, and solving this problem can help improve the quality of care.

One radiologist stated that:

“We have a shortage of staff here, and we have to cover a lot of shifts, which makes us tired”. [r1]

The analysis of the data showed that the high workload of the Angiography Department and its specialized work requires sufficient and experienced personnel.

A nurse said about this:

“The workload is high. the patient may be in shock or have bradycardia, but our force is low”. [n6]

Most participants stated that it was very difficult to perform care in the ward with multiple work shifts.

Another nurse stated that:

“We have a lot of shifts here due to lack of staff, and shift fatigue also affects our work, especially children whom it is harder to work with”.

Data analysis showed that pediatric angiography ward nurses should have experience working in the pediatric or neonatal ward

Another nurse said:

“I have four years of experience working in the pediatric ward. Well, I can take blood vessels more easily. I know what a relationship with children should be like. Sometimes they are restless or have less cooperation than adults”. [n2]

A radiologist stated that:

“It is more difficult for us who do not have the necessary work experience and skills in the department to work with children. It is often necessary to have several nurses work with children in Angiography Department. I am a radiologist. They come to me with pediatric angiography because working with children is a specialized job. The most important thing is to communicate with the child and the family. I have not seen any specialized courses. I need skills and experience. “[r3]

Improving care team interactions

The class of human interaction reform was identified with two subclasses of care team support and physician-nurse relationship reform.

Most of the staff expressed the need for support from the authorities for upgrading and improvement strategies. In this regard, one of the staff said:

“The authorities do not even thank us for the extra work we do. So much extra shift and fatigue do not support us at all. Even if we get sick, we have to work. We get tired over time”. [r2]

A nurse said:

“Well, it is necessary for the person in charge to support us. They do not give even a little encouragement. Over time, one becomes depressed”. [n4]

The analysis of the interviews showed that since the Angiography Department is one of the intensive care units, proper communication between the doctor and the

nurse can improve the quality of care in this department. Regarding this, a nurse said:

“Many times the doctor is upset because of something else and enters the ward angrily and does not have a good relationship with the nurse and the staff’s limbs are disrupted”. [n1]

Another nurse stated that:

“We are all a team, and an inappropriate attitude can affect everyone’s mood. I have experienced that when the doctor treats us appropriately, we do not notice the hard work at all. Our physical work does not tire us. Spiritual work is more effective”.

4. Discussion

Based on our results, reforms in structural management, human resource management, and human interaction improve the quality of care in the Angiography Department.

In our study, the care team believed that they had insufficient space, and the ward should be changed and standardized to provide the desired care. The study results showed that standardization of intensive care unit space has an essential role in improving care [15].

Data analysis showed that the angiography staff complained of a lack of personnel. The results of a study confirmed our results. The study results showed that the shortage of staff in the intensive care unit is significant, and due to the heavy workload in this department, the presence of sufficient and experienced staff is necessary to provide professional care [16].

Analysis of our study data showed that staff support is one way to improve care in the Angiography Department. The study results showed that a stressful and challenging work environment could endanger mental health due to reducing motivation and then damaging nurses’ feelings and professional performance. Improving the psychological conditions of the workplace is essential not only to maintain the mental health of nurses but also to increase the quality of care and patient safety. Therefore, improving working conditions, setting rules, informing people about nurses’ duties and selecting competent nursing managers, holding detensioning and stress management classes, identifying facilitators and inhibitors of perception of the workplace can improve effective psychological factors to some extent [17].

Our study results showed that one way to improve care in the Angiography Department is to support staff. In this regard, the results of a study showed that support and encouragement of staff by managers and head nurses reduces stress and increases staff motivation to perform their duties [18]. In addition, another researcher stated that nurses are the largest group of service providers in the health care system, which has a significant impact on the quality of health care, so their health is a serious issue [19]. Another researcher stated that nursing managers should create an intimate atmosphere to improve health services by supporting staff and improving working conditions [20].

Our study showed that one of the promotion strategies in the field of angiography is to improve human interactions. Overall, for the care team to provide professional care, the proper relationship between the nurse, the patient’s doctor, and his family, plus the relationship between physicians and nurses, plays an important role [21].

5. Conclusion

Because the Angiography Department is an intensive care unit, considering the management dimensions of this department is of particular importance. Health officials and managers have an essential role in reforming the management of this department by providing the necessary budget and employing sufficient and experienced personnel. The findings of this study showed that the strategies to improve the management of the Angiography Department are affected by various reforms in structural management, human resource management, and human interaction. In other words, managers must standardize the department and increase the level of communication skills of the care team to improve the management situation of this department.

Ethical Considerations

Compliance with ethical guidelines

The study was approved by the ethics committee of Shahrekord Medical University (Code: IR.SKUMS.REC.1396.84)

Funding

This research receives grant from Shahrekord Medical University (No. 2486).

Authors' contributions

All authors equally contributed to preparing this article.

Conflict of interest

The authors declared no conflict of interest.

Acknowledgments

The researchers hereby thank the Health Modeling Center of Shahrekord University of Medical Sciences.

