

ORIGINAL RESEARCH

Living Through My First Code...

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ABSTRACT

Nursing school can be a challenging time for students. Resuscitation events are highly stressful situations that may be encountered by nursing students in clinical settings. Although resuscitation events are essential life-saving interventions for the patient in critical conditions, these experiences can impact the education of nursing students by offering unique learning opportunities in addition to emotional challenges. While the literature explores the outcomes of the resuscitation event, there is a gap in the literature on how nursing students perceive and respond emotionally to these critical situations. The purpose of this qualitative study was to explore nursing students' perceived feelings experienced during their first resuscitation event. Participants were recruited from a Bachelor of Science in Nursing (BSN) degree program located at a University in the Mid-Atlantic area of the United States. Convenience sampling was used. Seven senior-level nursing students were recruited. Data was collected by a focus group interview. Five themes emerged from the coded analysis of the data. The themes include traumatic reaction, novice role, bad experience, lasting impression, and lack of knowledge. This research highlights the emotional experiences of nursing students during their first resuscitation events, emphasizing the need for comprehensive support and training. By addressing the emotional and educational needs of students, nursing educators can foster the development of skilled, confident, and compassionate nurses capable of navigating the complexities of resuscitation events.

Key Words: Resuscitation event, Nursing students, Emotional experience, Traumatic experience, Code blue

1. INTRODUCTION

Nursing School can be a challenging time for students. Resuscitation events (i.e., Code Blue or Rapid Response), are highly stressful situations that may be encountered by nursing students in clinical settings. Although resuscitation events are essential life-saving interventions for the patient in cardiac arrest or with other critical conditions, these events represent significant experiences for the nursing student. These events evoke a variety of emotions ranging from anxiety and uncertainty to empowerment and accomplishment.^[1] These experiences can impact the education of nursing students by offering unique learning opportunities in addition to emotional challenges.

2. BACKGROUND/LITERATURE REVIEW

The literature review was conducted using search terms related to students' feelings during code blue events, including "code blue", "rapid response", "resuscitation event", and "trauma", along with terms like "student", "nursing student", "student nurse", and "undergraduate nursing student". The search covered peer-reviewed articles published in English since 2017; the years searched were expanded due to limited results. Relevant databases such as Summon Search, CINAHL Complete, Academic Search Premier, and MEDLINE PubMed were utilized.

While the literature explores the outcomes of the resuscitation event, there is a notable gap in the literature of how

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nursing students perceive and respond emotionally to these critical situations. The unfamiliarity and urgency of these experiences can lead to anxiety and uncertainty.^[2] For students to overcome these feelings, students must be trained to recognize and respond to these stressful situations effectively, with clinical instructors helping students apply the theoretical knowledge learned in the classroom to real-world clinical situations.^[3] The purpose of this qualitative study was to explore nursing students' perceived feelings experienced during their first resuscitation event. If the perceptions of nursing students experiencing their first resuscitation event can be identified, ways to manage this experience can be developed by nursing educators and implemented in clinical to make this stressful situation a little less challenging for the nursing student.

An extensive literature search was conducted and only two research studies were identified that somewhat explored feelings and experiences of nursing students during code blue and/or rapid response resuscitation events.^[2,4] A third study by Oner and Karabudak^[5] explored the related phenomenon of the negative emotions experienced by nursing students during their clinical training and their coping experiences. Three additional studies examined nursing students' feelings when dealing with the death of their patients^[6-8] and one additional article examined compassion fatigue and resilience of nursing students.^[9] Each of these studies contribute to the knowledge base of how nursing students perceive and respond emotionally to critical situations within the clinical setting in a different manner even though not all three directly address the phenomenon under study of nursing students' perceived feelings experienced during their first resuscitation event.

