

# CRITICAL NURSES' EXPERIENCE WHILE PERFORMING CPR AT HOSPITAL X BATAM

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## ABSTRACT

Cardiac arrest is one of the leading life-threatening emergencies, requiring life-saving procedures commonly known as Cardiopulmonary Resuscitation (CPR). In hospitals, nurses are the first responders to cardiac arrest cases. The success of CPR is greatly influenced by several factors that affect nurses' ability to act in emergency situations. This study aims to explore the in-depth experiences of nurses while performing CPR at X Hospital Batam. The research involved 10 critical care nurses, recruited through snowball sampling, with data saturation being achieved. In-depth semi-structured interviews were conducted, audio-recorded, and transcribed verbatim to collect the data. The data were analyzed using Colaizzi's method of analysis. The findings of this study identified five key themes: The Important Role of Nurses during CPR, Accuracy in Therapy Administration, Nurses' Experiences of Pleasant and Unpleasant Emotions, Expectations of CPR Success, and Focusing on the Patient during Family Presence in CPR, among others. In conclusion, the study highlights the diversity of feelings, experiences, abilities, and knowledge that critical care nurses encounter while performing CPR at X Hospital Batam.

**Keywords:** Cardiac Arrest, CPR, Experiences, Nurses

## INTRODUCTION

Cardiac arrest is a sudden cessation of normal heart activity, accompanied by hemodynamic collapse due to arrhythmias. If heart activity ceases within a few seconds, it leads to the collapse of the entire circulatory system. As a result, cardiac arrest is considered one of the leading causes of life-threatening emergencies (Putri, 2022). It is the third leading cause of death in Europe, with out-of-hospital cardiac arrest (OHCA) occurring in approximately 67 to 170 cases per 100,000 inhabitants annually. In contrast, in-hospital cardiac arrest (IHCA) cases in Europe range from 1.5 to 2.8 per 1,000 hospital admissions (Gräsner et al., 2021). In the United States, there are over 356,000

cases of OHCA annually, with nearly 90% resulting in fatality (Newman, 2023). Additionally, approximately 290,000 cases of IHCA occur each year in the U.S. (Andersen et al., 2019). In China, more than 230 million people suffer from cardiovascular disease, and approximately 550,000 individuals experience cardiac arrest annually, with a survival rate of less than 1% (Yan et al., 2020).

According to the Global Burden of Disease (GBD) and the Institute for Health Metrics and Evaluation (IHME) reports from 2014 to 2019, cardiovascular disease is the leading cause of death in Indonesia. Data from the Riset Kesehatan Dasar (Riskesdas)

indicates an increase in cardiovascular disease prevalence from 0.5% in 2013 to 1.5% in 2018 (Tarmizi, 2022). In the Riau Islands, 1.2–1.9% of the 8,173 individuals surveyed were diagnosed with cardiovascular disease by a physician. Unfortunately, comprehensive data on cardiac arrest are unavailable; however, it is estimated that approximately 10,000 people experience cardiac arrest annually in the region (Ismiroja & Mulyadi, 2018). Effective management of cardiac arrest requires the ability to detect and respond swiftly and accurately to restore spontaneous circulation (ROSC). This highlights the critical importance of cardiopulmonary resuscitation (CPR), an emergency life-saving procedure performed when the heart stops beating. CPR significantly increases the chances of survival following cardiac arrest (AHA, 2023). In general, nurses are typically the first responders in cardiac arrest cases, initiating basic life support (BLS) while awaiting the arrival of the advanced cardiovascular life support (ACLS) team.

The success of cardiopulmonary resuscitation (CPR) is significantly influenced by the readiness, skills, creativity, and experience of nurses in managing emergency situations. Adequate experience provides nurses with the opportunity to encounter new challenges,

which can serve as valuable learning guides for future actions. This, in turn, enhances their ability to deliver high-quality care in subsequent emergency scenarios. Given the critical role of nurses and the importance of their experience during CPR, it is not surprising that CPR is considered one of the most stressful situations for nurses, both during and after resuscitation efforts (Koželj et al., 2021). Accordingly, this study aims to explore nurses' experiences in-depth while performing CPR.

