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New Graduate Nurses' Transfusion Training Views: Reflection on Experiences With Adverse Reactions

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Abstract

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MA, University of Phoenix, 2014

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

New graduate nursing students transitioning to becoming professionals undergo education and training to gain knowledge and competence about transfusions. Nonetheless, new graduate nurses experience stress during a blood transfusion adverse reaction, which can be associated with lack of knowledge and inadequate training. The purpose of this qualitative study was to gather data from new graduate nurses who described their lived experiences with patients exhibiting symptoms of adverse reactions, how they reflected on their emotional effects, and the influences of the training on their knowledge and confidence. The research was grounded in social cognitive theory that centers on the concept of interaction among person, environment, and behavior and focuses on how learning involves perceiving, interpreting, and restructuring information into new understanding. The research was conducted qualitatively based on the principles of hermeneutic phenomenology to understand new graduate nurses' experiences. Through purposeful sampling of 12 new graduate nurses who met the inclusion criteria of having attended transfusion training and having experienced a transfusion reaction were interviewed. Data were collected via semistructured interviews and data were analyzed using Colaizzi's framework. Through the data analysis, three themes emerged: (a) emotional distress and burnout, (b) second victim phenomenon, and (c) unpreparedness and reality shock. The results of this study could lead to possible social change in implementing changes to training programs to enhance nurses' knowledge about blood transfusions, thus decreasing stress, improving work environments, increasing retention, enhancing patient safety, and improving outcomes.

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Dedication

Newly graduated nurses face various challenges and experience many stressful situations as they embark their careers. I dedicate my research to all of the new graduate nurses, in the hopes that the findings and recommendations drive change to reduce their work-related stress, enhance their competence, and increase their motivation and self-confidence.

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For my daughters- Alisar, Petra, and Lamees- I cannot find the words to express my gracious gratitude for having you in my life. Your unconditional love and compassion, caring and comfort, patience and encouragement have been the light guiding me in my journey to fulfill my dream of becoming a Doctor. Thank you for being my rock!

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Chapter 1: Introduction to the Study

Factors that cause new graduate nurses to experience stress and burnout related to a lack of overall knowledge and insufficient clinical skills have been addressed in the existing research. However, new graduate nurses' experiences with transfusion adverse reactions and the emotional effects related to a lack of knowledge and inadequacy of training have not been researched. In this study, I focused on understanding new graduate nurses' experiences of blood transfusion adverse reactions, recognizing the emotional effects of these experiences, and exploring the influences of training programs on their knowledge and confidence in recognizing symptoms of transfusion reactions. The findings of this study could lead to positive social change resulting from the implementation of revisions to training programs that enhance new graduate nurses' knowledge about transfusions, thus decreasing stress, improving work environments, increasing retention, enhancing patient safety, and improving patient outcomes.

Included in Chapter 1 are sections in which I describe the topic of the study. The background section offers a review of the research literature that discusses the transition of new graduate nursing students to becoming professional nurses and the challenges they face, the risk factors associated with blood transfusion, and the importance of nurses' knowledge in recognizing the signs and symptoms of adverse reactions. I describe the gap in nurses' knowledge about transfusions, which can augment their challenges and intimidation, and reflect on the social change of preventing nurse burnout. In the problem statement section, I identify the literature gap in addressing new graduate nurses' stressful experiences of transfusion adverse reactions related to their lack of knowledge

and insufficient training. The connection between the problem and the focus of the study governs the purpose of understanding new graduate nurses' experiences of blood transfusion adverse reactions, determining the emotional effects of these experiences, and exploring their views related to the influences of the training program. The research questions embed assumptions and define core constructs intended to identify new graduate nurses' lived experiences with patients experiencing blood transfusion adverse reactions, nurses' reflections on the emotional effects of these experiences, and the ways training influences their knowledge and confidence. The framework section includes the theoretical scheme that relates to the study approach, useful viewpoints brought to the research-focused issue, and how training shapes new graduate nurses' experiences and molds their views. The qualitative methodology and hermeneutics phenomenology validated the approach to seeking out new graduate nurses' lived experiences with transfusion adverse reactions, understanding the lateral emotional effects, and gaining insights on training.

Background of the Problem

The transition from nursing student to professional nurse has been described as difficult, challenging, intimidating, stressful, and traumatic in the careers of new graduate nurses (Edwards et al., 2015; Hofler & Thomas, 2016; Horsburg & Ross, 2013; Kramer et al., 2013; Martin & Wilson, 2011; Ortiz, 2016; Rudman et al., 2014; Sönmez & Yildirim, 2015; Zhang et al., 2016). Many researchers have reported that one of the reasons new graduate nurses experience stress and anxiety, feel unprepared and unskilled, and lack professional confidence is the lack of knowledge and insufficient clinical

practice (Hayden et al., 2014; Horsburg & Ross, 2013; Kramer et al., 2013; Philips et al., 2017; Sönmez & Yıldırım, 2015).

Knowledge and skill are the bases for competence. Educational preparation is influential in qualifying new graduate nurses to transition to the workplace competently and confidently (Anderson et al., 2012; Doughty et al., 2018; Jamshidi et al., 2016; Missen et al., 2014; Parsh & Taylor, 2013). Adequate training plays a significant role in improving performance and increasing self-confidence (Cottrell & Donaldson, 2013; DeLisle, 2018; Flood & Higbie, 2016; Henneman et al., 2017; Hijji et al., 2013; Hindley, 2016; Missen et al., 2014; Smith et al., 2014; Stout, 2013), but inadequate training and clinical incapability have been found to be associated with medical errors, inferiority complex, emotional exhaustion (Jamshidi et al., 2016; Kumaran & Carney, 2014; Mowry & Crump, 2013; Ortiz, 2016), anguish, emotions of guilt, and self-doubt (Abdul Wahab et al., 2017; Delacroix, 2017; Edrees et al., 2011; Harrison et al., 2015; Kumaran & Carney, 2014; Zhang et al., 2016). Professional confidence leads to applying proper knowledge to patient situations, recognizing changes in their conditions, and responding with suitable actions (Holland et al., 2013; Jewell, 2013; Roth & Johnson, 2011).

Because blood transfusions impose the risk of adverse events, such as postoperative infections, acute respiratory distress syndrome, multiorgan failure, prolonged intensive care admission, length of hospital stay, readmission to hospitals, and increased risk of morbidity and mortality (Goodnough & Shander, 2012; Henneman et al., 2017; Hindley, 2016; Iliopoulos et al., 2017; Najafpour, 2017; Schoettker et al., 2016; Shander et al., 2010; Shokoohi et al., 2012; Tornero et al., 2016), nurses' theoretical

knowledge and applied skills about blood transfusions are critical to administering blood products safely, recognizing the signs and symptoms of adverse reactions, preventing risks of complications, and enhancing patient safety (Cottrell & Donaldson, 2013; Dehghan et al., 2016; DeLisle, 2018; Flood & Higbie, 2016; Smith et al., 2014).

Despite the stress of new graduate nurses transitioning into professional nurses and the importance of adequate knowledge about the risks associated with blood transfusions, research has not been conducted to explore the adequacy of nurses' transfusion knowledge and training and the emotional responses related to their experiences with transfusion reactions. Hence, this study was conducted to address a gap of understanding regarding the psychological and emotional responses that new graduate nurses experience observing their patient's transfusion reactions and in evaluating the effectiveness of their training on confidence in administering blood products.

Statement of the Problem

Research has shown the impact of education and training on nurses' knowledge enhancement, behavior changes, and performance improvement in practices (Abd Elhy & Kasemy, 2017; Aslani et al., 2010; Gallagher-Swann et al., 2011; Shander et al., 2017; Talati et al., 2016). Other studies conducted to evaluate nurses' information about blood transfusions have shown inadequate knowledge, unfamiliarity with the correct processes, and inappropriateness of the approaches used during transfusions (Aslani et al., 2010; Diakite et al., 2012; Hijji et al., 2013; Lim et al., 2016; Tavares et al., 2015).

Much research has been focused on identifying factors that cause new graduate nurses to experience stress, burnout, and intentions to leave the profession related to lack

of overall knowledge and insufficient clinical skills (Hofler & Thomas, 2016; Kohtz, 2016; Ortiz, 2016; Walton et al., 2018; Zhang et al., 2016), but research specifically addressing the stress that new graduate nurses experience when patients have transfusion reactions is lacking. Furthermore, I found no research that focused on exploring the adequacy of knowledge and training of new graduate nurses specific to blood transfusions and emotional responses of nurses in relation to their experiences with transfusion adverse events.

Purpose of the Study

A purpose statement establishes the intent of a research study to define clearly and concisely the objectives and the aim and to describe the design, phenomenon, participants, and setting (Burkholder et al., 2016). The purpose of this study was to reflect on, through the description of situations, new graduate nurses' experiences of blood transfusion adverse reactions, to recognize the emotional effects of these experiences, and to explore the influences of training programs.

Research Questions

A good research question incorporates and mirrors the purpose statement (Creswell, 2014; Sutton & Austin, 2015) to define a knowledge gap; focus on a single phenomenon, concept, or idea; guide the choice of method; and set boundaries for analysis (Marshall & Rossman, 2011; Merriam, 1998, 2009; Patton, 2015). Constructing a research question entails embedded assumptions and defined core constructs, which help to understand the meaning of those experiences from the participants' viewpoints as experienced in natural settings and to summarize the main inquiry for which the data is

collected to address the problem and relate to the design (Burian et al., 2010; Creswell, 2013, 2014; Ravitch & Carl, 2016).

Because this study was phenomenological, research questions present the recognizable human experience rather than naming the experience itself and avoid explanations, opinions, or other post interpretations about the experience; instead, the research questions focus "on the lived meaning of the experiential moment itself" (Adams & van Manen, 2017, p. 782). The *how* questions show the manner in which the phenomenon or experience appears or gives itself and the *what* questions focus on filling the gap or solving the problem (Adams & van Manen, 2017; Newman & Covrig, 2013). As a logical extension to the purpose of the study and focusing on the lived meaning of the experiential moments, inductive and exploratory research questions were formulated to aid in exploring of new graduate nurses' experiences with transfusion reactions.

RQ1: How do new graduate nurses from different hospitals across the United States describe their lived experiences with patients experiencing blood transfusion adverse reactions?

RQ2: How did these experiences affect new graduate nurses emotionally and behaviorally?

RQ3: In what ways did new graduate nurses' training influence their knowledge of and confidence in recognizing transfusion adverse reactions?

Theoretical Framework

Theories guide researchers by providing a conceptual foundation to good research and well-constructed practice. Choosing the right theory brings useful viewpoints to the

research-focused issue. Social cognitive theory (SCT) was considered for the theoretical framework of this study as the main concept is the two-way interactions between a person and an environment involving beliefs and cognitive competencies; between an environment and a behavior relating to influences of environmental factors on behavior; and between a behavior and a person influencing thoughts and actions (Bandura, 1986, 2001, 2004; Braungart & Braungart, 2007). SCT is focused on how learning involves perceiving information; interpreting information based on what is already known; and restructuring the information into new understanding (Bandura, 1986, 2001, 2004; Hunt et al., 2004).

Nature of the Study

Concerned with understanding human behaviors from a personal perspective and focused on addressing the gap and fulfilling the purpose of the study, I employed a conceptual qualitative approach. The hermeneutic phenomenological approach was adopted because phenomenological studies are used to seek out the lived experiences of a group of individuals who share a common experience in relation to an identified phenomenon (Austin & Sutton, 2014; Burkholder et al., 2016; Creswell, 2014; Howard & Hirani, 2013; Moustakas, 1994) and because hermeneutics assists in understanding subjective experiences and gaining insights into individuals' motivations and actions (Lester, 1999; van der Zalm & Bergum, 2000). To address the purpose and objectives of the study and yield the most information about their experiences, I interviewed participant nurses to understand what they experienced and the contexts or situations in

which these experiences occurred (Lester, 1999; Moustakas, 1994; van der Zalm & Bergum, 2000).

Operational Definitions

Blood transfusion: A medical therapy that involves administering blood components to people based on their need of these products. This process encompasses a series of interconnected steps and involves blood donation, infectious diseases and compatibility testing, providers prescribing and ordering, blood administration, recipient monitoring, and adverse reactions management (American Association of Blood Banks [AABB], 2018b; World Health Organization [WHO], 2010).

Burnout: A "colloquial term for mental exhaustion" that refers to the consequences of further efforts to handle situations characterized by qualitative and quantitative demands and to the application of defensive behavior and emotional detachment (Schaufeli & Enzmann, 1998, p. 1).

New graduate nurse: A person who has just graduated from a nursing school, has successfully completed the National Council Licensure Examination, and has been practicing as a licensed nurse for less than 1 year (Kirkland, 2015; National Council of State Boards of Nursing [NCSBN], 2011).

Nursing competence: Nurses demonstrating successfully in informal, formal, and reflective learning experiences an expected level of performance that integrates knowledge, skills, abilities, and judgment (American Nurses Association, 2014).

Nursing error: An unintentional, preventable act or event that has adverse effects or consequences on patient safety and quality of care (Mohsenpour et al., 2017).

Reality shock: "The reactions of new workers when they find themselves in a work situation for which they have spent several years preparing, for which they thought they were going to be prepared, and then suddenly find they are not" (Kramer, 1974, p. 9).

Second victim: A healthcare provider involved in an unforeseen medical error and/or a patient-related injury or adverse event, who was traumatized by the event (Scott et al., 2009).

Simulation: A "technique that creates a situation or environment to allow persons to experience a representation of a real event for the purpose of practice, learning, evaluation, testing, or to gain understanding of systems or human actions" (Lopreiato et al., 2016, p. 44).

Transfusion adverse events: Reactions associated with the transfusion of blood and blood components that can be acute (during transfusion) or delayed (days to weeks posttransfusion), immunologic or nonimmunologic, and vary in severity from minor to life-threatening (Suddock & Crookston, 2018).

