Qualitative assessment of nurse satisfaction in the paediatric cardiac ICU

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Original Article

Abstract

The objective of this qualitative assessment, utilising the constant comparative method, was to identify satisfiers and dissatisfiers that influence paediatric cardiac ICU nurse retention and recognise areas for improvement. Interviews for this study were performed in a single, large academic children's hospital from March of 2020 through July of 2020. Each bedside paediatric cardiac ICU nurse underwent a single semi-structured interview. Among 12 interviews, four satisfiers were identified: paediatric cardiac ICU patient population, paediatric cardiac ICU care team, personal accomplishment, and respect. Four dissatisfiers were identified: moral distress, fear, poor team dynamics, and disrespect. Through this process of inquiry, grounded theory was developed regarding strategies to improve paediatric cardiac ICU nurse retention. Tactics outlined here should be used to support retention in the unique environment of the paediatric cardiac ICU.

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The highly anticipated critical nursing shortage is upon us. In 2010, the World Health Organization reported that 86% of member countries in a global survey were experiencing nursing shortages.[1] Since that time, the global nursing shortage has become so significant that a research prioritisation exercise conducted in the United States of America and United Kingdom among healthcare professionals and patient families in 2019 identified it as a top research priority.[2] Shortages continue to increase and are now exacerbated by the emergence of the SARS-CoV-2 pandemic. Fewer nurses are choosing to stay in bedside nursing their entire careers, and turnover is particularly high among critical care nurses.[3] In a 2015 Canadian study, 24% of critical care nurses reported an intent to leave their current role in the next year.[4]

Paediatric critical care nurses are highly specialised and require intensive training to provide high-quality bedside care.[5] In 2014, Duffield et al. found that the average cost to train a new critical care nurse in the United States of America was $20,561.[6] Additional costs are incurred when nurses are paid overtime or when travel nurses must be hired to maintain adequate staffing.[7] Nurse staffing models within the paediatric cardiac ICU in the United States of America vary widely.[8] Recent studies within paediatric cardiac ICUs have directly linked patient mortality to years of bedside nurse clinical experience and patient complications to level of nursing education.[9,10] Thus, retention of paediatric cardiac ICU nurses is paramount as turnover represents a significant financial burden as well as a loss of crucial clinical expertise.

Nurses are at particularly high risk for job stress and burnout, but studies have shown these effects can be mitigated.[11] New nurses appear to be particularly at risk. Blake et al found an inverse relationship between years of experience and intent to leave.[12] The concept of the "Healthy Work Environment" is well established, and validated tools have been developed to measure defined benchmarks.[13] A healthy work environment has been linked to staff satisfaction and retention, and it provides the theoretical framework for this work, which will be discussed further in this article.

Most nursing satisfaction studies to date have focused on adult critical care nurses and have utilised survey-based quantitative methods to gauge nursing satisfaction. These studies rely on predetermined questions and do not allow the same degree of inquiry that is achieved with qualitative methods. Qualitative methods have been shown to be highly effective in outcomes research in healthcare.[14] Qualitative methods seek to "shine a light" on natural phenomena, and researchers must approach each study with as few preconceived ideas as possible.[15]

Establishing validity is particularly challenging and important in qualitative assessment because conclusions are drawn and not calculated, as in quantitative assessment. "Qualitative Research" by Merriam and Tisdell states: "One of the assumptions underlying qualitative research is that reality is holistic, multidimensional, and ever-changing; it is not a

single, fixed, objective phenomenon waiting to be discovered." Despite these challenges, rigorous standards of validity were maintained throughout this study, including assessment of internal validity based on review by paediatric cardiac ICU nurses and triangulation of information from multiple sources (interviews).

The work presented here utilises a qualitative research approach to address nursing satisfaction in a single paediatric cardiac ICU at a large academic children's hospital. This work is also innovative because the primary investigator was a physician who provides novel perspective, unaffected by prior experience working in a nursing role. Specific aims were 1) to define satisfiers and dissatisfiers which influence retention in the paediatric cardiac ICU and 2) to identify potential areas in which retention can be positively impacted.

Materials and methods

Study design

This was a qualitative assessment utilising semi-structured interviews of paediatric cardiac ICU nurses at Cincinnati Children's Hospital Medical Center from March 2020 through July of 2020. The study was reviewed by the Cincinnati Children's Hospital Medical Center Internal Review Board and deemed IRB exempt. An informed consent form was reviewed and signed by each participant prior to his or her interview (Supplemental 1).