A qualitative study by Chachula and Varley^[4] aimed to understand the subjective experience of psychological trauma in graduates from a baccalaureate nursing and psychiatric nursing program. Using convenience and purposive sampling via the alumni association, the final sample included seven graduates from the nursing and psychiatric nursing programs who had completed their studies within the past year. Because recruitment was handled by a third party, the total number of eligible graduates is unknown, so calculating a response rate was not possible. Participants were asked to reflect on their experience as nursing students. Six key themes were identified, including witnessing sudden change and unexpected death, emotional labor, faculty incivility, sabotage, bullying, and verbal abuse, exposure to physical violence and sexual inappropriateness, and mobilizing supports. Students described involvement in code blue situations to be a significant source of traumatic stress. They described feelings of panic, chaos, and numbness during such events. Partic-

ipants described the emotional impact of sudden changes, such as cardiac arrest, stating they felt scared, guilty, and unsure of how to respond. One participant described feeling overwhelmed and not knowing how to process the situation. This study emphasized the need to foster emotional intelligence, self-efficacy, and resilience among student nurses and early-career nursing professionals, when dealing with potentially traumatic situations.^[4]

Hood and Copeland^[2] explored the experiences of pre-licensure nursing students during critical events in the clinical setting using grounded theory. The study involved 14 undergraduate student nurses from 3 four-year universities in Utah. The study specifically focused on understanding how the students were prepared for and supported before, during, and after critical events, and their experiences of psychological distress and recovery. This study found nursing students often experience critical events in the clinical setting, and clinical instructors may not be adequately prepared to support them. These students often felt alone and abandoned increasing their risk of psychological distress. The study identified that student nurses needed active instructor and/or staff support during critical events, and pre-briefing whenever possible. Debriefing was found to positively affect students' post-event stress response and lack of debriefing was found to be associated with post-event psychological distress. The study concluded that support for students exposed to critical events during clinical experiences should continue in the days, weeks, and months following the event with clinical instructors providing this support.

A third qualitative study by Oner and Karabudak^[5] explored the negative emotions experienced by nursing students during their clinical training and their coping experiences. The study group consisted of 10 students from the 2nd, 3rd, and 4th years of nursing school. The research was qualitative and phenomenological in design, with data collected through a focus group interview then organized into common or similar themes. The study identified three themes: Emotions experienced in the clinic, the effects of emotions experienced in the clinic, and the way of coping with negative emotions. The study found that nursing students experienced a range of emotions, with anger, sadness, helplessness, and despair being the most common negative emotions. Happiness, conscience, and empathy were found to be the most common positive emotions. The coping strategies most often used by the students were acceptance, indoctrination, and communication. The study concluded with recommendations for strengthening the clinical environment and clinical training to better support nursing students in managing their emotions and coping with the challenges they face during their clinical practices.

A qualitative study by Zhou et al.^[6] explored the experiences of student nurses when they confront the death of their patients. The study included 19 nursing students selected through purposive sampling from four primary hospitals in Hunan Province, China. The study aimed to understand how student nurses cope with these events and identify any unmet needs that can be addressed in their training. The researchers used a semi-structured interview method to collect data from the nursing students. They identified recurrent themes in the students' responses. Five themes emerged from the interviews: emotional experience, challenge, growth, coping, and support. The study found that death is a sensitive topic in most cultures and excessive exposure to death of patients leads to compassion fatigue for nurses. Negative feelings including guilt, depression, frustration, sadness, incompetence, helplessness, and distress were common among nurses who experienced patients' deaths. The study concluded that sufficient training related to death and support systems to deal with death are imperative for becoming qualified nurses. The researchers also identified that the most memorable death experience in clinical practice significantly influences the general outlook of nursing students. This study highlights the need for improved training and support systems to help student nurses cope with these challenging experiences.

Maher et al.^[7] conducted a qualitative research study that explored the first patient death experiences of nursing students during their clinical duty. The study involved 11 student nurses from the Adventist University of the Philippines and data were collected through semi-structured interviews and analyzed using Colaizzi's method. The study identified three domains: the personal experience of a nursing student on patient death, coping mechanisms, and perception towards the nursing profession. The study found that students recognized their feelings of sadness, anxiety, and feeling challenged. However, they also felt supported and recognized the value of the learning experience for future practice. The study concluded that placement in a clinical setting that provides a supportive learning environment can contribute to a positive experience for students.