Transition period: Time of professional and social change through which new graduate nurses adjust to new roles and responsibilities as they gain the skills, knowledge, and values of the professional nursing culture (Duchscher, 2008, 2009).

Assumptions

Assumptions are the variables of a study a researcher assumes true and established by reasoning and logic without evidence or verification (Paul & Elder, 2013; Yin, 2017). Several assumptions were made in this study, including (a) that participants'

viewpoints and lived experiences were genuine and the interview questions were answered truthfully; (b) that the researcher understood the details shared and interpreted them into meaningful themes that shaped and constructed the participants' experiences; (c) that the research methodology used for data collection and analysis attained accurate explanations, portrayed precise descriptions, and created emergent themes.

Scope and Delimitations

The delimitations of research are the aspects that regulate the scope and define the limits and are within the control of a researcher (Ubani, 2015; Yin, 2017).

Convenience Sampling

Researchers specify participants as determined by a set of inclusion/exclusion criteria. Criteria comprise details of all pertinent descriptors compulsory for eligible participants to be included in the study, as well as criteria that would disqualify otherwise eligible participants (Burkholder et al., 2016; Creswell, 2014; Palinkas et al., 2015). Participants' biases may be introduced into the study as nurses who consent to participate may be interested in the blood transfusion topic. This can be a limitation as it provides understanding of the participant nurses' personal views and experiences that may not apply to the broader population of nurses due to their subjectivity and particularity to individual experiences.

Sample Size

Sample size should consider and allow for an appropriate variation or diversity presentation among nurses who met the inclusion criteria of the study and endorsed reaching either saturation or redundancy of information (Creswell, 2014, Martínez-Mesa

et al., 2016). The small number of participants in this study reflects only the experiences of the participating nurses, thus limiting transferability and impacting the generalization of findings. Identified strategies to minimize limitations related to sample size include:

1. Collecting robust descriptions and providing detailed information of the participants' experiences to add richness to the data;
2. Revealing particulars about the location of the interview, circumstances or situations that happened to the participants, and other aspects of data collection that provide a more affluent realization and understanding of the study setting; and
3. Describing vividly the cultural and social contexts surrounding the data collection process.

Limitations

Limitations are confines that can weaken a study and influence the outcomes (Creswell, 2013; Hyett et al., 2014). The methodology of the research posed a limitation to the study. The qualitative nature and the phenomenological approach centered on understanding the phenomenon through specific criteria that constricted generalizability, thus limiting the transferability of the findings to a wider population.

Researcher Bias

Researchers' views can influence the research process from defining a concept, to deciding on a design, to collecting and analyzing data, to reporting findings, and their personal individualities and background can sway the researcher–participant relationship to influence participants' opinions and willingness to share (Austin & Sutton, 2014;

Ravitch & Carl, 2016; Sutton & Austin, 2015). Throughout the phases of research, reflexivity and positionality should be maintained by researcher self-reflection, denoting knowledge, attitudes, and experiences and by examining their values and interests and acknowledging their assumptions and perceptions (Ahren, 1999; Austin & Sutton, 2014; Foote & Bartell, 2011; Janesick, 2011; Ravitch & Carl, 2016; Relles, 2016). Factors that affected my approach to and view of this study were related to knowledge about blood transfusions, the proximity of position to the issue, and the passion to enhance nurses' knowledge. As suggested by Sutton and Austin (2015) and Relles (2016), I reflected on my position to the area of study, articulated positions and subjectivity, and documented any possible influences on the research to maintain objectivity. In addition, I used peer debriefing to assist with awareness to personal values and perspectives that could cause bias in interpreting and analyzing data research (Guba & Lincoln, 1989; Spall, 1998).

Participants' Truthfulness

Participants' truthfulness can be considered a limitation that influences data reliability. Because qualitative research is used to explore experiences and to understand problems, situations, and ideas from a personal perspective, the opinions of participants can be influential in shaping the findings of a study. Participants can withhold information, provide biased responses, or convey vague explanations. I attempted to ask questions in different formats and circle back to the same question if a discrepancy in the response was noticed.

Significance of the Study

Researchers have discussed how education and training enhance nurses' theoretical knowledge and practical skills, improve their performance, and augment their confidence (Cottrell & Donaldson, 2013; DeLisle, 2018; Flood & Higbie, 2016; Henneman et al., 2017; Hijji et al., 2013; Hindley, 2016; Smith et al., 2014; Stout, 2013). Such research has also expanded on the emotional exhaustion, anxiety, and distress that new graduate nurses experience in relation to lack of self-confidence in their clinical capabilities and critical thinking, medical errors, inferiority complex, and unsupportive practice environments (Gardiner & Sheen, 2016; Ortiz, 2016; Phillips et al., 2017, Rudman & Gustavsson, 2011). However, I found no research that specifically addressed all these factors in relation to blood transfusions. Accordingly, I addressed a gap in understanding the psychological and emotional responses that new graduate nurses experience observing patients with transfusion reactions and in evaluating the effectiveness of nurses' training on their confidence in administering blood products.

Literature exists on new graduate nurses' emotional stress and exhaustion, anxiety, frustration, regret, unsupportive practice environments, and intention to leave related to delivering unsatisfactory care due to lack of knowledge and insufficient clinical nursing skills in general (Gardiner & Sheen, 2016; Kumaran & Carney, 2014; Rudman & Gustavsson, 2011; Whitehead et al., 2016; Zhang et al., 2016). However, no literature was found that explored new graduate nurses' emotional responses related to lack of knowledge about transfusion adverse reactions. Consequently, I explored the experiences of new graduate nurses when a patient is having a transfusion adverse event.

The study provides an original contribution to the literature through a reflection on new graduate nurses' experiences with transfusion adverse reactions, their emotional responses, and the education and training they received. Positive social change that could result from the study includes the implementation of changes to training programs to enhance new graduate nurses' knowledge about transfusions, thus decreasing stress, improving work environments, increasing retention, enhancing patient safety, and improving patient outcomes.

Summary

The transition of new graduate nurses from students to professionals has been explored in relation to the lack of knowledge and insufficient clinical skills in general, but not related to blood transfusions specifically. The psychological and physiological effects of this stressful period have been related to every facet of the nurses' transitioning period but not to the aspect of transfusion adverse reactions. I explored new graduate nurses' experiences with these adverse events for an understanding of the emotional impact of these experiences and their reflections on training. The constructs of SCT assisted in appraising the influence of the interaction among nurses' perceptions, behaviors, and training. The study findings could be significant in influencing a change to nurse training programs to comprise more education about blood transfusions and

In Chapter 2, I focus on a comprehensive literature review of scholarly publications to provide a historical background on the topic, discuss the gaps in knowledge, identify the research problem, and enable formulating the conceptual framework that guides the research endeavor (Green, 2014).

Chapter 2: Literature Review

Literature reviews are conducted to clarify the relationship between the topic of interest and previous research. This allows researchers to learn about other studies conducted in the same field or on the same topic of interest, to make connections between the study and gaps in prior studies on the topic, to formulate the conceptual framework that guides the research, to establish a benchmark comparison of results, and to assist in validating the research (Burkholder et al., 2016; Creswell, 2014; Green, 2014; Rudestam & Newton, 2015).

First, I present the research strategies used to locate articles. The remaining literature review highlights pivotal research addressing the transition of new graduate nurses from students to professionals, the preparation process, and their education and training in general and in relation to blood transfusions. This review provides information on nurses' knowledge about blood transfusions and transfusion adverse reactions in general and specific to new graduate nurses and an understanding of the effect of knowledge adequacy on their psychological and physiological welfare. In addition, the review highlights the proficiency of the educational curricula and residency programs used in preparing new graduate nurses and the amount of focus on blood transfusion readiness and competence.

Literature Search Strategy

A scholarly literature review was conducted using the Cumulative Index to Nursing and Allied Health Literature (CINAHL), Ovid Nursing Journals Full Text, PubMed (MEDLINE), ProQuest, and Walden University library for the review of journal

articles published between 2014 and 2019. Search terms used to retrieve supportive data included *transition of new graduate nurses to practice*, *preparedness of nurses, blood transfusions, transfusion adverse reactions*, *transfusion risks*, *new graduate nurses*, *transfusion training*, and *transfusion education*. Several combinations of the above terms were used with the Boolean value *and* to enhance the search and yield pertinent and sufficient results. Citations from books and peer-reviewed articles were referenced reflecting studies conducted on the transition of new graduate nurses to practice, transfusion education and training, and transfusion risks and adverse reactions. References cited in other articles that were relevant to the study were also reviewed.

Inclusion and exclusion criteria were set to narrow the search and refine results. Literature examined was limited to publications published between 2014 and 2019, including books and peer-reviewed and scholarly journals of full-text literature written in any language. Google translate was used to convert literature written in other languages to English. The literature reviewed published within the 5-year period identified did not reveal ample information to support the research. Due to a lack of studies conducted on the topic, the literature search was extended to include publications from 2010 to present.

Theoretical Foundation

The concepts of SCT are centered on the interactions among person, environment, and behavior (Bandura, 1986, 2001, 2004) and founded on a causal model of mutual causation in which personal factors (cognitive, affective, and biological), behavioral patterns, and environmental events operate as interrelating elements that impact one another (Braungart & Braungart, 2007). The six constructs of the SCT are: (a) reciprocal

determinism, interaction of individuals with knowledge or experience to the environment and behavior or action; (b) behavioral capability, ability to perform actions through essential knowledge and skills; (c) observational learning, observing actions conducted by others and reproducing the same actions (modeling); (d) reinforcements, responses to actions that affect the likelihood of continuing or discontinuing actions; (e) expectations, anticipated consequences of actions and the values placed on these actions; and (f) self-efficacy, level of confidence in ability to successfully perform actions (Bandura, 2001, 2004).

Additionally, SCT outlines the individual behavior as a mutual relation between factors of environment and individual intellect (Bandura, 2004). Researchers have reflected on the reciprocal association between the environment influencing behaviors and motivation and self-efficacy impacting outcome expectations to use in studies of social context. Focusing on Bandura's concept of human agency and the components of observational learning, Burke and Mancuso (2012) studied the effectiveness of simulation learning in nursing education. By using SCT as the theoretical framework, the study participants were able to master technical skills, enhance assessment skills, improve time management, promote effective communication, adapt to environment changes, and support collaborative practices (Burke & Mancuso, 2012). Torkan et al. (2018) used SCT concepts to study the dietary habits in pregnant women constructing the interview questions based on the social cognitive constructs inventory. The data collected disclosed not only improved nutritional habits but also innovation in self-regulation,

advancement in self-motivation, acceptance of social support, and improvement in self-efficacy (Torkan et al., 2018).

Nonetheless, Stacey et al. (2015) found no association between SCT constructs and intervention effects. The researchers conducted a systematic review to examine the effects of employing the concepts of SCT in the development of nutrition and physical activity interventions for cancer survivors (Stacey et al., 2015). The overall findings were only supportive of the positive influence on outcome expectations, self-efficacy, and behavior change (Stacey et al., 2015). Based on the SCT concepts that behaviors are affected by self-efficacy and outcome expectations, Hsien-Cheng (2016) explored the development of nurses' cross-cultural competence in relation to environmental factors and personal cognition. Hsien-Cheng's (2016) findings were indicative of a positive correlation between subjective cognizance and self-efficiency and behaviors and cross-cultural competence and that self-efficiency and outcome expectations are influenced by the organizational climate.

Because SCT assumes that intellectual factors, behavior, and environment exert simultaneous and reciprocal influences over each other and the individual, I chose this theoretical framework to guide the development of an understanding of the influences of these factors on nurses' experiences. The SCT framework aided in understanding the nurses' perceptions of how training about blood transfusion molded their views and shaped their experiences.

Literature Review

The transition from nursing students to professional nurses has been described as difficult, challenging, intimidating, stressful, and traumatic in the careers of new graduate nurses (Chandler, 2012; Edwards et al., 2015; Hofler & Thomas, 2016; Horsburg & Ross, 2013; Kramer et al., 2013; Martin & Wilson, 2011; Ortiz, 2016; Rudman et al., 2014; Sönmez & Yıldırım, 2015; Zhang et al., 2016). Inadequately preparing new graduate nurses for the transition to the workforce has been found to heighten turnover rates (DiMattio & Spegman, 2019; Zhang et al., 2016; Zhang et al., 2019). Turnover rates among graduate nurses have been reported at 17.5% at their first year, 33.5% at the second year, and 43% at the third year of employment (Punke, 2016).

Organizations employ orientation and training programs or residency curricula to assist transitioning new graduate nurses into competent practicing nurses and to prepare them to deliver proper, safe, quality patient care. Because blood transfusions carry risks of adverse events, nurses' education and skills on administering blood products are essential facets in training and residency programs (Henneman et al., 2017; Higgins & Jones, 2013).

Nurses' Training and Residency Programs

Many researchers have recognized training and residency programs as effective in preparing new nurse graduates to transition as competent and confident to practice (Edwards et al., 2015; Goode et al., 2016). Missen et al. (2014) disclosed that the implementation of a transitioning program assists with improved confidence and positive job satisfaction levels and improves rates of turnover (4.3% to 12%) and retention (78%

to 88.9%). Likewise, a yearlong residency program employed at two hospitals resulted in improved clinical competency, enhanced communication and leadership skills, and decreased sense of threat (Kowalski & Cross, 2010). Data collected over a 10-year period after the application of an evidence-based residency program showed increased competence and self-confidence, improved job satisfaction, and reduced turnover rates (Ulrich et al., 2010). In addition, Olson-Sitki et al. (2012) reported increased confidence in nurses' abilities to perform skills after the implementation of a new graduate residency program and turnover rates from 7% to 11% post program, compared to 12% to 15% preprogram.