Population and setting

All nurses in the Cincinnati Children's Hospital Medical Center paediatric cardiac ICU received an email requesting participation. Nurses who had worked in the paediatric cardiac ICU for at least a year were accepted in order of response. The goal was to complete at least 12 interviews with nurses of various years of experience (1–< 3 years, 3–< 6 years, and 6 or more years) and to ensure representation of nurses from dayshift and nightshift. Interim analysis after 5 interviews demonstrated appropriate variability in level of experience but underrepresentation of nightshift nurses. A second email was distributed requesting increased recruitment of nightshift nurses, which was subsequently achieved. (Table 1) Interviews were conducted until data saturation was achieved, meaning that subsequent interviews provided no new insight into the phenomenon being studied.

Data collection

Interviews were conducted by the primary investigator, in a private meeting room adjacent to the paediatric cardiac ICU following or prior to the nurse's shift. One interview was completed by phone. Four primary questions were utilised to direct each interview. (Table 2) Interviews were audio recorded and transcribed within 72 hours by the primary investigator. Interviews were approximately 20 to 30 minutes in length producing 6 to 8 pages of single-spaced transcript per interview. Each participant was assigned a unique identification number. All data were securely stored throughout data collection and analysis.

Data analysis

All interviews were coded by the primary investigator and reviewed by the senior author. Utilising the process of analytical coding, codes were grouped into core categories which spanned the 12 interviews.[15] Three phases of coding (open, axial, and selective) were performed, as described by Corbin and Strauss.[16] During

Table 1. Demographics of nurses interviewed

	Number	Percent of Total
Gender		
Male	2	17%
Female	10	83%
Years of Experience in Nursing		
> 1–< 3 years	3	25%
3–< 6 years	4	33%
≥ 6 years	5	42%
Years in the Cincinnati Children's Hospital Medical Center Paediatric Cardiac ICU		
> 1–< 3 years	4	33%
3–< 6 years	4	33%
≥ 6 years	4	33%
Shift		
Day shift	6	50%
Night shift	2	17%
Rotating days/nights	3	25%
Other	1	8%

open coding, all interviews were reviewed and annotated with descriptors related to the study. Using axial coding, these descriptors were grouped. Selective coding was used to develop categories, or theories, about satisfiers and dissatisfiers. The constant comparative method developed by Glaser and Strauss was utilised to develop grounded theories, which were then used to generate hypotheses regarding paediatric critical care nurse job satisfaction and retention.[17]

Results

Four core categories were developed for nurse satisfiers and dissatisfiers (Figure 1). Satisfiers were identified as 1) paediatric cardiac ICU patient population, 2) paediatric cardiac ICU care team, 3) personal accomplishment, and 4) respect. Dissatisfiers were identified as 1) moral distress, 2) fear, 3) poor team dynamics, and 4) disrespect.

Satisfier: PCICU patient population

The most consistently identified satisfier, cited by 11 out of 12 nurses, was the paediatric cardiac ICU patient population. This core category could further be divided into paediatric cardiac ICU patient potential, paediatric cardiac ICU patient progress, and affinity for the paediatric cardiac patient population in general. Regarding patient potential, multiple nurses cited seeing pictures of patients at home or in school and reported this to be gratifying.

> "Even though he had every complication under the sun, to see him make it out of here and then the family sends us pictures of him at home. That is the biggest joy." CICU02† (†Deidentified nurses designated by "CICU#")

In the paediatric cardiac ICU, daily patient progress, especially immediately postoperative, was also fulfilling:

Table 2. Interview questions

	Question	Intent
1.	Please, take me through a usual day at work for you.	Encourage nurses to visualise their work environment
2.	How do you feel when you leave work most days?	Elicit satisfiers/dissatisfiers from recent work experiences
3.	Thinking about the past 6 months, would you say that you are mostly happy with your current job in the paediatric cardiac ICU or mostly unhappy? Why?	Elicit satisfiers/dissatisfiers from more distant work experiences
4.	What do you think drives Cincinnati Children's Hospital Medical Center paediatric cardiac ICU nurses to stay or seek other employment?	Focus on key drivers for retention

> "I just think that part of it is neat: being able to, I mean, even in the short term, seeing how sick they were, and being able to just send them to the floor is a big deal." CICU07†

When necessary, nurses defined occurrences of difficult conversations between patient families and the medical team as "patient progress," and these were often a relief to the bedside nurse.