## **METHOD**

This study employed qualitative design with a phenomenological approach. The participants included 10 critical care nurses from the Emergency and Intensive Care Units, recruited through snowball sampling until data saturation was achieved. Data collection was conducted through in-depth semi-structured interviews, which were audio-recorded and transcribed verbatim. The data were analyzed using qualitative content analysis following Colaizzi's method.

In this study, several ethical principles were upheld, including respect for humanity, beneficence, non-maleficence, and justice (Polit and Beck, 2021). Ethical clearance for this research was obtained from Awal Bros University, under the approval

number 0051/UAB1.20/SR/KEPK/06.23.

The principle of respect for humanity emphasizes the importance of respecting individual autonomy and freedom. In this study, this principle was applied by prioritizing the decisions of potential participants. They retained the right to decide whether to continue or withdraw from the study without any coercion. For those who agreed to participate, informed consent was provided to obtain their approval. The researcher ensured that participants were fully informed about the study, including its objectives, potential risks, and possible impacts, in a comprehensive manner. Additionally, the researcher upheld the ethical principles of beneficence and non-maleficence by prioritizing the well-being of participants and minimizing any potential harm.

In this research, anonymity was maintained to ensure the security and privacy of participants. Additionally, the researcher upheld impartiality by avoiding discrimination against participants from any group throughout the research process, including during interviews, data examination, and the verification of verbatim transcripts. This approach reflects adherence to the ethical principle of justice. Furthermore, qualitative research typically relies on data triangulation, which involves

collecting data through three methods: interviews, participant observation, and document analysis (Fadli, 2021).

## **RESULT**

From the research conducted on July 15 2023, the following result were obtained:

### **Participant characteristics**

The participants consisted of 10 critical care nurses from the Emergency Department (ED) and Intensive Care Unit (ICU), including 2 males and 8 females, with an average age range of 25–40 years. Their educational backgrounds varied from Nursing Diplomas to the Nursing Profession Program (NERS), and their work experience ranged from 1 to 15 years. Data saturation was achieved during the study, as participants provided consistent responses to the questions. However, differences in terminology were noted between the ED and ICU nurses. ED nurses commonly stated, "If there are any emergency cases, they will be admitted to the resuscitation room," while ICU nurses used terms such as "patients with high quality of life" and "patients with low quality of life."

### **Results of thematic analysis and theme identification**

There were five main themes, each

accompanied by two sub-themes.

### **First theme: The Significant Role of Nurses while performing CPR**

From this theme, two sub-themes were identified: the ability to assess patients and teamwork. As ED nurses, they often face unexpected CPR situations with limited information about their patients. On the other hand, ICU nurses also frequently deal with CPR procedures, as ICU units specialize in caring for critically ill patients, many of whom are terminally ill. Therefore, the ability to assess patients and effective teamwork are crucial to increasing the chances of survival. The sub-theme of the ability to assess patients is explained as follows:

*“... patient was taken to the ED room then was examined and there was no breath, no pulse as detected then the patient will be transferred immediately to the resuscitation room,...”* (Participant 1)

*“The experiences while performing CPR. First of all, we found the patient who had no breath, no pulse. Then I checked the patient’s response and still no responses, next we decided to do CPR for the patient,...”* (Participant 8)

Meanwhile, the sub-theme of teamwork will be explained on:

*“... next, we do the CPR while everyone moves, so it is not about who finds the patient first. We do it simultaneously,...”*  
(Participant 1)

*“If there is no pulse and breath, we do the CPR immediately with the physician.”*  
(Participant 3)

*“First, surely there are emergency patient then we have CPR team. Then we do the CPR with 30:2 compression-ventilation ratio.”* (Participant 5)