Besides acknowledging the importance of technical and clinical skills, behavioral indicators have been recognized as essential to the competency of new graduate nurses. The implementation of a structured training program including classroom education and hands-on practical experience has proven beneficial to new graduate nurses and increased their competence, enhanced their self-confidence, improved their job satisfaction, and decreased their intent to exit the profession (Ulrich et al., 2010). Notably, interaction and communication, critical thinking, and clinical decision making were identified as essential aspects to the training (Hartigan et al., 2010).

Blood Transfusions and Associated Adverse Events

Blood transfusions carry several risks related to the complexity of the multistep process from collecting to administering. Statistical data have shown that transfusion-related complications are reported in 10% of transfusions and that 1/5000 transfusions have been linked to serious side effects (AABB, 2018a). Transfusion safety is exploited

by minimizing exposure to blood products (Aubron et al., 2018) and is linked to the correct and early recognition of transfusion reaction symptoms and appropriate actions in eventual complications (Appendix A).

Even though transfusion adverse events are not prevalent, they can vary in severity from mild to fatal (Appendix B). The results of a 3-year period of reported transfusion reactions to the National Healthcare Safety Network (NHSN) surveillance system showed 239.5 adverse reactions per 100,000 blood products transfused, varying from mild (112.2/100,000) to severe (17.5/100,000; Harvey et al., 2015). Comparatively, the analysis of data reported from 25 countries over a 6-year period showed that the rate of transfusion adverse reactions was 660 adverse events per 100,000 people, ranging from not severe (75%), severe (20%), life threatening (4.3%), and fatal (0.4%; Politis et al., 2016).

Transfusion reactions require immediate recognition, laboratory investigation, and clinical management (AABB, 2018b). WHO (2010) recommended safe clinical transfusion processes that entail providing training for healthcare personnel involved in the clinical transfusion process to include careful monitoring of patients prior, during, and post transfusion; rapid management of symptoms; and reporting of adverse transfusion events. Parallel to the WHO recommendations are research findings that indicate education and training as central to all safety aspects of blood transfusions, especially in reducing incidence of adverse events (Bolton-Maggs & Cohen, 2011; Clevenger & Kelleher, 2014; Knowles & Cohen, 2011).

The Role of Nurses in Transfusions

Nurses play a significant role in the transfusion process. Nurses are responsible for identifying indications for transfusions; checking data to prevent errors; informing patients about transfusions; detecting, intervening, and documenting transfusion reactions (Heddle et al., 2012; Tavares et al., 2015). Nurses' roles in ensuring transfusion safety are essential to avoiding mistransfusions and preventing transfusion errors, thus warranting proper blood transfusion training and competence. The American Society of Registered Nurses (2008) highlighted safe transfusion practices relevant to nurses' knowledge about proper usage of blood products, indications of blood transfusions, and possible adverse effects and stressed the significance of practical skills to identifying recipients and verifying products, educating patients on blood transfusion, and recognizing signs and symptoms of transfusion reactions. Adequate knowledge of the probable side effects, indicators, warning signs, and complications of transfusions promotes the effectiveness of nurses in administering blood components safely (Bealer, 2016) and in reducing the threats of blood adverse reactions (Abd Elhy & Kasemy, 2017; Aslani et al., 2010). Recognizing transfusion reactions allows nurses to intervene in any potential complication, implement proper interventions, and communicate effectively with providers to intercept threats to the safety of patients (Cherem et al., 2017; Crookston, Koenig, & Reyes, 2015; da Silva et al., 2017; Flood & Higbie, 2016). Appendix C lists the actions required by a nurse immediately after a transfusion reaction.

Importance of Transfusion Education and Training

Nurse training, competency assessments, and continuing professional development have been identified as key factors in raising awareness of transfusion safety issues and promoting safer transfusion practices (Gallagher-Swann et al., 2011; Knowles & Cohen, 2011; Vasiliki, 2011). Monitoring patients receiving blood transfusions to recognize transfusion reactions' severity can be reliant on active and early recognition and timely intervention and correction of pathophysiologic effects (Fastman & Kaplan, 2011). The ability of nurses to recognize instantly transfusion reactions, implement appropriate interventions, and communicate effectively with health care providers is essential to the safety of patients receiving blood transfusions.

Transfusion knowledge has been recognized as a predictor to changing nurses' transfusion behavior, facilitating interventions, and enabling decision making (Shander et al., 2017; Vasiliki, 2011). Researchers have promoted the importance of nurses having the knowledge of the pathophysiology, symptoms, and treatment of transfusion reactions and have endorsed providing new graduate nurses with appropriate education and training to safely administer and monitor transfusions (Labovich, 1997). Because transfusion errors are considered medical errors that have serious adverse effects (Najafpour, 2017), researchers continue to stress the efficacy of blood transfusion education as a part new graduate nurses' training and residency programs to reduce errors and prevent adverse events and provide safe transfusions (Abd Elhy & Kasemy, 2017; Aslani et al., 2010; Kyriazi, 2011).

Global Nurses' Knowledge Deficit Related to Transfusions

The literature review indicated global transfusion knowledge deficit among nurses. Findings of a cross-sectional study exploring Iranian nurses' knowledge about blood transfusions showed lacking adequate knowledge about transfusion indications and complications in an average of 59% of nurses (Aslani et al., 2010). Hijji et al (2013) reported significant knowledge deficit about transfusion reaction interventions (5% correctly answered) among Emirati nurses, thus correlating with the findings of Hijji et al (2010) indicating a 40.8 mean score out of 70 possible score related to improper patient preparation, identification, blood product handling, and vital sign monitoring. Similarly, a 60.7% overall mean correct response rate was reported by Talati et al (2016) concerning nurses' knowledge and awareness about transfusions. Significant knowledge deficit was notable among Indian nurses ranking inadequate in 1(6.6%), moderate in 7(46.7%), and adequate in 7(46.67% ; Lebano et al., 2016) and among Jordanian nurses incorrectly answering survey questions related to blood transfusions (Hijji et al., 2012).

Nurses' knowledge deficit extended to the recognition of transfusion reaction signs and symptoms. Results of a study conducted by Abd Elhy and Kasemy (2017) among Egyptian nurses showed poor levels of knowledge about transfusion (61.2%) and post-transfusion complications (71.3%). Furthermore, moderate nurses' knowledge levels (9.26 ± 1.57) about transfusion reactions preventive measures and below average knowledge levels (3.60 ± 1.49) for cause, prevention, and treatment interventions were reported by Encan and Akin (2019). Findings of a study conducted by Diakité et al (2012) assessing Indian medical staff (doctors, nurses, and midwives) knowledge about

the basics and indications of transfusion and transfusion reactions revealed a 53.9% lack of adequate knowledge. Moreover, results of studies conducted in Brazil were consistent of nurses' inadequate overall knowledge about transfusions and signs and symptoms of transfusion reactions with average scores of 42.0% (Torezan & Souza, 2010), 52.66% (Tavares et al., 2015), and 50.4% (da Silva et al., 2017).

The insufficient nurses' transfusion knowledge related to inadequate schooling, training, or orientation contributes to the gap between theory and practice in transfusion education (Cottrell & Donaldson, 2013; Hickerson et al., 2016). Examining blood transfusion knowledge in nurses working in a neonatal intensive care unit, Cherem et al. (2017) uncovered a gap about certain aspects of the transfusion process implying the need for appropriate training. This gap was also addressed by Hijji et al. (2010) reporting 210 (85%) of nurses not receiving blood transfusion training and only 35 (14%) perceiving the need for such training. Transfusion education and on-the-job training directed toward pretransfusion checks and bedside practices have been proven to further improve nurses' knowledge (Talati et al., 2016). Bridging the theory-practice gap through offering educational sessions and enforcing transfusion standards and protocols have been effective in enhancing nurses' knowledge, adherence to policies, and precision in documentation (Gallagher-Swann et al., 2011).

Minimal data related to new graduate nurses' transfusion knowledge and training were found in the literature reviewed. Results of research conducted by Lebano et al. (2016) assessing Indian nursing students' transfusion knowledge showed knowledge levels as inadequate in 1(6.7%), moderate in 9(60.0%), and adequate in 5(33.3%)

students. Likewise, Kavanagh and Szweda (2017) reported new graduate nurses' competencies and practice readiness at only 23% contributed to a lack of intense learning in academic nursing programs, coupled with increase in patient acuity (Kavanagh & Szweda, 2017).

A global nurses' deficiency in blood transfusion knowledge and competency and a distinction between theory and practice were suggested in the literature reviewed. This information identified gaps in prior studies and clarified relationships between research and the topic of this study. The literature review findings provided to the purpose of this study to explore new graduate nurses' transfusion knowledge, assess their education and training, and explore their experiences with transfusion reactions.

Summary

Education and training are constituents of the preparation process of transitioning new graduate nurses to becoming professionals. Residency programs have been recognized as proficient and effective in facilitating transition, enhancing knowledge and clinical skills, and decreasing stress and anxiety. As blood transfusions carry the risk of serious complications and because nurses play a significant role in administering blood products, their knowledge and clinical skills are crucial to perform safe and efficient blood transfusions.

The review of literature was pertinent of a gap between theory and practice in transfusion education and a global transfusion knowledge deficit among nurses related to a lack of adequate schooling and training. These findings were prevalent to examining nurses' knowledge about blood transfusion but scarce to exploring that of the new

graduate nurses. Another gap noted in the literature was the lack of adequate research examining nurses' knowledge and recognition of transfusion reactions.

In Chapter 3, I focus on research methodology and design selection driven by the purpose of the study; participants' identification and selection with observing the ethical considerations; data collection process and data analysis principles; and findings accuracy verification.

Chapter 3: Research Method

In the two previous chapters, I introduced the study and provided a thorough literature review. In Chapter 1, I detailed the background, problem, purpose, significance, and contribution to social change, and in Chapter 2, I clarified the relationship between the topic of interest and previous research and assisted in validating the research problem. SCT was discussed as the theoretical framework of the research that provided the conceptual foundation.

Extensive research has reflected that transitioning from new graduates to professional nurses is stressful, leading to burnout for the lack of overall knowledge and insufficient clinical skills. Research into the inadequacy of transfusion knowledge and training of new graduate nurses and their emotional responses in relation to their experiences with transfusion adverse events has been lacking and led to the research problem and the purpose of this study. In this research, I gathered data and examined new graduate nurses' experiences of blood transfusion adverse reactions, the emotional effects of these experiences, and their views of the training. Findings can contribute to identifying gaps in training programs and implementing changes to enhance new graduate nurses' transfusion knowledge, thereby decreasing stress, enhancing safety, and improving outcomes.

Research Design and Rationale

The research questions that guided this study were:

RQ1: How do new graduate nurses from different hospitals across the United States describe their lived experiences with patients experiencing blood transfusion adverse reactions?

RQ2: How did these experiences affect new graduate nurses emotionally and behaviorally?

RQ3: In what ways did new graduate nurses' training influence their knowledge of and confidence in recognizing transfusion adverse reactions?

The purpose of a research study is the ultimate driver of its methodology and design (Charmaz, 2006; Creswell, 2014). Thus, I used a hermeneutic phenomenological qualitative design to explore new graduate nurses' experiences with blood transfusion adverse reactions. Phenomenology aims at attaining meaning and significance of an experience by probing into its "whatness" (Adams & van Manen, 2017, p. 782) and asking the question "What is it like to . . .?" (van Manen, 2017, p. 811) and to expose "the human side of the story" (Jacob & Furgerson, 2012, p. 1). Phenomenological research is conducted to seek out lived experiences of individuals who share a common experience in relation to an identified phenomenon, contribute to moral and personal knowledge by revealing the nature and meaning of the human experience, and recognize an experience from the perspective of mutual understanding rather than differences (Austin & Sutton, 2014; Creswell, 2013, 2014; Jacob & Furgerson, 2012; Polit & Beck, 2010, van Manen, 1990).

The hermeneutic approach assists in understanding subjective experiences, looking into the meanings of experiences, and gaining insights into individuals'

motivations and actions through embracing the inclusion of the participants' narratives to project the intention and meaning behind what they share (Abu Shosha, 2012; Moustakas, 1994; Lester, 1999; Van der Zalm & Bergum, 2000). The hermeneutic phenomenological approach assisted in directing the study's focus toward including instructive details, creating meaning, and achieving a sense of understanding new graduate nurses' individual views and subjective experiences with transfusion adverse events. I conducted a qualitative study using semistructured interviews for data collection to allow focus on specific items to answer research questions. According to Britten (1999), questions in an interview should be designed to yield the most information about the phenomenon and address the purpose and objectives of the study.

I adopted Colaizzi's descriptive phenomenological strategy to prompt a thorough description of new graduate nurses' experiences with transfusion adverse events. Colaizzi's method of data analysis has been considered as a reliable methodology to understand people's experiences. For instance, Colaizzi's method has been used to understand the experiences of physicians communicating with nurses (Park et al., 2018); women living with ischemic heart disease (Praveena & Sasikumar, 2021); nurse academics teaching on satellite campuses (Wirihana et al., 2018); parents of children with cancer participating in a clinical trial (Crane, 2019); senior citizens participating in an exercise music program (Kim & Jeong, 2020); and COVID-19 hospitalized patients (Liu & Liu, 2020).

Role of the Researcher

Reflexivity is central to formulating the research question, collecting and analyzing data, and drawing conclusions; further, reflexivity enhances the accuracy of the social interaction element of the interviewer–interviewee relationship and accounts for the credibility of the findings in relation to the researcher's values, beliefs, knowledge, and biases (Berger, 2015). Because personal motives can have significance on the trustworthiness of a research, researchers should be aware of their personal motives and should not ignore or avoid their own biases (Maxwell, 2005).