> "The most important thing is those hard conversations. When we wait and wait on them and then they finally happen, and those parents get those answers, that's the best thing." CICU05†

Some nurses simply stated an intrinsic love for children with congenital heart disease and felt paediatric cardiac ICUs provided hope for patients who would otherwise have none.

Satisfier: paediatric cardiac ICU care team

The second category identified as a satisfier for nurses in the paediatric cardiac ICU was the care team. Multiple nurses stated that they stayed in their current role because of affinity for their colleagues.

> "I generally like 90% of the people I work with, so it makes me continue to love what I do and where I do it." CICU04†

Teamwork between nurses, providers, and other staff was a key element of satisfaction. Approachability and support from management and the medical team were cited to be of particular importance. For all nurses, but especially newer nurses, the ability to ask questions in a non-intimidating forum and receive answers without perceived judgement was crucial.

> "I can ask them a question about a diagnosis like, 'I don't understand this; please, explain it to me' without judgement or without feeling like I failed." CICU08†

Between nurse colleagues, nurses appreciated the ability to commiserate on difficult days and to celebrate achievements on successful ones. The quality nurses most frequently cited as vital were "having each other's back."

Satisfier: personal accomplishment

Personal accomplishment was another consistent satisfier. This category could be further divided into patient care, personal growth, and outside perception. Regarding patient care, nurses felt accomplished when they successfully cared for challenging patients. A third of nurses specifically cited satisfaction from the ability to identify decompensating patients before the patient significantly deteriorated. In correlation with the first satisfier, nurses felt accomplished when they played a role in patient progress.

> "Typically, you want to have some sense of accomplishment that you actually made either an improvement or that you maintained where they are so that they can, you know, proceed on the trajectory that everybody has planned for them." CICU03†

On a personal level, nurses in the paediatric cardiac ICU liked to be challenged. They felt motivated to read about their patients outside of work and liked being able to teach. Multiple nurses stated that they felt increasingly confident at work. Nurses also stated that they felt like their work "really matters." Finally, nurses liked to be identified by others outside the paediatric cardiac ICU as intensive care nurses who could "handle anything."

> "I think that people here want to be challenged and they kind of like the stigma of, you know 'I'm a pediatric cardiac ICU nurse.'" CICU08†

Satisfier: respect

The final category for satisfaction was broadly characterised as respect, which was further subdivided into being valued and being empowered. Nurses felt particularly valued when their fellow nurses or the medical team took time to teach them.

> "Having people teach me and sit there with me and walk me through things and devote their time really made me feel like it was important to them for me to be there and to better myself." CICU08†

This category aligned closely with the category of the paediatric cardiac ICU care team. Nurses felt valued and respected when they were able to ask questions without judgement, even when those questions challenged the current management of the patient. When nurses felt empowered to question the treatment plan, they felt that their professional decision making was utilised.

> "That makes you feel good because then it validates your professional opinion and your personal opinion, and we're all still people." CICU05†

Even in difficult situations when the patient outcome was likely to be poor, nurses felt increased satisfaction when their experience within the patient room was validated by the medical team. As their experience increased, being empowered to teach made nurses feel that their expertise was valued. Finally, acts of appreciation from administration or nurse committees were gratifying for nurses.

> "It speaks towards, "We know it's been a rough time. Your hard work doesn't go unacknowledged." CICU03†

Dissatisfier: moral distress

The most consistently identified dissatisfier, cited by 11 out of 12 nurses, was moral distress. Moral distress is defined as "when a healthcare provider believes he or she knows the ethically correct action but cannot follow that action due to interpersonal, institutional, regulatory, or legal constraint."[18] The majority of nurses reported continuing to care for patients with low likelihood of positive outcomes in the paediatric cardiac ICU, which was especially distressing when minimal progress was seen on a daily basis.