*“Cardiac arrest patient, we tell the doctor then we bring emergency trolley near us. Then we do the CPR while the doctor gave the advices that based on the theory it was 30:2 compression-ventilation ratio”*  
(Participant 10)

### **Second theme: The Accuracy of Administration Therapy**

Participants' experiences highlighted the accuracy of administering therapy, including chest compressions and drug therapy. The participants' knowledge about chest compressions was evident in their ability to accurately convey their understanding during the interviews. Their knowledge encompassed key aspects such as the 30:2 compression-ventilation ratio in CPR, performing compressions at a depth of at least 5-6 cm at a rate of 100-120

compressions per minute, ensuring complete recoil, and the importance of evaluating and supporting cardiac arrest survivors.

*“The correct technique of CPR is hands located in the 1/3 sternum or the left chest so that it can be same as the anatomy of heart position, the 30:2 compression-ventilation ratio, so we do 30 times of compressions and 2 times of ventilations during 5 cycles then we evaluate the patient by checking the pulse. If the pulse still being impalpable then we continue doing CPR.”* (Participant 2)

*“In my opinion, to do the correct technique of CPR is that we know the right position of our hands, we do the CPR with push hard and complete recoil. If we do the CPR with the correct technique, correct rhythm and the fast is about 100-120/min it will affect the outcome of CPR..”* (Participant 4)

*“The correct technique of CPR is the location of hand which is 1/3 of the lower sternum, push hard about 5-6 cm and make sure our full recoil too.”* (Participant 10)

In terms of drug therapy, 5 out of the 10 participants mentioned commonly used medications during CPR, including Sulfat Atropine (SA) and Epinephrine.

*“Then the drug administration is also given to the patient...”* (Participant 7)

*“And the drugs administration, to increase arterial blood pressure and coronary perfusion during CPR. SA and Epinephrine are given usually.”* (Participant 9)

### **Third theme: Nurses' Experience of Pleasant and Unpleasant Feelings**

Nurses' involvement in resuscitation can evoke a range of emotions. Pleasant feelings include happiness, relief, satisfaction, and a sense of being blessed. Conversely, CPR can also bring about unpleasant emotions, such as disappointment, guilt, fear of being sued, regret, sadness, exhaustion, resignation, and empathy.

*“It is such a satisfying feeling, being able to save someone.”* (Participant 3)

*“If the patient ROSC, I feel relieved, we can give the best treatment and it works.”* (Participant 4)

*“It feels happy and blessed when the patient survive or ROSC and improves.”* (Participant 9)

*“If the patient died, I feel disappointed.”* (Participant 1)

*“Patient with low life saving, we still do the CPR, but there is a sence of resignation and empathy.”* (Participant 6)

*“After performing CPR, I am definitely tired”* (Participant 8)

#### **Fourth theme: The Expectations of CPR Successfulness**

This study found that the success of CPR is influenced by the patient's condition. For instance, patients with a high quality of life who receive immediate CPR are more likely to achieve return of spontaneous circulation (ROSC) and be successfully treated in the ICU.

*“Some patients are ROSC and be treated in ICU.”* (Participant 2)

*“In the ICU we faced various condition of patients such patient with high-quality of life and also low-quality of life. So my experiences based on the patient’s condition. Some are survive or ROSC..”* (Participant 6)

Additionally, patients with a low quality of life or those with terminal illnesses, who are typically treated in the ICU, generally have a lower chance of CPR success.

*“As long as I did the CPR, patient entered to the ED were already in the severe condition so they are definitely intubated.”* (Participant 2)

*“If there is a patient with low-quality of life and just lying on the bed or no goals, we still do CPR while thinking of their family, whether the family be able to do home treatment of their family member.”* (Participant 7)

#### **Fifth theme: Focusing on The Patient during FPDR and others**

Although nurses frequently perform CPR, each individual's response can vary. Additionally, the presence of family members during CPR (FPDR) and other factors can evoke a range of feelings and experiences. Two sub-themes were identified: junior nurses with less than five years of experience and senior nurses with more than five years of experience. Junior nurses reported feeling afraid of making mistakes, both in front of senior colleagues and other healthcare professionals, as well as concerned about how their actions might impact the patient’s condition.