The relationship between a researcher and the topic of research is self-reflective of the individual's worldview denoting knowledge, attitudes, and experiences that reveal a researcher's internal belief system (Foote & Bartell, 2011; Ravitch & Carl, 2016). Because personal individualities can influence the research process and shape the perceptions of others, researchers remain neutral and objective throughout all phases of research—starting with defining a concept and deciding on a design, interviewing, transcribing, analyzing, verifying, and reporting findings (Ravitch & Carl, 2016; Rubin & Rubin, 2012). Researchers reflect on their position to the area of study, articulate their positions and subjectivity, and document any possible influences that could impact research (Sutton & Austin, 2015; Relles, 2016). A researcher's worldview and background could sway the researcher–participant relationship, thus influencing participants to what and how much information they are willing to share (Austin & Sutton, 2014; Ravitch & Carl, 2016; Sutton & Austin, 2015).

As ‘human instruments’ and mediators for data collection, researchers describe relevant aspects of self and identify any bias and assumption, experience, qualification, and expectations, which can be reflected in the choice of content, research questions, and data collection and analysis (Denzin & Lincoln, 2003; Lamb & Huttlinger, 1989; Marcus & Fischer, 1986; Parse et al., 1985). Researchers use reflection to react and interact with past insights to explicit personal responses and examine positionality in the process from the perspective of both participant and observer (Sutton & Austin, 2015). Researchers are flexible to changing opinions, valuing differences in thoughts and views, and altering their approach to research if warranted; researchers should allow the examination and manipulation of their thoughts, feelings, and biases to identify how they can influence research (Ravitch & Carl, 2016; Sutton & Austin, 2015).

Qualitative research can pose an ethical challenge for researchers. As a student, I am bound to the code of conduct and ethical standards of Walden University; as a nurse, I abide by the code of ethics of the American Nurses Association; and as a researcher, I follow the code of ethics and professional conduct defined by the Association of Clinical Research Professionals. Throughout the research process, my awareness of the ethical principles of beneficence, autonomy, and justice ensured participants’ privacy, anonymity, confidentiality, and equal share and fairness.

Methodology

Participants of the Study

Identifying and selecting participants are essential in a research study. Participant selection in qualitative research is purposeful and contingent to the scope of the study

where participants have characteristics relevant to the research questions (Creswell, 2013; Martínez-Mesa et al., 2016; Palinkas et al., 2015; Robinson, 2014). Because participants represent only a portion of the target population, ensuring heterogeneous sampling, sample replication, and a sample frame that fit the study objectives were essential (Firestone, 1993; Martínez-Mesa et al., 2016).

To comply with the Walden University Institutional Review Board (IRB) requirements, I completed all paperwork and obtained IRB approval (#07-15-19-0668442) prior to moving forward with contacting nurses. I acquired names and contact information for potential participants by disseminating the study's objectives online using social media. Advertisements soliciting participants were posted to professional nursing associations' websites and Facebook.

Participation Criteria

Researchers specify participants as determined by a set of inclusion/exclusion criteria. Criteria include details of pertinent descriptors compulsory for eligible participants to be included in the study and criteria that disqualify otherwise eligible participants (Burkholder et al., 2016; Creswell, 2014; Palinkas et al., 2015). The inclusion and exclusion criteria of a study population assist in generalizing results and governing a screening strategy for recruitment (Luborsky & Rubinstein, 1995; Patton, 2015). Eligibility criteria for this study were (a) new graduate nurses (within 1–3 years of graduation); (b) who attended a 'new-hire' blood transfusion training; (c) who work or have worked in clinical areas where blood products are transfused; and (d) who have witnessed a patient experiencing a transfusion adverse reaction. Exclusion criteria

included those new graduate nurses who did not meet the requirements of the inclusion criteria. Age, gender, and ethnicity were not considered as criteria for inclusion or exclusion from the study.

Sampling Strategy

The exploratory nature of qualitative research poses a difficulty for researchers to determine methods of sampling, number of participants, quantity of interviews, and amount of data. Sampling methods have been proposed to attain depth of understanding, maximize efficiency and validity, and emphasize data saturation (Palinkas et al., 2015). Saturation is conceptualized differently among qualitative researchers. Morse (2015) considered saturation the gold standard for defining sample size and that saturation warrants qualitative research rigor. Boddy (2016) and Dubé et al. (2016) reflected on saturation as the ability to generalize findings. Saunders et al. (2018) suggested that saturation be consistent with research questions, theoretical position, and analytic framework. Lowe et al. (2018) stated that saturation might not be reached.

The dependent relation between sample size and data saturation has been disputed among qualitative researchers as it can negatively impact the quality of research and burdens content validity (Fusch & Ness, 2015). While many researchers have identified the guiding principle for the sample size and data collection as gathering of enough data until theoretical saturation occurs (Burkholder et al., 2016), some recognized that sample saturation does not provide guidance to sample size and that size appropriateness lies in its homogeneity (Green & Thorogood, 2009). Furthermore, Baker and Edwards (2012) disclosed that the number of participants or sample size depends on the phenomenon of

interest, researcher's understanding of phenomenon, skills of the interviewer, content of interview questions, quality of data yield, and methods of data analysis. Fusch and Ness (2015) stated that exhausting resources in research does not guarantee data saturation because it is not about quantity but about richness, depth, and quality of the data. However, Rubin and Rubin (2012) applauded conducting more and more interviews as needed till saturation is reached. Other researchers have suggested a range or a specific number of participants as a determinate of sample size as 20–30 participants (Creswell, 2013) and 25 participants (Charmaz, 2006).

Given that participation criteria and process can affect sample size estimation (Martínez-Mesa et al., 2016), the sample size of a study must allow for appropriate variation or diversity among nurses who meet the inclusion criteria and endorse reaching either saturation or redundancy of information (Creswell, 2014; Green & Thorogood, 2009). Because quality of the sample is measured by the richness of data collected and not by the number of participants (Baker & Edwards, 2012), I sought to recruit a sample of 10–15 participants to this study.

Instrumentation

To understand human behaviors from a personal perspective and focus on addressing a gap and fulfilling a purpose, I explored new graduate nurses' lived experiences with transfusion adverse reactions to understand lateral emotional effects on them and gain insights on their training. Through interviews, participating new graduate nurses were prompted to deliver direct reactions and spontaneous reflections on their experiences. This method of data gathering allowed me to explore the contexts or

situations in which these experiences occurred. Themes identified from data analysis could result in the implementation of changes to training programs that might enhance new graduate nurses' transfusion knowledge, thus decreasing stress, improving work environment, enhancing patient safety, and improving outcomes.

Data Collection

I completed data collection using semistructured, conversational style, and digitally recorded interviews. This approach has been used to explore the lived experience of others, generate meaning of human behaviors, and seek understanding of their explicit, comprehensible, and expressive perspectives (Jacob & Furgerson, 2012; Kvale, 1983; Patton, 2015; Ravitch & Carl, 2016; Rubin & Rubin, 2012). As a common and valuable method employed in phenomenology, interviewing has been used to solicit opinions and ask for views, thoughts, reflections, or beliefs of individuals' experiences (Adams & van Manen, 2017; Bevan, 2014). Interviews are not only a tool for collecting data; they are means for mutual interaction and in-depth understanding of views to explore the construction of meanings (Alshenqeeti, 2014; Jacob & Furgerson, 2012; Kvale, 1983).

The Interviewing Process

Planning is essential prior to conducting research interviews. 'Setting up the stage' for a successful interview process has been the recommendations of researchers (Adams, 2015; Benner, 1994; Britten, 1999; Jacob & Furgerson, 2012; Patton, 2015; Ravitch & Carl, 2016; Rubin & Rubin, 2012;). Planning involves:

1. Communicating with participants about the purpose of study, length of interview, and contents of interview questions and clarifying researcher's expectations.
2. Finding a suitable time and private location to create a productive atmosphere, prompt a comfortable and pleasant environment, and provide quiet and privacy.
3. Reassuring confidentiality throughout the process of interviewing and collecting data where names will not be revealed and information obtained will remain confined in research files.
4. Acquiring and adopting good interviewing skills to enhance the quality of participants' responses. These include:
    a. Using a steering strategy during the interview to direct the conversation and avoid deviation from topic.
    b. Guiding or redirecting the interview by repeating phrases, using voice inflections, restating replies, or phrasing questions.
    c. Employing informal conversational format to permit spontaneous generation of questions and increase the relevance of questions.
    d. Asking questions clearly; staying focused, present, and observant.
    e. Being authentic, trustworthy, empathetic, and nonjudgmental.
    f. Taking notes of thoughts to redirect the conversation, lead to obtaining extensive information, or probe and expand responses.
    g. Putting participants at the center of the interview to build rapport; achieving interaction by being attentive; and showing respect and appreciation.

h. Maintaining relaxed posture, gestures, and facial expressions to show interest in what the participants are saying.

5. Considering participants as partners in the interview process to provoke thorough descriptions and expansion on information.
6. Upholding ethical responsibilities toward participants to show respect, build trust, honor promises, and accept their decision to not answer specific questions.
7. Showing gratitude for participants' contribution and willingness to share experiences and thanking them for their time.

Interview Questions

The interview questions are designed to address the purpose and objectives of a study and to yield most information about phenomenon (Britten, 1999; Giorgi, 1997). Formulating interview questions employs "themes of contextualizing experience," "apprehending the phenomenon," and "clarifying the phenomenon" using descriptive/narrative context questions, descriptive and structural questions, and imaginative variation respectively (Bevan, 2014, p. 139). Researchers have proposed that effectiveness of interview questions is reliant on increasing understanding of the problem, allowing interviewees a chance to express their viewpoints, and eliciting information useful for the study (Benner, 1994; Bevan, 2014; Giorgi, 1997; Jacob & Furgerson, 2012; McNamara, 2009; Patton, 2015; Rubin & Rubin, 2012):

a. Articulated into three levels: (1) main questions to facilitate the participants' responses that reflect their experiences and perspectives; (2) follow-up probes to clarify and fill in gaps, stay on topic, sort out sequence of events, and regulate the

length and extent of detail; and (3) follow-up questions generated in the moment to pursue and extend participants' concepts and themes and elicit a response about feelings and emotions.

b. Unbiased, sensitive, comprehensible, and clarifying in the open-ended format to allow extended inquisitions and provoke more than 'yes' or 'no' answers.
c. Framed in a semistructured format to narrow focus on specific items that answer the research questions and enable knowing more about the topic of interest.
d. Written in the vocabulary and language of participants and inscribed linguistically to their level of comprehension to elicit subjective experiences and insights.

Using more than one approach in designing interview questions offers more flexibility in interrogating, facilitates more exploration and in-depth discussion, and allows posing questions on new areas of inquiry (Patton, 2015). Combining informal conversational and interview strategies to structure interview questions and adopting informal conversational format allowed spontaneous generation of question. These questions emerged from the outlined context and increased questions' relevance; whereas the interview guide format outlined subject areas to be discussed, allowed explicating more in-depth explanations, and increased data comprehensiveness (Patton, 2015; Rubin & Rubin, 2012;). To guide the process of interviewing and prevent missing relevant information, an interview script was developed to include (Jacob & Furgerson, 2012; McNamara, 2009; Patton, 2015; Rubin & Rubin, 2012).

1. Preparing an opening: Started interview with introductions and asking participants basic background information, reviewing informed consent, addressing terms of confidentiality, and assuring privacy.
2. Formulating key questions: Shared essential details about the study, such as the subject and why it is researched.
3. Agreeing for follow-up: Solicited feedback from participants at the end of the interview and asked consent for more clarifying questions or follow-up if needed

I followed the concepts and recommendations for creating study interview questions. Appendix D is a list of interview questions used in this study.

Data Analysis

I used the principles of hermeneutic phenomenological analysis employing Colaizzi's descriptive strategy to analyze data. This approach to analysis "attempts to discover the nature and meaning of phenomena through an inner journey of self, using processes of self-reflection" (Howard & Hirani, 2013, p. 74) and gives meaning to participants' experiences by using their exact words and direct quotations (Abalos et al., 2016; Abu Shosha, 2012; Van der Zalm & Bergum, 2000; Wang, et al., 2015).

Qualitative researchers use stories to promote reflection on and restructuring of individual subjective constructs of participants' experiences and narratives to reveal the meanings of these experiences. Wang and Geale (2015) described narrative inquiry as a "method of inquiry that uses storytelling to uncover nuance" (p. 198) where "storytellers construct their stories to convey a specific perspective of an event" (p. 196). Patton (2015) referred to stories as "data of what happened" and narratives as "analysis of what

happened" within the "context for some purpose" (p. 128). O'Kane and Pamphilon (2016) elected stories to explore and analyze contents relative to the purpose and narratives to examine, reconstruct or deconstruct reality, and acknowledge its continuous nature. I incorporated the story telling, narrative approach in analyzing data to amplify participants' voices and capture social representation (Trahar, 2013) and to seize, descriptively or interpretively, their viewpoints revealing meanings and detecting experiences' similarities and differences (Wang et al., 2015).

Since phenomenology attempts to cognize "how human beings experience their world" (Austin & Sutton, 2014, p. 437) and aims at describing phenomena as experienced by others (Creswell, 2013; Giorgi 1997, 2000, 2009), I applied Colaizzi's strategy to explore the phenomena from new graduate nurses' subjective experiences and draw from their description of experiences with transfusion reactions (Abalos et al., 2016; Colaizzi, 1978). I employed Colaizzi's data analysis process to disclose an active approach to portraying participants' living experiences, identifying significant statements, translating statements into meanings, developing theme clusters, and establishing thematic constructs (Abalos et al., 2016; Abu Shosha, 2012; Edward & Welch, 2011; Morrow et al., 2015). Summarized in Appendix E, are the steps that I followed to analyze data collected from the interviews:

1. Transcription of interviews is the recording and narrating of the interview tapes and reading each participant's transcription several times to make sense of their experiences. Transcribing is used by researchers to convert the collected information from spoken to written words (Sutton & Austin, 2015) and to allow

gaining of a better insight to and understanding of the meaning of experiences (Giorgi & Giorgi, 2003; Moustakas, 1994), while narrating permits reflecting on the essence of participants' description of their experiences (Colaizzi, 1978). I wrote down narratives detailing the content of the interviews and nurses' responses.