A study by Gül et al.^[8] focused on the emotional and educational impacts that nursing students face when dealing with death and terminal patients during their clinical education. Understanding these experiences is crucial for developing better educational strategies and support systems. The study involved a series of 11 focus group interviews with nursing students, allowing participants to express their feelings and reactions in detail. It employed a qualitative design with a sample of 452 nursing students from various academic levels and institutions in Poland. Data were collected through a diagnostic survey method using a questionnaire distributed

via Google Forms on social media platforms. The survey included 14 questions covering demographic information, experiences with patient death, emotional responses, and coping mechanisms. The study identified several important themes, including (a) "Feelings Experienced When Encountering Death for the First Time". Many students described a range of emotions, including shock, sadness, fear, and helplessness. The first encounter with death often left a lasting impression and influenced their future interactions with patients. (b) "Reactions to the First Encounter with Death". Students' reactions varied widely. Some felt overwhelmed and struggled to process their emotions, while others sought support from peers and mentors. The way students reacted was influenced by their previous experiences, personal beliefs about death, and the support they received from instructors and healthcare professionals. (c) "Factors Affecting These Reactions". Several factors influenced how students reacted to their first encounter with death, including their previous experiences with death, educational preparation, and support systems. (d) "Involvement in Terminal Patient Care". Students described their involvement in the care of terminal patients as both emotionally challenging and educationally valuable. They learned important lessons about empathy, communication, and end-of-life care, but also faced significant emotional burdens. (e) "Changes in Students' Ideas About Death and Terminal Patients". Over time, many students reported a shift in their attitudes and beliefs about death. Their experiences during clinical education helped them develop a more nuanced understanding of terminal care and the importance of providing compassionate support to patients and their families. This study highlights the impact that experiences with death and terminal patients can have on nursing students. By addressing these challenges through improved education and support, nursing instructors can better prepare future nurses to provide compassionate and effective care in difficult situations.

A study by Karaby^[9] employed a descriptive, cross-sectional design, involving 250 final-year nursing students from various institutions. The data collection tools included: Compassion Fatigue Scale which measured the levels of compassion fatigue among the participants, and the Resilience Scale which assessed psychological resilience, or the ability to bounce back from adversity. The data were analyzed using statistical methods to examine the relationships between compassion fatigue and psychological resilience. Key findings included that a significant number of nursing students experienced high levels of compassion fatigue. This was attributed to their clinical experiences and emotional involvement with patients. Conversely, the levels of psychological resilience varied, with some students demonstrating high re-

silience while others showed lower levels. The study found a negative correlation between compassion fatigue and psychological resilience, meaning that as the level of compassion fatigue increased, the students' ability to remain resilient decreased. The study highlights the critical relationship between compassion fatigue and psychological resilience in nursing students.

3. METHODS

3.1 IRB review

Before implementation of the study, approval from the institutional review board (IRB) was received from the University where the School of Nursing was located. Students were invited to participate in the study via face-to-face and/or email. Students were assigned numbers to protect their identities. Informed consent was obtained prior to beginning the study. The study was of minimal risk however students were offered a referral to the University counseling services if needed.

3.2 Sample and setting

Participants were recruited from the junior and senior level nursing classes of a Bachelor of Science in Nursing (BSN) degree program located at a University in the Mid-Atlantic area of the United States. Inclusion criteria included: Junior/senior level nursing student in the BSN Program, ability to read and speak English, over the age of 18 years, and must have been involved in a code blue/rapid response situation during their junior or senior year while enrolled in nursing school. The student could have been involved in the resuscitation event either during their School of Nursing clinical rotation or while working as a nurse extern. Convenience sampling was used. Seven senior-level nursing students were recruited, one male and six female students.

3.3 Study design/data collection

The research design for the study is qualitative descriptive research as this allows for the discovery of information about the phenomenon of interest "living through my first code". The research design is not embedded in a particular qualitative tradition. Data was collected by a single focus group interview. The session was guided by a moderator using a topic guide. Four key questions were asked: (a) Tell us about your experience; (b) How did this experience make you feel; (c) Did your nursing education prepare you for this experience; and (d) What could the School of Nursing do differently to help you prepare. Clarifying questions were asked by the Investigators to help gain a better understanding of the student's perception of the experience. Written notes were made of the students' replies by each of the three investigators present at the session. The focus group session lasted approximately 60 minutes.