References

- [1] Mahmoudi H, Mohammadi E, Ebadi A. [An explanation of the patients and nurses perception on the concept of emergency caring (Persian)]. *Int J Behav Sci*. 2015; 9(2):147-57. http://www.behavsci.ir/article_67915.html
- [2] Rivaz M, Tavakolinia M, Keshavarz Hesamabadi AM. [Assessing nurses' perception of nursing professional practice environment in intensive care units; descriptive cross-sectional study (Persian)]. *J Crit Care Nurs*. 2021; 14(1):36-43. <https://jccnursing.com/article-1-537-en.html>
- [3] Hickey PA, Pasquali SK, Gaynor JW, He X, Hill KD, Connor JA, et al. Critical care nursing's impact on pediatric patient outcomes. *Ann Thorac Surg*. 2016; 102(4):1375-80. [DOI:10.1016/j.athoracsur.2016.03.019] [PMID]
- [4] Aiken LH, Sloane D, Griffiths P, Rafferty AM, Bruyneel L, McHugh M, et al. Nursing skill mix in European hospitals: Cross-sectional study of the association with mortality, patient ratings, and quality of care. *BMJ Qual Saf*. 2017; 26(7):559-68. [DOI:10.1136/bmjqs-2016-005567] [PMID] [PMCID]
- [5] Qin S, Gu Y, Song T. Effect of peer support on patient anxiety during the coronary angiography or percutaneous coronary intervention perioperative period: A protocol for a systematic review and meta-analysis of randomised controlled trials. *BMJ Open*. 2020; 10(3):e031952. [DOI:10.1136/bmjopen-2019-031952] [PMID] [PMCID]
- [6] Nikfarjam M, Firouzkouhi M, Shahdadi H, Abdollahimohammad A. Comparison of the effectiveness of nursing consultation and guided imagery-based training on stress and anxiety in angiography candidates: A clinical trial. *Med Surg Nurs J*. 2020; 9(3):e111967. [DOI:10.5812/msnj.111967]
- [7] Oshvandi K, Movaheditabar E, Naghshtabrizi B, Mohammadi Y, Shamsizadeh M. The effect of video-based educational program on satisfaction and comfort in patients undergoing transradial coronary angiography: A single-blinded, randomized controlled trial. *J Vasc Nurs*. 2021; 39(2):27-32. [DOI:10.1016/j.jvn.2021.01.001] [PMID]
- [8] Rejeh N, Tadrissi SD, Yazdani S, Saatchi K, Vaismoradi M. The effect of hand reflexology massage on pain and fatigue in patients after coronary angiography: A randomized controlled clinical trial. *Nurs Res Pract*. 2020; 2020:8386167. [DOI:10.1155/2020/8386167] [PMID] [PMCID]
- [9] Mosaei M, Hassanpour Dehkordi A, Driees F, Salehitali S. Audit of the nursing care standards before coronary angiography in patients visiting angiography. *Jundishapur J Chronic Dis Care*. 2020; 9(3):e100241. [DOI:10.5812/jjcdc.100241]
- [10] Brunetti MA, Glatz AC, McCardle K, Mott AR, Ravishankar C, Gaynor JW. Unplanned readmission to the pediatric cardiac intensive care unit: Prevalence, outcomes, and risk factors. *World J Pediatr Congenit Heart Surg*. 2015; 6(4):597-603. [DOI:10.1177/2150135115594854] [PMID]
- [11] Stayer D, Lockhart JS. Living with dying in the pediatric intensive care unit: A nursing perspective. *Am J Crit Care*. 2016; 25(4):350-6. [DOI:10.4037/ajcc2016251] [PMID]
- [12] Feng D, Su S, Wang L, Liu F. The protective role of self-esteem, perceived social support and job satisfaction against psychological distress among Chinese nurses. *J Nurs Manag*. 2018; 26(4):366-72. [DOI:10.1111/jonm.12523] [PMID]
- [13] Elo S, Kyngäs H. The qualitative content analysis process. *J Adv Nurs*. 2008; 62(1):107-15. [DOI:10.1111/j.1365-2648.2007.04569.x] [PMID]
- [14] Speziale HS, Streubert HJ, Carpenter DR. Qualitative research in nursing: Advancing the humanistic imperative. Philadelphia: Wolters Kluwer Health; 2011. <https://books.google.com/books?id=xNByh3B1Wt0C&dq>
- [15] Rungta N, Zirpe KG, Dixit SB, Mehta Y, Chaudhry D, Govil D, et al. Indian society of critical care medicine experts committee consensus statement on ICU planning and designing, 2020. *Indian J Crit Care Med*. 2020; 24(Suppl 1):S43-60. [DOI:10.5005/jp-journals-10071-G23185] [PMID] [PMCID]
- [16] Borges F, Bohrer CD, Bugs TV, Nicola AL, Tonini NS, de Oliveria JLC, et al. Nursing staff dimensioning at the adult ICU of a public teaching hospital. *Cogitare Enferm*. 2017; 22(2):e50306. [DOI:10.5380/ce.v22i2.50306]
- [17] Sodeify R, Habibpour Z. [Determining nurses understanding of psychological factors at workplace: A qualitative study (Persian)]. *Sci J Nurs Midwifery Paramed Fac*. 2020; 5(4):49-61. <http://sjnmp.muk.ac.ir/article-1-277-en.html>
- [18] Hajiseyedrezaei SR, Alaei N, Zayeri F. [Survey of status stress among nurses that working in critical care units at hospitals of Tehran City (Persian)]. *Nurs Midwifery J*. 2020; 18(1):1-10. <http://unmf.umsu.ac.ir/article-1-3939-en.html>
- [19] Nabizadeh-Gharghozar Z, Sharifi K. [Lifestyles of Iranian nurses, challenges and solutions: A systematic review (Persian)]. *Q J Nurs Manage*. 2020; 9(1):36-45. <http://ijnv.ir/article-1-705-en.html>
- [20] Gholi Roshan S, Jafari S, Asgari MR, Kheirkhah F. [Role of perceived social support and job satisfaction on psychological distress of clinical nurses (Persian)]. *Koomesh: J Semnan Univ Med Sci*. 2020; 22(4):633-43. [DOI:10.29252/koomesh.22.4.633]
- [21] Nobahar M. [Care quality in critical cardiac units from nurses perspective: A content analysis (Persian)]. *J Qual Res Health Sci*. 2020; 3(2):149-61. http://jqrl.kmu.ac.ir/article_90780.html