2. Extraction of statements is identifying sentences and phrases that directly relate to the phenomenon under investigation. Utilizing verbatim transcripts assists in interpretating data and generating meanings that help in creating an audit trail to data analysis (Rubin & Rubin, 2012). I recognized, highlighted, and mined statements and phrases that have relevance to nurses' experiences with transfusion reactions and that related to their emotional effects.
3. Formulation of meanings is the denotation to each substantial statement extracted from participant's narratives taking into consideration the implications and significances to attain truthful reflections. These extractions were referred to by Giorgi and Giorgi (2003) as "meaning units" (p. 252) and by Moustakas (1994) as "horizons" (p. 120). I asserted and labeled the extracted meanings according to their contents and relevancy to the experience.
4. Description of phenomenon is integrating information related to the phenomenon and revising meanings to formulate clusters of themes that identify the experiences of participants. By adapting thematic review, I provided informative descriptions and rich insights to nurses' experiences and stated data by using

quotations from participants' transcripts, which resulted in the development of meaningful themes (Sutton & Austin, 2015).

5. Identification of structure is the detailed revision and rigorous analysis of the exclusive structures to categorize core concepts of what defines the phenomenon. In this step, I condensed the important descriptions that were essential to the structure of the phenomenon and reflective of the descriptions of participants' experiences.
6. Validation of descriptions is conquering participants' feedback on the descriptions formulated to ensure the conveying of intended meanings in the structure of the phenomenon, thus advancing a rigorous approach to phenomenological enquiry (Edward & Welch, 2011). I included participants in the final revision to expand to embrace additional information and further clarification.

Issues of Trustworthiness

The process of verifying findings and checking accuracy of results ensures the validity and trustworthiness in qualitative research. Validity denotes "the integrity and application of the methods undertaken and the precision in which the findings accurately reflect the data, while reliability describes consistency within the employed analytical procedures" (Noble & Smith, 2015, p. 34). Trustworthiness is fulfilled through the credibility, transferability, dependability, and confirmability of research (Amankwaa, 2016; Lincoln & Guba, 1985; Korstjens & Moser, 2018) and evaluated using terms such as consistency, applicability, neutrality, and truth value (Creswell, 2014; DeVault, 2017; Noble & Smith, 2015).

Credibility

Credibility is dependent upon the veracity of research findings in relation to context and design and on the reliability of the data collection and analysis (DeVault, 2017). Credibility can be ensured through extended data collection and participants' engagement; clarification of researcher's biases; vivid and detailed depiction of participants' experience and perception of phenomenon studied; and ample description of theoretical concepts used (Creswell, 2014; Lincoln & Guba, 1985; Noble & Smith, 2015). Triangulation is adopted by researchers to strengthen, add integrity, and authenticate the study through comparison of participants' perspectives, consistency of data sources, and peer debriefing to confirm credibility and worthiness of findings and interpretations (Denzin & Lincoln, 1994, 2005; Guba & Lincoln, 1989; Spall, 1998). To support credibility of findings, bracketing can be used to ensure validity of data collection and analysis and to maintain objectivity of phenomenon (Ahren, 1999; Edward & Welch, 2011; Morrow et al., 2015).

Safeguarding the credibility of this study is essential to not jeopardizing findings. I achieved credibility by ensuring collection of sufficient data to validate information and draw conclusions. I emailed each participant the final transcripts of their interview for revision and authentication.

Transferability

Transferability is the applicability of research findings to other contexts and the level to which readers can generalize results to their situation (Creswell, 2014; Merriam, 1998, Noble & Smith, 2015). Transferability can be limited because of its particularity to

individual experiences and subjectivity, as it provides understanding of the participants' experiences for certain circumstances or situations that may not apply to a broader population (Creswell, 2014). According to Lincoln and Guba (1985), researchers invite readers to make associations between elements of the research and their own experiences by providing the data base that makes transferability judgements possible.

For this study, I collected robust description and provided detailed information of participants' experiences to add richness to data. By revealing particulars about the location of the interview, circumstances or situations that occurred to participants, and other aspects of data collection, I provided a more affluent realization and understanding of the study setting. By presenting vivid descriptions of cultural and social contexts surrounding the data collection process, I explicated a connection to the participants' lived experiences.

Dependability

Dependability refers to the integrated processes data collection and analysis free from unwarranted variation to the extent that findings are consistent and repeatable across researchers, times, and analysis methods (Lincoln & Guba, 1985). Dependability originates from capturing changing conditions of participants, setting, and study design throughout the study. Dependability can be ensured through standardizing data collection instruments, granted data are neutral and non-biased and data collection methods are consistent (Creswell, 2014; Lincoln & Guba, 1985; Patton, 2015). For this study, I achieved dependability by developing processes to document extensively the specific ways of data collection, analysis, and interpretation. By maintaining an audit trail, I was

able to confirm accuracy of findings and ensure that findings were supported by the data collected.

Confirmability

Confirmability is the degree of neutrality in a study's findings. Confirmability ensures that those findings are not influenced by researcher bias and that study outcomes are the result of participants' experiences and concepts, as opposed to qualities and preferences of researcher (Lincoln & Guba, 1985; Merriam, 1998, 2009; Patton, 2015). Confirmability is established through triangulation using multiple sources of data, checking consistency and validity of findings, and expanding on other theoretical perspectives (Denzin, 1978; Lincoln & Guba, 1985; Patton, 2015). In addition, reflexive analysis to certify objectivity ensures that researchers are cognizant of their influences on data (Lincoln & Guba, 1985; Patton, 2015). For this study, I achieved confirmability by having a heterogeneous combination of participants, gathering sufficient details and rich descriptions, and conducting inclusive analysis of data supported by conceptual and reflexive intellectuality.

Ethical Protection of Participants

Ethics in research refers to the respect, integrity, and safeguard of the rights of participants and an attest to their dignity, well-being, privacy, and confidentiality (Santiago-Delefosse et al., 2016; Wang & Geale, 2015). Researchers have moral responsibilities to instill ethical principles of autonomy, beneficence, and justice as standards of qualitative research. These responsibilities include obtaining informed consents, showing respect; treating with dignity; building trust; honoring promises;

causing no harm, and accepting participants' wishes if they opt to leave the study or choose not to answer specific questions (Capron, 1989; Creswell, 2014; Kvale, 1996; Rubin & Rubin, 2012). As defined by the Office of Research (2016), privacy pertains to participants' rights to be discrete about personal information and expressing thoughts and opinions and confidentiality refers to the ethical obligation of researchers to safeguard entrusted information.

In every step of this research, I followed all ethical considerations to include abiding by the IRB guidelines and requirements and ensuring research approval, obtaining informed consents, preserving autonomy, and sustaining confidentiality (NIEHS, 2019; U.S. Department of Health & Human Services [HHS], 2019). Participants were nurses, none of whom is from the protected populations. I articulated the invitations for participation to ensure participants' understanding and awareness of the study's purpose and risks and potential benefits. The invite detailed that participation is voluntary and that no compensation, payment, or reimbursement is offered or given. I ensured privacy of participation and confidentiality of information shared by applying codes to research documents instead of recognizable information; assigning encryptions to computerized records; limiting access to identifiable information; and properly disposing of documents and deleting research data (NIH, 2019). For those nurses who agreed to participate, informed consents were provided to be signed.

Summary

The qualitative hermeneutics phenomenological approach was identified as the research methodology and design adopted to explore new graduate nurses' experiences

with blood transfusion adverse reactions. Participants were accepted based on a set of inclusion and exclusion criteria that detailed pertinent descriptors compulsory for qualification. Data was collected using either face-to-face or virtual interviews as they provided the advantage of social cues, inclusive speech interactions, and spontaneous reflections. The interview questions were written in an open-ended format to provoke reflective interpretations rather than recollection of experiences.

A narrative approach using Colaizzi's descriptive strategy was used for data analysis to explore new graduate nurses' personal experiences and subjective descriptions with transfusion reactions. Qualitative validity was verified by employing measures that guaranteed trustworthiness, authenticity, and credibility and assured accuracy of findings from the standpoint of the researcher, participants, and readers. Measures were in place to ensure that ethical principles of beneficence, autonomy, and justice were instilled to safeguard participants' privacy, anonymity, and confidentiality.

Chapter 4 presents information related to the interview process including interview questions and setting and the participants' demographics. Details related to the number of participants, data collection, and recording process are discussed in the data collection section. The analysis of data is explored focusing on process of identifying, categorizing, and coding themes that emerged from the collected data. To ensure trustworthiness of evidence, the implementation of and adjustments to strategies of credibility, transferability, dependability, and confirmability are discussed. The results of data analysis are examined based on themes identified from the participants' interviews and supported by participants' quotes from narratives.

Chapter 4: Results

In this study, I focused on understanding new graduate nurses' experiences of blood transfusion adverse reactions, recognizing the emotional effects of these experiences, and exploring the influences of training programs on their knowledge and confidence in recognizing symptoms of transfusion reactions. To fulfill the purpose of the study, I interviewed participants using semistructured questions to allow them to reflect on their experiences and to gather ample data that can capture the emotional and behavioral effects of these experiences.

Pilot Study

Prior to the interview process, I performed a pilot test employing the same data collection and analysis instruments to assess the comprehensibility and practicality of the interview questions and to identify any potential researcher bias. Due to the difficulty recruiting participants and to be cognizant of their time, I decided to pilot the study on three nurses who consented to participate in the study. These nurses were interviewed in the same manner and were asked the same interview questions. Participants were asked for their feedback on any difficulty or ambiguity related to the questions and any changes needed to the design or wording. The pilot study participants stated that the questions easily guided them in the reflecting process and that they were able to connect to the purpose of the study. There were no suggested changes to the data collection or instrumentation.

Setting

Due to the COVID-19 pandemic, changes to the recruitment process, setting, and data collection method were made. The original setting of the study was at an academic center where participants would be recruited from the nursing residency program and interviewed in person. Due to restricted visitations to clinical areas, I was unable to promote my study throughout the environment and had to rely on emailing flyers to nursing mangers and clinicians. The only way to reach out to potential participants was through emails, which was an ineffective method because of the overwhelming situation of managing the burden of the pandemic, developing protocols, dealing with shortages in protective equipment, exposures, and isolation procedures.

Nurses were preoccupied with the changes the pandemic inflicted on their everyday practices, including the stress of lack of appropriate protective gear, fear for their lives and the lives of their families, emotional stress from patients dying, tension of adapting to new norms of patient care, additional education and training on new protocols and procedures, and mandatory extra shifts. Participation in research was restricted to trials and studies conducted as part of the COVID-19 treatment regimens. There was a prominent lack of interest and time from nurses to participate in the study.

Making changes to the recruitment process was eminent. Approved by Walden's IRB, I made changes to the data collection process to obtain participants' names and contact information by promoting the study through public methods using social media. To advertise the study, I made postings to various nursing association websites and provided the link to a data collection repertory, Research Electronic Data Capture

(REDCap) to obtain potential participants' information. The link was set up to eliminate a complicated enrollment process. Nurses could click on the study link and answer the three inclusion criteria questions to verify that they were: (a) a new graduate within 1–3 years, (b) witnessed a patient experiencing a transfusion reaction, and (c) interested in participating in the study. If all questions were answered affirmatively, applicants were prompted to enter their name, email address, and phone number. I the uploaded their information to the REDCap repertory, which triggered a notification to my email. Then I emailed the potential participants with a thank-you note and attached the informed consent for them to review and sign. I worked with each participant individually to set up a convenient time to conduct a virtual interview.

Demographics

Age, gender, and ethnicity were not considered criteria for inclusion or exclusion from the study. Nurses of any age, gender, or ethnicity can be new graduate nurses and can exhibit emotional impacts from patients experiencing transfusion reactions. The eligibility criteria were identified as new graduate nurses (within 1–3 years of graduation) who worked in or have worked in clinical areas where blood products are transfused, who have witnessed a patient experiencing a transfusion adverse reaction, and who attended a new-hire blood transfusion training.

Data Collection

The quality of a sample can be evaluated by the richness of data collected and not by number of participants. In this study, a sample of 12 participants was recruited and interviewed. The sample size was appropriate to achieve data saturation due to the

consistency and richness of the data provided by the participants and to eliminate redundancy of information.

Data were collected by virtually interviewing participants and asking open-ended questions to provoke their reflective interpretations of their experiences. Altering the method of interviewing from in-person to virtual caused a deviation from the original plan that might impacted the data collection process. Participants were sent links to a Zoom video-conferencing platform with audio and visual abilities. Seven participants had no difficulty connecting visually and by audio, two had connectivity issues that halted the interview for some time while rebooting the system and starting again, one lost visual connection and elected to continue the interview with audio only, and two were unable to connect virtually and elected to do the interviews over the phone.

Among participants, seven were in a quiet environment with good internet connection and were content and focused on the interview, three were not completely invested in the interview as they were distracted by noises in their settings, and two were not able to join a virtual meeting and elected to do the interview over the phone. Even though virtual interviews are convenient and flexible, they can obstruct the capturing of emotions and the detection of nonverbal cues. With permission from participants and when feasible, the interviews were audio and visually recorded. The phone interviews were not recorded, but handwritten notes were taken, thus posing the risk of not capturing all information and missing pertinent material.