3.4 Data analysis

A concept coding scheme was developed and used by the Investigators for analysis of the data. The data was independently reviewed and coded by each Investigator. Once this was completed the Investigators met several times to review and analyze the data until an agreement was reached by all three Investigators. Broad categories of the data were established, and the identification of themes began to arise. Themes were refined to reflect the true meaning of the data as the data analysis continued. The result of the analysis was five themes weaved together to provide an integrated description of "living through my first code as a BSN student".

4. RESULTS

Five themes emerged from the coded analysis of the data. The themes include: Traumatic reaction, novice role, bad experience, lasting impression, and lack of knowledge. These themes helped explain BSN nursing students' experiences when involved in a code blue, rapid response, or resuscitation event for the first time.

Theme 1: Traumatic Reaction – Students described a trauma-like response to the situation. Students reported they felt in shock (1,2,3) and could hear everything but couldn't focus (2,3). One student used the words "definitely traumatic" (7) while others stated they felt traumatized (1,6). Others reported a negative physical response to the situation experiencing increased heart rate (2) and a feeling of wanting to throw up (2,6,7) or stress (7).

Theme 2: Novice Role – As students have never been in a code, rapid response, or resuscitation event before, they are new to the role and often assume the role of a novice. Students reported being assigned tasks to complete such as being a runner (1, 4), or performing compressions (2, 5, 6,7).

Theme 3: Bad Experience – Living through the first code, rapid response, or resuscitation was viewed negatively by the students and described as "a bad experience" (1, 3). "You don't think how bad it is until you leave the hospital" (1). Students expressed concerns about lack of organization (1, 2) and feelings of frustration by the response of the team (1,5) indicating "no one took the patient seriously" (5). One student voiced "I was mainly frustrated" (1). Additionally, students expressed the fragility of the patients (3, 5) stating "Still remember this guy was so fragile, you could hear his ribs shredding" (3). The bad experience was also described as depressing as one student stated, "Ending was depressing; doctor seemed hurt to give up on him" (3) and "so tiring" (7). Panic was also a part of this bad experience (4) for one student who voiced "Don't realize until you leave the hospital and start to think about it and panic sets in" (4).

Theme 4: Lasting Impression – The first of most events leaves an impression, but students emphasized the “lasting impression” made the most impact on them. Remembering something specific about the patient or the situation was part of this lasting impression. “I will never forget her face” (2) or “Will always remember this” (3). Part of this lasting impression was the finality of death. One student described it in this manner, “Nothing can ever really prepare you, it’s someone’s life ebbing away”(2).

Theme 5: Lack of Knowledge –Students stated they felt they had a lack of knowledge, especially related to a code, rapid response, or resuscitation event. One student “didn’t know what was going on” (2) and had a lot of questions (2) while another stated “I didn’t know what to do” (4). Students were unsure as to how to address this lack of knowledge as one student stated, “I don’t think your education can prepare you” (5) while another stated “Don’t think simulation would help, difference between manikin and human” (6).

5. DISCUSSION

The findings of this qualitative research provide valuable insights into the emotional experiences of nursing students during their first resuscitation event. These events are pivotal in the educational journey of nursing students, offering both significant learning opportunities and emotional challenges. The five themes of (a) traumatic reaction; (b) novice role; (c) bad experience; (d) lasting impression; and (e) lack of knowledge were somewhat similar to previous research.

The current research study highlights the intense emotional responses nursing students experience during resuscitation events. Students described experiencing a trauma-like response, including feelings of shock, increased heart rate, and nausea, aligning with previous research by Chachula and Varley^[4] and Zhou et al.^[6] which identified similar emotional challenges during critical clinical situations, with students reporting feelings of panic, chaos, sadness, helplessness and numbness. Maher et al.^[7] highlighted the emotional distress experienced by student nurses, including feelings of sadness, anxiety, and being overwhelmed when encountering their first patient death. Gül et al.^[8] highlights the emotional distress experienced by nursing students, including feelings of sadness, anxiety, and helplessness when dealing with death and terminal patients. Unlike Chachula & Varley^[4] and Zhou et al.^[6] students in the current study did not express feelings of guilt, but did report feeling unsure of how to respond.