> "The exhausting end of the [spectrum] would be the kids that, across the board, the kids that are in multi-system organ failure, and we're still doing all the things." CICU07†
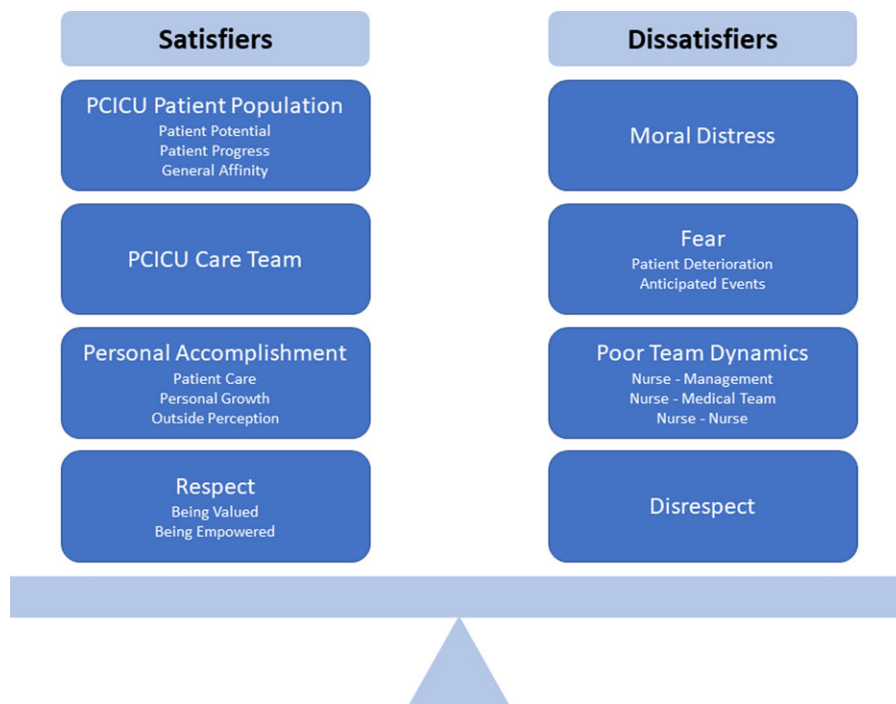
Figure 1. Satisfiers and dissatisfiers for nurses in the pediatric cardiac intensive care unit. PCICI = paediatric cardiac ICU.

Delay in the medical team initiating difficult conversations was also upsetting and was magnified for nurses who were the ones in the room providing direct patient care.

> "You're not in there every, you know, few minutes of every hour. You don't know what it's like, and you don't see their faces." CICU02†

Nurses also reported distress in interacting with patient families who were in extremis and who were unlikely to fully comprehend the patient's projected course. Some nurses stated that they wanted to focus more on quality over quantity of life. Many felt that the paediatric cardiac ICU was a sad place in general and that some nurses left because it was too sad.

> "For lack of a better word, [it is] just a sad unit to be a part of." CICU03†

Finally, nurses reported feeling the pressure of supporting fellow nurses through difficult patient situations.

Dissatisfier: fear

Another consistent dissatisfier was categorised as fear, which could be divided into fear at the time of patient deterioration and fear of anticipated events. Patterns were noted in this category based on level of seniority. The majority of nurses with 1–3 years of experience and all nurses with 3–6 years of experience cited concerns within this category. No nurses with 6 or more years of experience cited any dissatisfiers within this category. Nurses felt demoralized and feared they "missed something" when patients deteriorated or died unexpectedly. This feeling was noted even if the patient decompensated in the subsequent shift after the nurse left. Multiple nurses stated that being a new nurse in the paediatric cardiac ICU was particularly difficult.

> "I think [my] burnout in the past has just been like being tired, being new, and not quite comprehending all of this. Like, seeing things go wrong and not knowing why they went wrong and how to fix them." CICU06†

The fear of anticipated events centered around both a fear of patient events and a fear of appearing incompetent.

> "The first year was like really really hard. I felt like I didn't know anything, and I just was worried every day that I was going to kill somebody." CICU11†

A third of nurses, all within the two less experienced groups, specifically cited fear of approaching the medical team and nurse colleagues with questions.

> "I would never let my personal fear of feeling stupid stop me from doing something that I felt like I needed to do for the patient, but it's always a thought in my mind." CICU12†

Finally, nurses feared being talked about negatively for pulling the code alarm or for asking "stupid" questions.

Dissatisfier: poor team dynamics

The third dissatisfier identified was poor team dynamics, which was divided into interactions between nurses and management, between nurses and the medical team, and among nurses. Regarding management, the findings were mixed. Multiple nurses reported feeling well supported by their manager, which was a satisfier, while others felt like their managers did not understand their work challenges or were condescending. More consistently, almost half of the nurses interviewed reported frustration when they felt like their concerns were underappreciated or unheard by the medical team.