The interview questions were formulated to answer the research questions and allowed participants to reflect on their transfusion reaction experiences and examine their

emotional and behavioral responses and relate them to the education and training received. Even though some of the information disclosed did not answer the research questions, it was important to include as it indirectly related to the experiences they encountered. The detailed descriptions of the transfusion reaction incidents and the vivid images of the patients' clinical status at that time revealed the depth of hurt the participants still recalled and felt. While describing the adverse reaction incidents, participants thoroughly listed symptoms exhibited by the patients: arrhythmia, chills, monitor alarm, oxygen levels in the 80s, unresponsiveness, flushed and itching, redness and scratching, shortness of breath and difficulty breathing, barely breathing, heart rate of 34, dropping systolic pressure, chest pain, tachycardia, rigors, and diaphoretic with high temperature. These symptoms correlated with those identified by WHO (2001) guidelines of transfusion adverse reactions categories, symptoms, and severity.

Participants associated their lack of knowledge about transfusions as students to their unpreparedness as new graduates. When asked about changes to the training program they would like to be implemented, the overall theme was summarized by Participant 12 suggesting "It should be categorized and focused and offered on intervals" and Participant 11's suggestion: "extend it to the first year of employment." Propositions were made for a more targeted, hands-on training specific to the skills not practiced in school or in clinicals, especially to be "more directed at transfusion reaction signs and symptoms" (Participant 13).

Participants voiced their opinions on modifications they would undertake to the curricula in nursing schools. Participants advocated for more time learning about

transfusions and adverse reactions and for using mannequin-based simulations to mimic live experiences during clinical practice and case-scenario discussions for better recognizing and managing transfusion reaction symptoms. Likewise, participants recommended adjustments to the orientation design and training program to help them transition to the professional world. Participants suggested giving preceptors fewer assignments and charge responsibilities to enable them to dedicate more time and attention to new graduates during training.

Data Analysis

Using Colaizzi's (1978) data analysis method, I analyzed the study findings of new graduate nurses' experiences with blood transfusion reactions. Participants' narratives were referenced to reflect personal viewpoints and produce meaningful descriptions of their experiences. The established meanings were then clustered into themes common to participants' experiences. The comprehensive description of the themes developed was subsequently condensed into a concise statement that portrayed the essential attributes. Following this process, validation of collected data was attained through participants' revision of the interview narratives to ensure accurate capturing of their experiences.

Shortly after the interviews, I transcribed the recorded interview narratives to allow a clearer analysis of participants' responses. I reviewed transcripts numerous times to understand the fullness of the described experiences and capture details and to extract significant phrases. Some of these phrases included being unprepared frustrated, stressed out, insecure, not confident, scared, unable to think, incompetent, guilty, and incapable to

care safely for patients. To attain truthful reflections, I correlated each significant statement to its implicated meaning that comprised confidence, competence, fear, stress, anxiety, unpreparedness, lack of knowledge, and self-blame. I then derived formulated meanings through asserting and labeling, according to their content and relevancy to the experience. Three thematic categories were noted: (a) emotional distress and burnout, (b) second victim phenomenon, and (c) unpreparedness and reality shock. Afterward, I integrated the theme clusters to form a comprehensive description written as explicitly as possible. I emailed each participant a copy of their description to review and validate for accuracy and allow them the opportunity to add any information missed.

Results

Theme 1: Emotional Distress and Burnout

Answering RQ1, the theme emotional distress and burnout emerged describing new graduate nurses' lived experiences with patients exhibiting symptoms of blood transfusion adverse reactions. Participants told their stories with vivid descriptions and shared their emotions, which allowed me to identify meaningful statements that were significant to the participants during those events.

Words expressive of stress, such as *terrified, nervous, scared, anxious,* and *tense*, were mentioned by most of the participants. Participant 3 talked about a patient becoming unresponsive after oxygen levels dropped, describing it as "a scary situation" and how they "felt very anxious" and "worried" about the patient. Similarly, Participant 12 reflected on how within few minutes of starting the infusion, the patient began exhibiting symptoms of a reaction with oxygen levels dropping and ventilator alarms going off: "It

was scary and I was traumatized. It was stressful enough to manage the ventilator [as it was a new thing I was training on].” Participant 5 recalled the incident when within 10 minutes of starting the blood, patient became flushed with red areas all over the body and started itching: “I stood there for a second that seemed like an hour, like frozen. I think because of fear. Then it hit me that I have to do something and that’s when I stopped the blood.”

Self-Conscious Emotions

Through reflecting on those incidents, participants were aware of their actions and mindful of their emotions. They expressed feeling shame, worries, apprehensions, self-blame, and helplessness. For instance, Participant 2 described the reaction as quick when a patient started having chills 5 minutes into the transfusion; Participant 2 remembered being “nervous of calling it a reaction,” “worried about the patient,” and “scared of the outcomes.” Participant 6 shared a time when the patient was receiving blood and started feeling shortness of breath that progressed to becoming unable to breathe: “I blanked and couldn’t think. I still can see my patient struggling to breathe and the panic look in his eyes, like ‘do something’, but couldn’t think of anything. I just froze.” Self-blame was apparent when Participant 9 reflected on how a patient became febrile, started having rigors, becoming tachycardic, then unresponsive: “I felt awful and wanted the floor to crack and swallow me … I could’ve prevented it.” During the interview, multiple anguish and sorrow signs were noticeable indicating post trauma symptoms. Several participants had sad faces and teary eyes, demonstrated fidgeting and shifting positions, or exhibited racing thoughts and trembling voices.

Discussion of Theme 1

New graduate nurses experience stress and anxiety related to a gap between educational preparation and clinical experiences and their ability to apply theory in practice. New graduate nurses disclose stress through their feelings of nervousness, insecurity, and low self-confidence; inadequacy to manage critical situations that require problem-solving and decision-making abilities; and self-doubt their competence and ability to practice effectively (AlMekkawi, 2020; Bennett et al., 2017; Chandler, 2012; Guo, 2017; Watt & Pascoe, 2013). Emotional stress and anxiety, exhaustion and frustration, regret going into nursing, delivering unsatisfactory care, and intentions to leave profession were reported in major research topics due to lack of knowledge and inadequate practical skills (Gardiner & Sheen, 2016; Kumaran & Carney, 2014; Rudman & Gustavsson, 2011; Whitehead et al., 2016; Zhang et al., 2016).

In much research, burnout was found to be a substantial factor that impacted many aspects of new graduate nurses' transition. Rudman et al. (2014) findings of the intra-individual change trajectories of new graduate nurses' burnout showed that- in their second year after graduation- nearly every 2nd new graduate nurse had increased burnout levels and that- at some point during their first three years postgraduation- almost every 5th nurse reported high levels of burnout. Similarly, Japanese novice nurses decided to quit their jobs within 10-15 months of hire as a result of burnout (Suzuki et al., 2010). Canadian new graduate nurses' decision to exit the profession were explored because of *challenges, trauma*, & *facing fears* due to contributing factors of *not feeling prepared, difficulties with context-based learning*, and *disconnection between classroom & clinical*

(Chachula et al., 2015, p. 915). Burnout and intentions to exit the profession were identified in the practice environment as implications of new graduate nurses' facing apprehension, stress, social isolation, and emotional exhaustion (Dlamini et al., 2014; Harrison et al., 2015; Phillips et al., 2017; Rudman et al., 2014; Sandau & Halm, 2010).

Theme 2: Second Victim Phenomenon

This theme corresponded to RQ2 describing new graduate nurses' experiences with blood transfusion reactions that affected them emotionally and behaviorally. Reflecting on experiences and disclosing emotions were not easy tasks for participants as they suffered emotional exhaustion and endured psychological distress related to the moral conflict in values and duties contradictory to patient safety concerns.

Moral Distress

Participants experiencing morally challenging situations were clearly evidenced in the stories they shared. In describing how they felt after the transfusion reaction incidents, Participant 12 disclosed: "I took that feeling home and it remained with me for several days." This was similar to Participant 10's statement: "For a couple of nights after that, I had nightmares of my patients being in bad situations and I was unable to help them." Participant 9 thought that "it's not fair that new grads have to feel these bad emotions because they were not educated or trained enough to be able to care safely for patients" and Participant 12 believed that they "shouldn't be the victim of the educational system and training program." Meanwhile, Participants 4 and 9 kept thinking about the harm they caused the patients because of something wrong they did.

Discussion of Theme 2

The overwhelming premises of the interviews were directed at expressing the moral conflict attributed to questioning self-abilities, failing patients, and not ensuring safe transfusions. These factors of moral conflict or constraint precipitate the commencement of psychological stress that can lead to moral distress (Fourie, 2015; Morley et al., 2017). The frustration with insufficient level of academic education and inadequate preparation during training were supported by researchers who have explored new graduate nurses' moral distress related to their lack of preparedness (Benner, 2010; Frögéli et al., 2018; Hickerson et al., 2016; Ortiz, 2016; Tong & Epeneter, 2018; Van Rooyen et al., 2018).

New graduate nurses entering the profession with inadequate education and training are subjected to making clinical and medical mistakes to include transfusion errors. The consequences of such actions can result in an intense period of personal and professional distress. These emotional anguishes and dreadful feelings gave rise to the *second victim* term and phenomenon. The term was first introduced by Wu (2000) and defined by Scott et al (2009): "Second victims are health care providers who are involved in an unanticipated adverse patient event, in a medical error and/or a patient related injury and become victimized in the sense that the provider is traumatized by the event" (p. 326).

Much research has been conducted examining the aftershock emotional, cognitive, and behavioral reactions and exploring physical and psychosocial symptoms of healthcare providers and nurses who lived these experiences. Second victims can respond

emotionally, cognitively, and behaviorally thus affecting them on the personal and professional level (Edrees et al., 2011; Jones & Treiber, 2012; Lewis et al., 2013; Santomauro et al., 2014; Seys et al., 2013; Stangierski et al., 2012; Wu, 2000). Studies related to exploring nurses as 'second victims' indicated experiences of shock, disbelief, and helplessness along with moral distress exhibited in shame, self-blame, self-doubt, and loss of sleep (Cabilan & Kynoch, 2017; Chan et al., 2018; Edrees et al., 2011; Jones & Treiber, 2012; Lewis et al., 2013; Santomauro et al., 2014; Scott, 2015; Stangierski et al., 2012). Many nurses recounted constrains of guilt, sleep disturbances, flashbacks, damaged self-perception, competence insecurity, and uncertainty to care for patients (Bell et al., 2010; Chan et al., 2018; Edrees et al., 2011; Seys et al., 2013; Wu, 2000). Others experienced posttraumatic stress disorder, had suicidal ideation or attempts to commit suicide, quit their jobs, or left the profession (Cabilan & Kynoch, 2017; Edrees et al., 2011; Grissinger, 2014; Maiden et al., 2011; Scott et al., 2009; Wu, 2000).

Theme 3: Unpreparedness and Reality Shock

This theme answered RQ3 in relation to the ways training influenced new graduate nurses' knowledge of and confidence in recognizing transfusion adverse reactions in accordance with what they learned in nursing schools.

As related to education received at nursing schools, most participants steered towards a lack of adequate transfusion knowledge. Participant 3 acknowledged their education as "minimal about blood products and not enough about how to give blood" and was supported by Participant 12 who stated that "it seems that I did not learn enough about transfusions." The same thoughts about transfusion education received in nursing

schools as “textbook knowledge” was shared by Participants 2 and 9. Participant 2 also highlighted that coming out of nursing school and “…as a nurse, [what was learned] was different.” Time dedicated for transfusion education was “like 3 or 4 hours of lecture” (Participant 8) and “a couple of chapters during one of the semesters” (Participant 4).

When asked to reflect on training received at the workplace, participants’ responses were similar in focus. Learning about transfusions was either sitting through a presentation, reading manuals and policies, or completing online modules. Participant 8 related to training as “[having] a presentation about blood administration and [discussing] reactions and symptoms and what to do,” else Participant 5’s was completing a transfusion module that “had information about transfusion reactions but not in details.” Participant 4 shared that training only involved reading the blood administration manual and the transfusion reaction policy.

Several participants had similar experiences with practical hands-on blood transfusion training describing it as ‘observational’. While the statement of Participant 9 disclosed that the preceptor “did not feel comfortable to let a new grad give blood under her name,” similarly was that of Participant 3 of “preceptor won’t allow me to cause she has to cosign with her name.” Participants 4 and 11 experiences were limited to only shadowing and observing preceptors administer blood. Off note was Participant 1’s statement who described their transfusion training as “watching first then having hands-on practice.”

The significant statements extracted from participants’ narratives correlated with their implications to reflect the meaningful descriptions of their experiences.

Transfusion Reactions Knowledge

A common premise of insufficient information about transfusion reactions was expressed as unsatisfactory education preparation. Participants' statements varied from learning "mainly about blood types and testing" (Participant 4), to receiving lectures "about blood products and the testing to know types; not about transfusions" (Participant 5), to that of "not receiving any education about transfusion adverse reactions" (Participant 3). For participant 11, it was "briefly [going] over signs and symptoms of reactions"; whereas for Participant 2, learning about transfusion reactions was ineffectual as it "was different when it happened to the patient".

Hands-on Practice

Lack of practicing transfusions during clinicals was mentioned frequently. Participants shared feelings of frustration about their clinical experiences with the hands-on administering blood products. In disappointment, Participant 9 remembered having lectures mainly about the basics of what they need to know but "not practical or clinical." Similarly, Participant 7 voiced dissatisfaction with the level of preparation "especially when it comes to important clinical skills." According to many participants, they "were not allowed to give blood" (Participant 6) as it "was a huge responsibility" (Participant 12) and they were to "watch the nurse giving blood cause it was risky" (Participant 8). The most experience some had was to practice "in the simulation lab" (Participant 13) or "play with the tubing and 'fake' units of blood" (Participant 11).

