
Nursing (graduate) Student Scholarship

Nursing (DNP, MSN and RN-MSN)

5-2019

The Effect of Structured Debriefing on Prelicensure Nursing Students' Clinical Judgment Development

Kristin Z. Shaub

Messiah University, kz1166@messiah.edu

Follow this and additional works at: https://mosaic.messiah.edu/gnurse_st



Part of the [Medical Education Commons](#), and the [Nursing Commons](#)

Permanent URL: https://mosaic.messiah.edu/gnurse_st/1

Recommended Citation

Shaub, Kristin Z., "The Effect of Structured Debriefing on Prelicensure Nursing Students' Clinical Judgment Development" (2019). *Nursing (graduate) Student Scholarship*. 1.

https://mosaic.messiah.edu/gnurse_st/1

Sharpening Intellect | Deepening Christian Faith | Inspiring Action

Messiah University is a Christian university of the liberal and applied arts and sciences. Our mission is to educate men and women toward maturity of intellect, character and Christian faith in preparation for lives of service, leadership and reconciliation in church and society.

THE EFFECT OF STRUCTURED DEBRIEFING ON PRELICENSURE NURSING
STUDENTS' CLINICAL JUDGMENT DEVELOPMENT

An Evidence-based Practice Capstone Project

Submitted to the Faculty of the

Graduate Program in Nursing

In Partial Fulfillment

of the Requirements for the Degree

Master of Science in Nursing

Kristin Z. Shaub

Messiah College

May 2019

Copyright 2019

Kristin Z. Shaub, BSN, RN, CCRN

All rights reserved

Messiah College
School of Graduate Studies
Graduate Program in Nursing

We hereby approve the Capstone Project of

Kristin Z. Shaub, BSN, RN, CCRN

Candidate for the degree of Master of Science in Nursing

5/11/2019

Louann B. Zinsmeister, PhD, RN, CNE
Professor of Nursing

5/11/2019

Louann B. Zinsmeister, PhD, RN, CNE
Director of Graduate Program in Nursing

Kimberly Fenstermacher, PhD, CRNP
Associate Professor, Chairperson, Department of Nursing

Title of Capstone Project: The Effect of Structured Debriefing on Prelicensure Nursing Students' Clinical Judgment Development

Author: Kristin Z. Shaub, BSN, RN, CCRN

Capstone Advisor: Dr. Louann Zinsmeister, PhD, RN, CNE

Capstone Approvers: Dr. Louann Zinsmeister, Director of Graduate Program in Nursing
Dr. Kim Fenstermacher, Department of Nursing Chairperson

Abstract

Current trends in prelicensure nursing education have emphasized the use of simulation-based learning (SBL) activities to facilitate clinical judgment development through structured debriefing. However, debriefing practices used within SBL activities are inconsistent, which may impact the effectiveness of simulation in developing clinical judgment within prelicensure nursing students. Thus, the purpose of this evidence-synthesizing project is to evaluate the effect of structured debriefing on clinical judgment development among prelicensure nursing students. One reviewer conducted a literature search using CINAHL, PubMed, and Medline. Only original pieces of evidence from peer-reviewed journals published within the last seven years were included for review. The ten studies selected for review revealed inconsistent results regarding the impact of structured debriefing on clinical judgment development. However, three themes emerged, which are as follows: the ability to “think like a nurse,” safety, and confidence. Strengths of this evidence-synthesizing project are that the pieces of evidence reviewed included research and non-research evidence published within the last seven years. Limitations included inconsistencies in the evaluation tools used to measure clinical judgment, which may have contributed to the inconsistent results. Thus, further research using a consistent tool to measure

the impact of structured debriefing on clinical judgment development is indicated before a practice change can occur.

Keywords: structured debriefing, clinical judgment in nursing, simulation-based learning

DEDICATION

This capstone project is dedicated to my husband, Bryan, my grandfather, Dr. Joseph A. Brechbill, my parents, and the rest of my family and friends. Without their love and support, I would not be where I am today.

ACKNOWLEDGEMENTS

I would like to acknowledge my Capstone advisor, Dr. Louann Zinsmeister for all of her help and guidance in this process.

TABLE OF CONTENTS

| | | Page |
|-------------|--|------|
| ABSTRACT | | iv |
| CHAPTER I | Introduction..... | 1 |
| | Background and Need..... | 2 |
| | Statement of Problem..... | 3 |
| | Purpose Statement..... | 3 |
| | Evidence-based Practice Question..... | 3 |
| | Significance to Nursing Education..... | 4 |
| | Definition of Terms..... | 5 |
| | Chapter Summary..... | 7 |
| CHAPTER II | Methods..... | 8 |
| | Data Collection of Evidence..... | 8 |
| | Evidence-based Practice Model..... | 10 |
| | Critical Appraisal of Evidence..... | 10 |
| | Chapter Summary..... | 12 |
| CHAPTER III | Literature Review and Analysis..... | 13 |
| | Theme One: Thinking Like a Nurse | 14 |
| | Theme Two: Safety | 36 |
| | Theme Three: Confidence..... | 42 |
| | Chapter Summary..... | 48 |
| CHAPTER IV | Results and Synthesis..... | 49 |
| | Results..... | 49 |
| | Synthesis of Results..... | 50 |
| | Chapter Summary..... | 52 |
| CHAPTER V | Discussion and Conclusion..... | 53 |
| | Discussion of Findings..... | 53 |
| | Implications of Findings..... | 54 |
| | Identified Gaps in Findings..... | 55 |
| | Limitations for Consideration..... | 56 |
| | Chapter Summary..... | 56 |
| | Project Summary..... | 57 |
| REFERENCES | | 58 |
| APPENDICES | | 61 |