> "It's just kind of like a one-way conversation and a one-way decision. And then, it's kind of like, well, alright, I'll just sit back and wait for my orders to do what we need to do." CICU03†

Interactions between nurses were the most robustly discussed interactions within this category. Nurses at all levels of experience reported feeling under-supported when they were new. Nurses in the most experienced group reported concern that new nurses are not receiving adequate training, out of necessity, due to high nursing turnover.

> "You take those people that got a skeleton version of orientation, and now, they have precepted a group of people and also only provided that skeleton

version. And now those people are orienting. So what we have is like two or three generations of newer nurses that don't know the things that they need to know. But they don't know that they don't know it." CICU07†

This led experienced nurses, who were in charge or in roles helping newer nurses, to feel the pressure of supporting multiple patients. Only a single nurse expressed that nurses using the paediatric cardiac ICU as a "stepping stone" to further education was a dissatisfier.

Dissatisfier: disrespect

The final dissatisfier was defined as disrespect. Disrespect was the least frequently identified dissatisfier, and it contained elements of the other three categories. Multiple nurses stated that, at times, they had felt a lack of respect from all levels of the care team: surgeons, the surgical team, physicians, nurses, patients, and families. Nurses felt particularly disrespected when time was not taken to teach them. Regarding her preceptor, one nurse stated:

> "She didn't want to teach. And so I, you know, you can just feel that, and [it] doesn't make you want to be here." CICU11†

One newer nurse described feeling like it was difficult for her to prove that she should be taking more critically ill patients, while a more experienced nurse stated she felt like older nurses were phased out of patient care in various ways, including being assigned to less complex patients.

Discussion

The findings explored here are part of a larger discussion about nursing retention. In the paediatric cardiac ICU, there exists a baseline level of nurse turnover for positive reasons such as opportunities for continuing education and advancement. As new competing factors like the role of travel nursing develop; however, stakeholders in the paediatric cardiac ICU must develop ways to aggressively retain our current paediatric cardiac ICU nurses. These nurses have chosen to work in the paediatric cardiac ICU for many of the reasons identified here, and they are among our most valuable resources.

Previous studies have suggested that nursing managers are the key to retaining nurses. Blake et al wrote, "Nurses do not leave organizations, they leave their managers."[12] Interestingly, that was not seen in this study. Multiple nurses here reported significant satisfaction with their nursing manager, which did not coincide with overall job satisfaction. Burke and colleagues completed a qualitative analysis of successful nursing directors.[19] They stated that successful directors empower their nurses and enhance their autonomy. They also balance autonomy with support in a non-judgemental environment. Many of these findings were supported here, but they were not specific to nursing directors. Findings of this study reflect that nursing satisfaction and retention are the responsibility of everyone in the paediatric cardiac ICU. Fellow nurses and nurse managers play key roles, but so do physicians and other providers in particular.

In 2005, the American Association of Critical-Care Nurses published their landmark six standards for a "Healthy Work Environment": skilled communication, true collaboration, effective decision making, appropriate staffing, meaningful recognition, and authentic leadership.[20] These standards seek to support excellent patient care as well as nursing retention. Despite the recognition of these standards, a 2013 follow-up survey demonstrated a decrease in healthy work environments for nurses.[21] The single survey item with the largest decline was: "RNs are valued and committed partners in making policy, directing and evaluating clinical care, and leading organizational operations." Not incorporating nurses into clinical decision making negatively impacts both patient care and nurse retention.[22] These findings were supported by the nurses interviewed here and provided a theoretical framework for our work.

This study suggests a mandate for a change in paediatric cardiac ICU culture. While this is the most difficult type of change, it is the most valuable. It would be easy to say that categories like "respect" and "disrespect" suggest that simply being nicer to nurses is sufficient. This study suggests that the issue is more complex. For instance, one key action that reflected respect to nurses was teaching. The physiology of the patients in the paediatric cardiac ICU is challenging. Nurses and medical trainees are often dismissed because the content is "too difficult." When given the chance, both groups rise to the challenge. As self-confidence increases, empowerment increases.[23] As leaders on the team, physicians and other providers must work to empower and educate those around us while creating an environment that is conducive to learning.

Physicians must also recognise that we are fallible and welcome discussion and questioning of the plan by our nursing colleagues. When plans are made as a team, nurses are respected and utilise their expertise to the fullest degree. A recent qualitative assessment of stressors in senior paediatric nurses found that nurses feel "powerless to provide quality care" when the medical team does not seek or acknowledge their opinions.[24] In contrast, nurses who are allowed to share their concerns and opinions are less likely to leave their current position.[25,26] These conversations must be had respectfully and in forums that do not detract from patient-centered care, but they are of utmost importance both to patient care and in enhancing nurse satisfaction.