Competency Validation

Participants' remarks regarding the competency evaluation process were worth of mentioning. Typically, new graduate nurses' is verified by assessing their knowledge and skills administering blood products. Knowledge is verified verbally by correctly answering questions, whereas skills are verified by satisfactorily demonstrating those skills. For most participants, transfusion competencies were obtained with deviation from the traditional process. Participant 3 was "verified competent from a checklist even though [they] did not practice giving blood," which was similar to Participant 6 who "completed training after verbally repeating the steps to be checked off." In like manner, Participants 5, 10, and 11 were verified competent once preceptors signed a form for skills completed either by demonstration or observation.

Training Program Structure

A study by Alghamdi and Baker (2020) assessing the impact of transitioning programs for new graduate nurses supported participants' views of training as being very intense and not structured, which made it hard to learn and retain much of the information. 'Overwhelming' was the word used to describe the training period as "so many things are going on at the same time from meds titration, to managing vents, to doing procedures," (Participant 12) which is "too much to 'stick' into our heads," (Participant 10) and "too many tasks to juggle with the heavy workload" (Participant 13). Likewise, Participant 10 described orientation as "cramped" and training as "heavy" due to "lots of information to grasp, tasks to master, policies to know, and a computer system to learn." Participant 6's opinion paralleled that of other participants and described as

"supplemental to the basic knowledge that you learn as a nursing student, especially the practical patient care stuff."

Preceptorship Issues

Participants' dissatisfaction was voiced because of lack of full attention and support from preceptors, mainly due to patient care assignments and time constraints to fulfil their duties as bedside nurses and preceptors. According to Participant 12, the preceptor was good but "had 3 patients to care for in addition to precepting" and was "stretched between patient assignments and training" (Participant 5). Even as Participant 8 shared frustration about how the preceptor "did not feel comfortable to let a new grad give blood under her name," Participant 9 disclosed administering blood several times with preceptors' guidance and supervision through each step.

Discussion of Theme 3

Essential to the transitioning process is new graduate nurses' competence and confidence. New graduate nurses' readiness to becoming practicing nurses has been a frequent topic for research. As defined by Wolff et al (2010), readiness is the "balance of doing, knowing, and thinking" (p. 9) and competence is the "ability to perform according to defined expectations" (Kubin & Fogg, 2010, p. 28). New graduate nurses' perceived readiness has been associated with competence. Having knowledge, skills, and critical thinking generate confidence, aid in following standards and policies, utilize strategies to prevent patient harm, and recognize available resources (Wolff et al., 2010) in addition to assuring patient safety and reducing preventable adverse events (Ulrich et al., 2010). Competence requires self-confidence and "unless people believe they can produce

desired results and forestall detrimental ones by their actions, they have little incentive to act or to persevere in the face of difficulties" (Bandura, 2001, p. 10). Early in their practice, new graduate nurses lack competence and confidence to make sound clinical judgments and respond appropriately (Spiva et al., 2013) making them feel insecure about their own adequacy (Wu, 2000). Findings of studies that explored the appropriateness of transfusion education in nursing programs supported participants' experiences. Lack of adequate learning in academic nursing programs and unsatisfactory academic groundwork and clinical skills can result in unpreparedness to practice (AlMekkawi, 2020; Kavanagh & Szweda, 2017; Lebano et al., 2016).

As it applies to any work field, reality shock is apparent in the nursing profession as well. Reality shock has been related to a gap between academic preparation and integration into practice (Blevins, 2018) and discrepancy between new graduate nurses' expectations and the real world of nursing (Cheng et al., 2014; Hinton & Chirgwin, 2010). According to the National Council of State Boards of Nursing (NCSBN, 2011), inconsistencies between what nurses perceived previously as ordinary and what is being presented in the workplace can result in new graduates becoming anxious, angry, and confused leading to medical errors, multiple job changes, and abandoning the profession. Research findings have been indicative of new graduate nurses committing medical errors and changing jobs or leaving the profession (30% within the first year of hire; Duchscher, 2009) and experiencing burnout and poor retention rates (Hofler & Thomas, 2016; Kohtz, 2016; Ortiz, 2016; Walsh, 2018; Walton et al., 2018; Zhang et al., 2016).

A summary of the statements, meanings, and themes are presented in the following table.

Table 1

Summary of Statements, Meanings, and Themes

Significant statements	Formulated meanings	Themes
"…couldn't think of anything. I just froze." "It was scary, and I was traumatized." "I was worried … and felt very anxious." "I stood there … like frozen. I think because of fear." "Almost had a panic attack."	Distress Self-conscious Posttraumatic stress disorder	Emotional distress and burnout
"I took that feeling home; it remained with me for several days." "I kept thinking about what I did wrong." "Thinking about the harm I caused." "I thought that I did something wrong." "It was not fair for me to live through this." "I shouldn't be a 'victim' of the educational system and training program." "I blamed myself for the longest time." "I thought about quitting several times." "I felt not competent to care safely for patients."	Moral distress	Second victim
"Learning mainly about blood types and testing." "Lectures about blood products and types, not transfusions." "Not receiving any education about transfusion adverse reactions." "Briefly went over reactions signs, symptoms." What was taught "was different when it happened to the patient."	Transfusion reaction knowledge	Unpreparedness and reality shock
Lectures mainly about the basics but "not practical or clinical." Dissatisfied with the level of preparation "especially when it comes to important clinical skills." Were "not allowed to give blood" as it "was a huge responsibility." Were to "watch the nurse giving blood cause it was risky." Most experience was practice "in the simulation lab" or "play with the tubing and 'fake' units of blood."	Hands-on practice	
Were "verified competent from a checklist even though did not practice giving blood." Training "completed after verbally repeating the steps to be checked off." Were "verified competent and able to administer blood products after preceptor signing a checklist for some skills that were done and some that were observed."	Competency validation	
"Very intense and not structured." "Overwhelming." "Hard to learn and retain much of the information." "Too much to 'stick' into our heads." "Too many tasks to juggle with the heavy workload." "Cramped" and "heavy." "Lots of information to grasp, tasks to master, policies to know, and a computer system to learn."	Training program structure	
Preceptor "had three patients to care for in addition to precepting." Was "stretched between patient assignments and training." "Did not feel comfortable to let a new grad give blood under her name." "Didn't give their full attention.	Preceptorship issues	

Evidence of Trustworthiness

Trustworthiness refers to the integrity of research that can be achieved through credibility, transferability, dependability, and confirmability (Amankwaa, 2016; Lincoln & Guba, 1985; Korstjens & Moser, 2018). I achieved credibility of this study by ensuring adequate collection of data that can authenticate information and draw conclusions. I compared participants' viewpoints and established consistency of data sources to ensure thematic saturation and establish integrity and worthiness of findings. I emailed the completed interviews' final transcripts to each of the participants for revision, edits, and authentication to guarantee data collection and analysis precision and to certify capturing experiences. Transferability was a focus to allow readers to make associations between the elements of research and their own experiences. I attained transferability through presenting comprehensive information and vivid descriptions and disclosing specifics about the interview process such as setting and environment; participants' situations, attitudes, and reactions; and other data collection aspects. Dependability was addressed to ensure research consistency and repeatability. I achieved dependability by integrating a process for auditing data to examine methods of gathering, analyzing, and interpreting to verify the support of findings. Confirmability was employed by being objective to mitigating any bias that I may have. I endorsed confirmability by having a diverse blend of participants, capturing rich descriptions, and conducting inclusive data analysis and reflecting on my conceptual and reflexive intellectuality.

Summary

Chapter 4 presented information related to the interview process incorporating interview questions and setting and participants' demographics. Details related to the number of participants and data collection and recording process were discussed in the data collection section. Data analysis was explored by focusing on the process of identifying, categorizing, and coding the emerging themes. To ensure trustworthiness of evidence, the implementation of and adjustments to strategies of credibility, transferability, dependability, and confirmability were discussed. The results of data analysis were examined based on themes identified and supported by quotes from participants' narratives.

Chapter 5 provides a summary, discussion, and interpretation of study findings and presents how these findings can facilitate positive social change. The limitations and implications for practice and recommendations for future research are also provided. Chapter 5 serves as the final section of the analysis for this study

Chapter 5: Discussion, Conclusions, and Recommendations

In this study, I adopted a hermeneutic phenomenological approach to seek out new graduate nurses' lived experiences with blood transfusion adverse reactions, recognize the emotional effect of these experiences, and explore the views of their training programs. Based on findings, implementing changes to the training program could improve new graduate nurses' transfusion knowledge, thus decreasing stress, improving work environments, increasing retention, enhancing patient safety, and improving outcomes.

Formulated meanings from data analysis were clustered into three themes reflecting participants' responses. New graduate nurses expressed a dearth of adequate blood transfusion knowledge and indicated that unexpected differences between school and the workplace left them feeling unprepared. The absence of transfusion hands-on practice during clinicals and restrictions to only observe during training validated the theory–practice gap. This lack of preparation led new graduate nurses to experience reality shock. Participants expressed feelings of anxiety, fear, stress, worry, helplessness, self-blame, and fear of causing harm to patients, which all were indicative of new graduate nurses experiencing burnout.

Interpretation of Findings

A comprehensive literature review was conducted to identify relevant and correlated evidence associated with new graduate nurses' preparedness to transition. I evaluated findings in relation to the present literature on the topic.

Even though two participants voiced academic transfusion education sufficiency and workplace training adequacy, others shared a common theme of lacking hands-on practice. The lack of hands-on training is likely because blood transfusions are risky and adverse reactions are rare; practicing blood administration and experiencing a transfusion reaction may not be feasible during clinicals or training. Structured training programs to include both classroom education and hands-on practices have proven successful in transforming the context of existing knowledge, developing new skills, and creating a safe environment for applying critical thinking and clinical judgement (Breymier & Rutherford-Hemming, 2017; Campbell et al., 2016; Clapper, 2010; Pilcher et al., 2012; Rhees et al., 2001; Ulrich et al., 2010).

According to the International Nursing Association for Clinical Simulation and Learning (INACSL, 2016), a pragmatic teaching method for knowledge and skills gain can be offered through a standardized simulation design. Hogg et al. (2006) referenced numerous researchers from the 1990s who viewed simulation as a "safe method for learning error management and hazardous procedures" and deemed it useful "in effectively developing higher cognitive skills such as problem solving, decision making and creative thinking" (p. 215). Similarly, simulation education in undergraduate nursing students proved improvement in perceptions of competence among participants, thus allowing them to learn and provide skilled and integrated care (Berragan, 2014). Likewise, undergraduate nurses endorsed the role of simulation and praised its learning potential to understand the risks of blood transfusions, especially in situations that required critical thinking and advanced skills (Mills et al., 2014) and reported

improvements in their ability to perform and work in teams (Campbell et al., 2016). Additionally, research finding suggested that a simulated approach to training and having the blood administration skills practiced in a patient risk-free environment efficiently heightens students' understanding of blood transfusions and adverse reactions (Morgan et al., 2015; Rhees et al., 2015).

Participants voiced being overwhelmed during the training period and expressed frustration at the lack of basic knowledge and clinical practice. These reflections validate the theory–practice gap in academic programs and the new graduate nurses' feelings of incompetence with practice–related skills. In much research, nursing students indicated not having adequate clinical practice to facilitate their transition to the workplace (Johanson, 2013), improper preparation in the academic and clinical environment (Milton-Wildey, 2014), and feeling not ready to face the nursing profession reality (Meyer et al., 2017). In support of participants' statements, research has suggested the existence of the theory–practice gap in transfusion education as well (Cherem et al., 2017; Cottrell & Donaldson, 2013; da Silva et al., 2017; Hijji et al., 2010; Sapkota et al., 2018; Talati et al., 2016).

Though outside the scope of this study, participants' thoughts and concerns related to preceptorship were valuable. Participants expressed dissatisfaction with preceptorship and a lack of attention and support that contributed to emotional situations. Preceptors play a major role in new graduate nurses' transition; preceptors help new nurses learn and adapt to their new roles, obtain more knowledge and skills, and gain personal and professional experience. Challenges, such as increased workload and

difficulty teaching while managing patients, can affect the student–preceptor relationship, thus causing a negative influence on the learning process and transition experience (Dibert & Goldenberg, 1995; Kalischuk et al., 2013; Smith & Sweet, 2019; Valizadeh et al., 2016).

Centered on the concept of interaction among person, environment, and behavior, I chose SCT as the study's theoretical framework. SCT is founded on the causal model of mutual causation in which personal factors, behavioral patterns, and environmental events act as interrelating elements that impact one another (Bandura, 1986, 2001, 2004; Braungart & Braungart, 2007). This facilitated in establishing the relationship among the new graduate nurses' education and training and their emotional responses to the transfusion reactions situations.

Transfusion knowledge has been recognized as a predictor to changing nurses' transfusion behavior, facilitating interventions, and enabling decision making (Shander et al., 2017; Vasiliki, 2011). The instant recognition of transfusion reactions, appropriate implementation of interventions, effective communication with providers, and correction of pathophysiologic effects have been essential to patient safety during blood transfusions (Cherem et al., 2017; Crookston et al., 2015; da Silva et al., 2017; Fastman & Kaplan, 2011; Flood & Higbie, 2016). A lack of preparedness, dearth of clinical assessment, and deficiency of practice readiness can lead to reduced proficiency (El Haddad et al., 2017; Osborne et al., 2015; Rush et al., 2015; Trepanier et al., 2017; Wolff et al., 2010).

Cognitive, clinical, and professional abilities are essential attributes to achieving competence, which is vital to having performance confidence and providing safe patient

care and ensuring proper transitioning with no adverse physical and emotional responses (AlThiga et al., 2017; Cheng et al., 2014; Ehrenberg et al., 2016; Kesten et al., 2019; Kopf et al., 2018; Mirza et al., 2019; Speight et al., 2019). However, new graduate nurses' improper transition to practice have been associated with adverse physical and emotional responses such as anxiety, stress, emotional exhaustion, frustration, helplessness, fear, lack of self-confidence, and regret about choosing nursing (Ebrahimi et al., 2016; El Haddad et al., 2017; Frögéli et al., 2018; Gardiner & Sheen, 2016; Higgins & Jones, 2013; Ortiz, 2016; Parker et al., 2014; Schmitt & Schiffman, 2019; Whitehead et al., 2016).