As first-time participants in resuscitation events, students often assumed novice roles, such as being a runner or performing compressions. The necessity of robust support systems for nursing students during and after resuscitation

events is evident from the current research study. Hood and Copeland^[2] emphasized the importance of active instructor and staff support, pre-briefing, and debriefing sessions. The current study reinforces these findings, suggesting that such support mechanisms can significantly mitigate the psychological distress associated with these events. Maher et al.^[7] discusses the challenges faced by student nurses as novices in the clinical setting, emphasizing their struggle to manage their emotions and maintain professionalism during such experiences. This highlights the importance of instructors encouraging students to express their feelings and concerns openly and provide regular debriefing sessions after clinical rotations as a safe space for students to discuss their experiences and emotions.

Many students in this study viewed their first resuscitation event negatively, citing a lack of organization and frustration with the team’s response. Their first resuscitation event also left a significant and lasting impression on the students. All three of the studies identified in the literature search supported the themes of bad experience and/or lasting impression.^[2,4,5] Chachula & Varney^[4] highlighted that sudden changes, like cardiac arrest, evoke fear and uncertainty in addition to the feelings of panic, chaos, and numbness. Hood and Copeland^[2] highlighted the theme of “witnessing sudden change and unexpected death” as a major source of traumatic stress. Students reported feelings of fear, guilt, and uncertainty, which can have a lasting impact on their psychological well-being. The researchers found students reported feeling alone and abandoned and expressed feelings of psychological distress. Oner and Karabudak^[5] found nursing students experienced a range of emotions, with anger, sadness, helplessness, and despair the most common. Zhou et al.^[6] focused on the most memorable death experiences of student nurses and how these experiences have a lasting impact on their outlook as future nurses. The emotional challenges faced by nursing students during resuscitation events are significant.

The last theme identified in this study, lack of knowledge, with students reporting feeling unprepared and lacking the necessary knowledge to effectively participate in resuscitation events, was not identified in the literature, although Maher et al.^[7] identified a gap in the students’ training and preparedness to handle patient deaths effectively, highlighting the need for better education and support system.^[7] This theme may not have been noted in previous literature for multiple reasons, one of which could be limited clinical time or hands on experience for the students in the current study due to the COVID-19 pandemic. It could also be that the Investigators searched for research that was qualitative in nature whereas this research may be found in studies of the

quantitative tradition.

5.1 Clinical implications

The intense emotional and physical reactions of shock, increased heart rate, and nausea highlight the need for better preparation and support for students facing high-stress situations such as resuscitation events. The theme of novice role underscores the importance of hands-on training and clear role assignments to help students navigate their responsibilities during these critical events. Clinical instructors play a crucial role in helping students apply theoretical knowledge to real-world situations, thereby enhancing their confidence and competence. The students' reporting of "bad experience" suggests the need for improved team coordination and communication during resuscitation events to enhance the learning experience for students. Students vividly remembered specific details about the patient and the situation, emphasizing the profound impact of these experiences on their professional development. Nursing instructors play a crucial role in supporting students and it is essential that they provide both educational and emotional support. The student reports of lack of knowledge highlights the gap between theoretical education and practical application, suggesting the need for enhanced simulation training and real-world practice opportunities.

5.2 Recommendations for nursing education

The study underscores the need for curriculum and training enhancements to better prepare nursing students for resuscitation events. Several recommendations can be made to improve nursing education practices. Enhancing support systems, such as implementing structured support systems, including pre-briefing and debriefing sessions, can help students process their experiences and reduce psychological distress. Increasing the use of clinical simulations can provide students with hands-on experience in a controlled environment, helping them build confidence and competence. Incorporating more realistic and frequent simulation exercises can help bridge the gap between classroom learning and real-world application, better preparing students for resuscitation events. Incorporating training programs focused on emotional intelligence, self-efficacy, and resilience can better equip students to handle the emotional challenges of resuscitation events. Training clinical instructors to provide effective support and guidance during and after resuscitation events can improve student outcomes and reduce feelings of isolation and distress. Revising the curriculum to include more practical and emotional support components can enhance the overall learning experience for nursing students. These emotions can be overwhelming but can also present unique learning opportunities.