*“As fellow of healthcare professionals, I feel free, more confident in taking action, but if in the presence of patient’s family I feel reticent, they shouldn’t see when a patient is being treated.”* (Participants 2)

*“I was afraid of making mistakes both in presence of seniors and others healthcare professionals, whether it is correct or not. In real life what we do is what patient feels.”*

*And I feel sad with the presences of family member when they see their member incapacitated.” (Participant 5)*

The responses from senior nurses indicated that they generally felt calm and composed, both in the presence of other healthcare professionals and family members. Due to their extensive experience in performing CPR, they are more accustomed to the procedure, which allows them to focus primarily on the patient’s condition.

*“Because I’ve often done it, I only focus on my patient’s condition. How we see the rhythm on the monitor or maybe patient’s sign of ROSC. If FPDR we respect them but try to not showing them the procedure because they will feel sadful. (Participant 4)*

*“I feel confidence and just focus to the patient because I understand the theories and the indications. So as long as we understand what we do then it is absolutely and no burdensome feeling.” (Participant 8)*

## **DISCUSSION**

Several studies related to nurses’ experiences while performing CPR have been conducted in various countries. According to Ismiroja, Mulyadi, Kiling (2018), their study showed that nurses’ experience in handling cardiac arrest was

influenced by both their knowledge and readiness, as well as limitations in facilities and infrastructure.

In a study by Nayeri et al. it was reported that nurses faced numerous challenges and limitations before, during, and after performing CPR. Therefore, the study emphasized the importance of improving nurses’ ability to manage and implement CPR effectively. The study summarized the challenges into four key categories: 1) Human resources (a) fluctuations in coordination and cooperation, (b) abilities, (c) motivation; 2) Management and procedures (a) CPR, (b) shock, (c) airway, (d) drug therapy, (e) vascular access; 3) Context and structural roles (a) equipment and physical space, (b) contextual factors, (c) time loss; and 4) Law and ethnicity (a) guidelines, (b) reporting and evaluation, (c) the power of conscience.

Additionally, Saud et al. (2020), found that many nurses lacked sufficient knowledge about CPR, with a significant relationship between nurses’ knowledge and their academic qualifications.

## **CONCLUSION**

The findings of this study highlight the diversity of feelings and experiences, as well as the abilities and knowledge, demonstrated by critical nurses while performing CPR at

X Hospital in Batam, Indonesia. These insights are crucial for providing optimal health services to all those in need of medical care. The results of this research were categorized into five main themes: 1) The Significant Role of Nurses while Performing CPR, 2) The Accuracy of Administration Therapy, 3) Nurses' Experiences of Pleasant and Unpleasant Feelings, 4) The Expectations of CPR Success, and 5) Focusing on the Patient during FPDR and Other Considerations.

This section also includes several suggestions for various parties. First, for hospital services, it is recommended to continue regular training activities every two years, incorporating the latest scientific advancements. Additionally, the hospital could consider organizing an event titled "RS X Goes to..." This event could take place in public spaces such as schools, harbors, airports, and other community areas, serving as an educational platform to increase public awareness about cardiac arrest and how to respond to it. Such events could coincide with significant days, such as World Heart Day on September 29th.

For nursing education, further studies are needed to explore issues related to nurses' experiences and to expand the literature on the subject to improve relevant information. Future researchers could consider conducting in-depth interviews using different sample selection methods,

including various nursing units, to enrich the diversity of characteristics in this qualitative research. Additionally, employing a mixed-methods approach in future research may provide a more comprehensive understanding of the subject matter.