Moral distress was identified as the most consistent dissatisfier in this study, and it has been strongly linked to nurse burnout.[27] The paediatric cardiac ICU pushes the boundaries of viability in an extremely challenging patient population, which often leads to moral distress for nurses at the bedside. We are called to limit suffering whenever possible, but nurses in the paediatric cardiac ICU will continue to be asked to care for patients with poor prognoses. In these situations, nurses reported relief when physicians and other team members validated their experiences. Nurses saw difficult conversations with families as a form of patient progress, which was a satisfier for nurses. Based on findings here, we should have these discussions early and often. Conferring with nurses on how best to approach patient families will benefit families and nurse satisfaction.

In the literature, moral distress in nursing is also caused by pressure from administrators or insurers to reduce costs, leaving nurses with inadequate resources to provide optimal patient care.[28] This was exemplified in our study by senior nurses being concerned about inadequate training in junior nurses. This led senior nurses in our study to feel the pressure of supporting the entire unit. Another critical finding of this study is that many nurses in the paediatric cardiac ICU feel fear daily. They appropriately fear patient deterioration, but they also expend considerable energy fearing judgement from their nursing and medical colleagues. This is particularly true of newer nurses who are at the highest risk for burn out and lack of retention.[29,30] Since critical care nurses tend to be a young cohort of nurses, the paediatric cardiac ICU can become a revolving door.[4]

This study demonstrated that senior nurses seem to have largely overcome the inappropriate fear of judgement. We must continue

to develop ways to support nurses in the paediatric cardiac ICU who are early in their careers. This area is ripe for further research and implementation of educational curricula. New teaching modalities and just-in-time teaching must be employed to engage a new generation of learners.[31] At minimum, we must never shame or embarrass nurses for asking questions. At best, we can actively cultivate a supportive teaching environment. In this and other studies, practice environment has been found to play a pivotal role in critical care nurse job satisfaction.[32]

As new generations of nurses enter the field, the old model of bedside nursing for an entire career is increasingly rare. During this study, multiple nurses volunteered that they were asked as early as nursing school what they were going to do after the bedside, such as advanced nursing degrees or administrative roles. Thus, the new paradigm must shift towards bringing nurses up to full capacity as quickly as possible. Continuing to develop and hone new creative educational initiatives for nurses, which are supported by both the nursing and medical team is imperative. These range from just-in-time teaching that supports the nurse in their current patient assignment to unit-wide huddles which enhance overall unit awareness. The opportunities are broad but should focus on meeting the needs of this generation of learners.

There were limitations to this study. Participation was self-selected, which can lead to selection bias if particularly passionate nurses volunteer to participate. A small number of interviews had an overtly negative or positive tone, but most interviews had the neutral tone of nurses who wanted to share their experiences. Another limitation to this study was the impact of the interviewer on the information that was shared. In qualitative research, the relationship between the investigators and research participants must be defined. The primary investigator and interviewer was a fellow physician in the paediatric cardiac ICU. This could be considered a power differential, which might have skewed the nurse responses. During her time as a fellow, the primary investigator often stated that nurses were some of her greatest teachers. She developed close bonds with many nurses, which facilitated open communication. She encouraged interviewees to be candid, even if she was a satisfier or dissatisfier. All qualitative research is interpreted through the biases of the investigators. The weight placed on each finding in this study was impacted by the fact that a physician was the primary investigator. Every effort was made to be objective, however, including assessment of internal validity by nurses and triangulation of interview results. Of final note, this research was conducted at the beginning of the SARS-CoV-2 pandemic, which may also have influenced the interviewee perceptions of satisfiers and dissatisfiers.

In summary, this study applied qualitative assessment using the constant comparative method to develop grounded theory and a rich foundation for further research and education in the paediatric cardiac ICU. While satisfiers like the paediatric cardiac ICU patient population and the paediatric cardiac ICU care team are innate to the paediatric cardiac ICU, satisfiers like personal accomplishment and respect can be developed and enhanced. Similarly, dissatisfiers can be mitigated via initiatives like increased nursing involvement in patient plans and educational curriculums for junior nurses. Tactics outlined here should be used to support retention in the unique environment of the paediatric cardiac ICU. Retention of qualified nurses in the paediatric cardiac ICU is everyone's responsibility, and it is paramount in providing high-quality patient care.

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