Another recommendation is to explore nurse residency programs. Nurse residency programs are highly valued in the healthcare field, and the Institute of Medicine (IOM) report, "The Future of Nursing: Leading Change, Advancing Health",^[10] highlights their importance. Nurse residency programs can play a crucial role in helping new nurses manage anxiety during high-stress situations like patient codes. Many nurse residency programs include simulation training, where new nurses can practice responding to code situations in a controlled, low-risk environment.^[11] This helps build their confidence and competence, making them more prepared for real-life emergencies. Having experienced mentors can provide new nurses with guidance and reassurance. Mentors can share their own experiences and coping strategies, helping new nurses feel more supported and less isolated. After a code or other high-stress event, debriefing sessions allow nurses to discuss what happened, what went well, and what could be improved. This reflective practice helps nurses process their emotions and learn from the experience. By incorporating these elements, nurse residency programs can significantly reduce anxiety and improve performance during code situations, ultimately leading to better patient outcomes and a more confident nursing workforce.^[11]

Nursing students are often exposed to stressful environments, which can lead to compassion fatigue. Compassion fatigue may be concerning because it can affect the students' well-being and their ability to provide quality care. By recognizing and addressing compassion fatigue, nursing programs can create a more supportive environment. This includes fostering open communication, providing access to mental health resources, and encouraging peer support, which can help students feel more connected and supported. Addressing these issues is crucial for students' well-being and ensuring they can provide high-quality care in their future careers.^[9]

5.3 Limitations

A qualitative study with a small, single-group sample from one nursing program has several limitations. First, findings may not be generalizable to students in other programs or educational environments. The small, homogenous sample may introduce selection bias, as it may not fully represent the wider student population, as there may be students who experienced an event that did not participate in the study or those who left the program due to secondary traumatic stress. Researcher bias may also be a concern, especially as the researchers had established relationships with participants. The study also lacks diversity in experiences and perspectives, focusing on a single group within one institution, which could lead to the omission of different coping mechanisms or emotional reactions present in other contexts. Without lon-

gitudinal data, the study does not capture how participants' experiences may change over time. Despite these limitations, the study offers valuable insights, but these limitations must be considered when interpreting the findings.

6. CONCLUSION

This research highlights the emotional experiences of nursing students during their first resuscitation events, emphasizing the need for comprehensive support and training. By addressing the emotional and educational needs of students, nursing educators can foster the development of skilled, confident, and compassionate nurses capable of navigating the complexities of resuscitation events. By navigating these high-stress scenarios, students can develop critical skills and resilience, essential for their future roles as healthcare professionals. Addressing these emotional challenges through comprehensive support and training is crucial for their development as compassionate and competent nurses. Future research should continue to explore these themes, with a focus on long-term strategies to support nursing students. Investigating the emotional and psychological impacts of resuscitation events can provide insight into the challenges nurses face in high-pressure situations. This research can inform the development of targeted training programs that not only enhance technical skills but also address emotional preparedness. Additionally, exploring these feelings can help identify effective coping strategies and support systems that educators can implement to further support students. Other key areas are avenues for future research. Researchers could investigate how the stress and trauma from these events impact students' academic performance, including their ability to focus and complete assignments. Another area of interest is the effect on students' confidence levels, particularly in their clinical skills and decision-making. Additionally, studies could examine how these experiences influence career decisions, such as preferences for specific specialties. Understanding the coping mechanisms and resilience strategies used by students, as well as the effectiveness of support systems like mentorship programs and debriefing sessions, is also crucial. Long-term psychological effects, including potential PTSD, and the role of simulation-based training in preparing students for real-life emergencies are other important areas for research. These insights can help improve educational outcomes and support systems for nursing students.

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AUTHORS CONTRIBUTIONS

Dr. Muto, Dr. Prunty, and Dr. Ferguson were responsible for the study design and revising. All authors were responsible for data collection. Dr. Muto and Dr. Prunty drafted the manuscript, and all authors were responsible for revising. All authors read and approved of the final manuscript.

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The authors declare that there is no conflict of interest.

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The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

DATA SHARING STATEMENT

No additional data are available.

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