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## REFERENCES

- Andersen, L. W., Holmberg, M. J., Berg, K. M., Donnino, M. W., & Granfeldt, A. (2019). In-Hospital Cardiac Arrest: A Review. *JAMA*, *321*(12), 1200–1210. <https://doi.org/10.1001/jama.2019.1696>
- American Heart Association. (2023). What is CPR? *American Heart Association*. <https://cpr.heart.org/en/resources/what-is-cpr#:~:text=CPR%20E2%80%93%20or%20Cardiopulmonary%20Resuscitation%20E2%80%93%20is%20one%20dies%20from%20cardiac%20arrest>
- Tarmizi, S. N. (2022). Penyakit jantung penyebab utama kematian, Kemenkes perkuat layanan primer. *Kementerian Kesehatan Republik Indonesia*. <https://sehatnegeriku.kemkes.go.id/baca/rilis-media/20220929/0541166/penyakit-jantung-penyebab-utama-kematian-kemenkes-perkuat-layanan-primer/>
- Gräsner, J. T., Herlitz, J., Tjelmeland, I. B. M., Wnent, J., Masterson, S., Lilja, G., Bein, B., Böttiger, B. W., Rosell-Ortiz, F., Nolan, J. P., Bossaert, L., & Perkins, G. D. (2021). European Resuscitation Council guidelines 2021: Epidemiology of cardiac arrest in Europe. *Resuscitation*, *161*, 61–79. <https://doi.org/10.1016/j.resuscitation.2021.02.007>
- Ismiroja, R., Mulyadi, N., & Kiling, M. (2018). Pengalaman perawat dalam penanganan cardiac arrest di instalasi gawat darurat RSUP Prof. Dr. R. D. Kandou Manado. *Jurnal Keperawatan*, *6*(2), Article 21576. <https://doi.org/10.35790/jkp.v6i2.21576>
- Koželj, A., Šikić Pogačar, M., Fijan, S., Strauss, M., Poštuvan, V., & Strnad, M. (2021). Exploring the Feelings of Nurses during resuscitation-a cross-sectional study. *Healthcare(Basel,Switzerland)*, *10*(1),5. <https://doi.org/10.3390/healthcare10010005>
- Newman, M. M. (2023). The following summary by the Sudden Cardiac Arrest Foundation of selected highlights of the “American Heart Association Heart and Stroke Statistics - 2022 Update” focuses on out-of-hospital cardiac arrest in the U.S. *Sudden Cardiac Arrest Foundation*. <https://www.sca-aware.org/about-sudden-cardiac-arrest/latest-statistics#:~:text=The%20American%20Heart%20Association%20has,nearly%2090%25%20of%20them%20fatal>
- Nayeri, N. D., Senmar, M., & Ghobadi, A. (2020). Nurses’ experiences of managing cardiopulmonary resuscitation: A qualitative study. *Journal of Clinical and Diagnostic Research*, *14*(10), LC01–LC04. <https://doi.org/10.7860/jcdr/2020/44344.14031>
- Putri, R. Y. I. (2022). Henti jantung mendadak. *Kemenkes RI*. [https://yankes.kemkes.go.id/view\\_artikel/1911/henti-jantung-mendadak](https://yankes.kemkes.go.id/view_artikel/1911/henti-jantung-mendadak)
- Saud, A. T., Khudhair, A. S., & Ali, A. H. (2020). Assessment of nurse’s knowledge about cardiopulmonary resuscitation (CPR) in intensive care units and emergency department in Basra Teaching Hospital. *Scholars Journal of Applied Medical Sciences*, *8*(3), 887–893. <https://doi.org/10.36347/sjams.2020.v08i03.017>

Yan, S., Gan, Y., Jiang, N., Wang, R., Chen, Y., Luo, Z., Zong, Q., Chen, S., & Lv, C. (2020). The global survival rate among adult out-of-hospital cardiac arrest patients who received cardiopulmonary resuscitation: A systematic review and meta-analysis. *Critical Care*, 24(1), 8–13. <https://doi.org/10.1186/s13054-020-2773-2>