Limitations to the Study

Limitations exemplify the flaws within a research design that can impact findings. Addressing limitations presents readers with meaningful information, provides focus on key findings, delivers accurate interpretation of findings, and certifies transparency (Lingard, 2015; Ross & Zaidi, 2019). Limitations to this study include:

Research Methodology

a. Nature of the study – The qualitative nature of this study poses a restriction on its generalizability, transferability, and replicability. This can be related to the extent of participants' individual reactions and emotions as they describe and reflect on their personal lived experiences.
b. Literature review – The comprehensive review of literature revealed much research conducted to explore new graduate nurses' general knowledge as they transition to the workplace. No research was found that specifically explored their

transfusion knowledge and training and the emotional responses related to their experiences with transfusion reactions.

c. Participation criteria – The inclusion and exclusion criteria of participation can pose a limitation to the study and restrict the application of findings, thus inhibiting the generalizability of results. Study findings applicable to new nurses within 1-3 years of graduation may not apply to the broader nursing population.

d. Size of participants – The small size of participants can limit transferability and impact the generalization of findings as it provides only the true reflections of nurses who were interviewed. To minimize this limitation, I included particulars about the interview process, revealed participants' circumstances, and gathered ample detailed descriptions.

Participants' Influences

Inadvertently, participants may have influenced the study findings in several ways:

a. Demand bias – Awareness of being a part of a study may sway participants to change their opinions believing that by altering responses, they can influence study findings. Participants may also "alter their naturalistic behavior due to the observer's presence" (Lingard, 2015, p. 136). This is known as the Hawthorne effect, defined by Kenton (2020) as "the inclination of people who are the subjects of an experimental study to change or improve the behavior being evaluated only because it is being studied and not because of changes in the experiment parameters or stimulus" (par. 1).

b. Social desirability bias – Participants' responses may have been influenced by recollection bias and/or temptation to offer socially desirable answers. I worked on reducing socially desirable influences through conveying honesty instructions and implicating goal priming.
c. Truthfulness answering questions – This can be impacted by participants' beliefs that (a) their answers are true as they try to remember incidents that happened long ago; (b) they cannot disclose the truthful response that reflects their feelings, or (c) they do not want to discourse sensitive behaviors. Participants can withhold information, provide biased responses, or convey vague explanations.
d. Offering incentive – This may have encouraged response falsification. Individuals may have entered incorrect demographic information to be able to participate in the study and gain the incentive.

Researcher Bias

A threat to the trustworthiness of a study can be related to the researcher. Several biases are identified to include:

a. Proximity of position to the study – This can be linked to the researcher's perspective of the topic as related to knowledge about blood transfusions and the passion to enhance nurses' knowledge. To avoid this type of bias and maintain objectivity, I self-reflected on my own views and experiences, examined my values and interests, and acknowledged my assumptions and perceptions.
b. Researcher-participants relationship – This is an objective, respectful, and friendly relationship without overidentifying with the participants. I ensured that

the confidentiality of responses is respected and the participants dot not feel judged.

c. Questions order – Interview questions are structured to facilitate the flow of thoughts and information. I eliminated potential bias related to responses influence on subsequent questions that can result in biased and inaccurate answers.

d. Confirmation of data analysis – Neutrality can be achieved when data are analyzed with unbiased approaches. I repeatedly reevaluated the analysis process to ensure that results are interpreted without substitution or omission.

e. Leading questions and wording – Questions that lead or prompt participants in the direction of probable outcomes may result in biased answers. I made certain to keep the questions simple, avoid words that can introduce bias, and not use leading questions that can prompt participants to respond in favor of a particular assumption.

To minimize the scope of limitations, I tried to be transparent by listing potential constraints, explaining implications, providing alternative approaches, and describing mitigation steps. The focus was to recognize and avoid biases that can threaten the study's reliability. I structured and phrased the interview questions in a way to avoid provoking extreme emotional responses, produce unbiased emotive responses, and trigger a reflex of thoughts. While conducting interviews, I took into consideration the participants' demographics and common characteristics and centered my attention at the 'who' am I interviewing rather than 'what' am I asking. I sought to eliminate any bias

that can be influenced by me- as the researcher- by preserving a professional demeanor, addressing details of the study design, maintaining integrity of interviews, and remaining neutral to the study's motives.

Recommendations

Simulation has become a credible instituted pedagogy for nursing clinical skills (Berragan, 2014; Breymier & Rutherford-Hemming, 2017; Hogg et al., 2006; Mills et al., 2014; Wolf et al., 2011). Adopting simulation for blood transfusion education and adverse reactions management provide a platform for interprofessional education, a valuable learning experience, and a safe learning environment (Breymier & Rutherford-Hemming, 2017). Because new graduate nurses infrequently experience blood transfusion practices and exposure to transfusion reactions, the adoption of simulation is proposed in clinical practice and workplace training to enhance transfusion knowledge and skills. Recommendations for studies to evaluate this proposal can be beneficiary to proving efficacy.

The need for adequate education in nursing schools and practicing of clinical skills, appropriate on-the-job training and supervision, adequate pretransfusion checks and patient monitoring are prevalent to eliminate the gap in transfusion clinical processes (Cherem et al., 2017; Cottrell & Donaldson, 2013; da Silva et al., 2017; Hickerson et al., 2016; Sapkota et al., 2018; Talati et al., 2016). To ensure new graduate nurses' readiness for safe blood administration, collaborative efforts initiated between nursing schools and clinical areas to map the theoretical teaching and clinical practice process (blood transfusions included) and to develop transition programs employing didactics and

simulation were proposed. Conducting research to evaluate outcomes of such programs can be empirical in establishing quality educational curricula and structured training programs for new graduate nurses to enhance clinical knowledge and practical skills, increase competence and self-confidence, and ensure preparedness to the workplace environment (Alghamdi & Baker, 2020; Bennett et al., 2017; Dlamini et al., 2014; Edwards et al., 2019; Goode et al., 2016; Halcomb et el., 2012; Hussein et al., 2017; Johanson, 2013; Mirza et al., 2019; Missen et al., 2014; Olson-Sitki et al., 2012; Sparacino, 2016).

Implications

The focus of the study on social change was based on the Social Change Model (SCM) that aims at a "collaborative, service-oriented, values-based process that is about effecting change on behalf of society" (Read et al., 2015, p. 165). The paradigm for social change that may result from this study is how the collaboration of and focus on the common purpose of the group (nursing) will influence the congruence and commitment of individuals (nurses) that will reflect on the public spirit of the community (patients and families).

The study findings may help to bring about change to nursing programs and clinical practices, thus influencing new graduate nurses' views of competence and self-confidence, reflection on beliefs and attitudes, and perception of their call as nurses. This study is original in its contribution to literature through reflecting on new graduate nurses' experiences with transfusion adverse events, exploring their emotional responses, and relating them to education and training. Providing new graduate nurses with

transfusion knowledge is paving the way for a more educated generation of nurses who can overlay the way for future nurses leading safe transfusion practices.

As viewed by Read et al. (2016), social change is “an active, long-term process that begins with insight and is realized through skills that can be taught and developed in a nursing program and carried forward in one’s career and as a citizen of society” (p. 167).

Conclusion

Researchers discussed the effects of transfusion education and training on the enhancement of new graduate nurses’ theoretical knowledge and practical skills, improve their performance, and augment their confidence and expanded on the emotional exhaustion, anxiety, and distress experienced in relation to lack of self-confidence in clinical capabilities and critical thinking. However, no research was identified specifically addressing these factors in relation to blood transfusions. The gap of understanding the new graduate nurses’ psychological and emotional responses observing their patients exhibit transfusion reactions and evaluating training effectiveness on knowledge and confidence was addressed in the study. Findings of this study correlated with previous research uncovering new graduate nurses enduring stress, anxiety, and frustration; feeling unprepared and unskilled; experiencing dearth professional confidence; and delivering unsatisfactory care because of lack of overall knowledge and insufficient clinical nursing skills.

Nurses’ education is the foundation on which quality care and patient safety are built. Ample education, adequate training, and competency assessments for nurses are

bases of ensuring transfusion safety and promoting safer practices. For new graduate nurses, proper knowledge and understanding of the pathophysiology of transfusion reactions, symptoms, and treatment and adequate training are essential to safely administering and monitoring transfusions. A shift from relying heavily on academic prospects to focusing more on practice prospects may be needed in nursing schools' curricula. Comprising blood transfusion education and hands-on practices as parts of academia and clinicals enhance new graduate nurses' knowledge to reduce errors and prevent adverse events and allow them to intervene, implement interventions, and communicate effectively with providers. Structured training programs addressing skill proficiency and concentrating on hands-on practices are essential to successfully transition new graduate nurses from academia to the professional world. A supportive culture that assists new graduates in transforming their knowledge and skills into safe practice positively influences professional satisfaction, thus decreasing stress, improving work environments, increasing retention, enhancing patient safety, and improving patient outcomes.

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Appendix A: Summary of Transfusion Adverse Reactions

The adverse reactions that can occur with blood transfusions are defined into two categories, immunologic and non-immunologic (AABB, 2017; Aubron, 2018; Frazier et al., 2017; Goodnough & Shander, 2012; Sahu & Anupam, 2014; Suddock & Crookston, 2018).

Immunologic Complications

a. Hemolytic transfusion reactions: Relate to the destruction of red blood cells causing hemolysis.
b. Febrile nonhemolytic reactions: Manifest by a temperature elevation of ≥ 1oC or 2oF.
c. Allergic reactions: Occur as mild or self-limiting itching or wheezing that respond to antihistamines.
d. Anaphylactic reactions: Are severe allergic reactions characterized by dyspnea, pulmonary edema, bronchospasm, hypotension, tachycardia, nausea, vomiting, and/or abdominal pain.
e. Transfusion-related acute lung injury (TRALI): Evident by the acute onset of hypoxemia within 6 hours of a transfusion and characterized by the exhibiting of bilateral infiltrates on chest radiographs.

Nonimmunologic Complications

a. Infections: Blood transfusions pose a risk of transmitting infectious agents such as viruses, bacteria, and parasites.
b. Transfusion Associated Circulatory Overload (TACO): Occurs after the rapid infusion of excessive volumes of blood products, thus leading to pulmonary edema.
c. Metabolic complications: Take place after large-volume transfusions to include acidosis or alkalosis, hyper- or hypokalemia, and citrate toxicity.
d. Hypothermia: Occurs as result of the infusion of large volumes of cold blood products that can depress the body temperature, thus causing a risk of cardiac arrhythmia or arrest and coagulopathy.

Appendix B: Guidelines for Recognizing Acute Transfusion Reactions

According to the WHO (2001) published handbook, The Clinical Use of Blood, the severity of the reaction, three categories were identified:

Category 1: Mild Reactions

Signs	Symptoms	Possible Cause
■ Localized cutaneous reactions — Urticaria — Rash	■ Pruritus (itching)	■ Hypersensitivity (mild)

Category 2: Moderately Severe Reactions

Signs	Symptoms	Possible Cause
■ Flushing ■ Urticaria ■ Rigors ■ Fever ■ Restlessness ■ Tachycardia	■ Anxiety ■ Pruritus ■ Palpitations ■ Mild dyspnoea ■ Headache	■ Hypersensitivity (Moderate – Severe) ■ Febrile non-haemolytic transfusion reactions: — Antibodies to white blood cells, platelets — Antibodies to proteins ■ Possible contamination with pyrogens and/or bacteria

Category 3: Life-Threatening Reactions

Signs	Symptoms	Possible Cause
■ Rigors ■ Fever ■ Restlessness ■ Hypotension (fall of ≥20% in systolic BP) ■ Tachycardia (rise of ≥20% in heart rate) ■ Haemoglobinuria (red urine) ■ Unexplained bleeding (DIC)	■ Anxiety ■ Chest pain ■ Pain near infusion site ■ Respiratory distress/ shortness of breath ■ Loin/back pain ■ Headache ■ Dyspnoea	■ Acute intravascular haemolysis ■ Bacterial contamination and septic shock ■ Fluid overload ■ Anaphylaxis ■ Transfusion-associated acute lung injury (TRALI)

Appendix C: Actions Post a Transfusion Reaction

Immediate actions are required upon recognizing signs and symptoms of a transfusion reaction to include (AABB, 2017; Suddock & Crookston, 2018).

1. Stop the transfusion immediately
2. Check and monitor vital signs
3. Disconnect the blood tubing
4. Maintain intravenous (IV) access
5. Check for clerical errors (Right product for the right patient)
6. Notify healthcare provider and transfusion service provider
7. Collect a post transfusion blood sample
8. Send blood product and tubing to the Blood Bank

Appendix D: Interview Questions

1. Let us begin with reflecting on your journey of becoming a nurse.
2. Think about the time you were in nursing school and tell me about the education you received related to blood transfusions.

   … What did the lectures focus on?

   … How about the time dedicated to these lectures?

   … How was the practical hands-on experience like?
3. Let us move forward past graduating and to when you were hired and had to go through the orientation/training program. Can you tell me about it?

   … Expand on the transfusion-related part of it.
4. If you go back in memory to when a patient experienced a transfusion reaction. What can you remember about that incident?

   … Walk me through what was it like for you

   … Reflect back and be more specific to how you felt afterward
5. If you can go back in time to change something about that experience, what would that be?

   … How about the education in nursing school? Training?

Appendix E: Summary of Colaizzi's Strategy for Phenomenological Data Analysis