LIST OF FIGURES

| | |
|--|----|
| Figure 1. [Data Collection Procedure]..... | 10 |
|--|----|

APPENDICES

| | |
|---|----|
| Appendix A [Evidence Summary Matrix]..... | 61 |
| Appendix B [Synthesis of Levels of Evidence & Quality Table]..... | 70 |

CHAPTER I

INTRODUCTION

For many years, simulation-based learning (SBL) activities were used to supplement skill development and lower-level thinking skills in prelicensure nursing students; however, current trends in nursing education focus on SBL strategies that facilitate higher-level thinking skills in prelicensure nursing students in order to develop their clinical judgment skills (Oermann & Gaberson, 2017). The focus on clinical judgment coupled with advancements in simulation technology and limited availability of clinical sites have led to an increase in the necessity of using SBL activities that foster higher level thinking within prelicensure nursing education. The importance of SBL was further evaluated in the landmark study conducted by nurse researchers at the National Council for State Boards of Nursing (NCSBN), which suggested that SBL could be used as an effective replacement for clinical hours in prelicensure nursing programs when performed under specific conditions, with one such condition being that of debriefing (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). According to Aldridge (2016), the use of debriefing after SBL activities may help to facilitate the development of clinical judgment in prelicensure nursing students by requiring them to use higher levels of thinking in the cognitive, psychomotor, and affective domains of learning.

Although the use of debriefing may be useful in developing clinical judgment in prelicensure nursing students, there is a lack of standardization in the way debriefing practices are implemented, which may negatively impact the learning generated through SBL activities (Palaganas, Fey, & Simon, 2016). One potential way to create more standardization among debriefing methods after SBL activities to better ensure the development of clinical judgment is through the use of structured debriefing. In addition to standardizing debriefing, structured

debriefing may be a more effective method of facilitating higher level thinking among prelicensure nursing students by making the debriefing session learner-centered rather than educator-centered so that the students can reflect on their experience, explain their decision-making processes, and then apply what they have learned to future simulations and in-hospital clinical learning experiences (Forneris et al., 2015). By transferring knowledge gained during one experience to another new learning experience, students demonstrate clinical judgment.

Background and Need

Traditionally, nursing students learned through classroom lectures and practicing clinical skills via direct patient care during clinical hours. However, due to decreased availability of clinical sites and continually increasing restrictions on the learning experiences available to prelicensure nursing students, it is becoming more common for SBL to be used as a way to provide students with learning experiences that mimic the hospital setting (Oermann & Gaberson, 2017). Since simulation-based learning is becoming increasingly more common to supplement traditional in-hospital clinical hours, it is recommended that nurse educators learn to use SBL strategies that may help to develop clinical judgment, such as the use of structured debriefing. Although members of the NCSBN and the International Nursing Association for Clinical Simulation and Learning (INACSL) have produced pieces of evidence that recommend the use of structured debriefing, not all nurse educators consistently use structured debriefing following SBL activities due to the amount of time required to use structured debriefing and lack of educational preparation on ways to implement it (Hayden et al., 2014; INACSL, 2016). In order to encourage nurse educators to use structured debriefing, it may be helpful to evaluate the impact of structured debriefing on clinical judgment development to determine if the time and effort necessary to implement it are worthwhile.

Problem Statement

Although current trends within prelicensure nursing education focus on the use of SBL, the advantages gained through SBL are more likely to be achieved when simulation activities are structured based on best-practice guidelines; however, best-practice guidelines within simulation are inconsistently applied to simulation-based learning activities (Hayden et al., 2014). One such guideline that is inconsistently applied is that of structured debriefing, which may be a useful tool in helping to develop clinical judgment within prelicensure nursing students following SBL activities (Mariani, Cantrell, & Meakim, 2014). Therefore, if structured debriefing is not used consistently by nurse educators in prelicensure nursing programs, development of clinical judgment within prelicensure nursing students may also be inconsistent.

Purpose Statement

The rapidly-growing field of simulation means that the amount of research and non-research evidence pertaining to SBL debriefing methods is continually growing. However, the types of SBL debriefing methods used by nurse educators are inconsistently applied despite this growing body of evidence focused on the topic of simulation debriefing methods (Aldridge, 2016). Thus, the purpose of this evidence-synthesizing project is to evaluate the effect of structured debriefing on clinical judgment development among prelicensure nursing students engaged in SBL activities when compared to the absence of structured debriefing.

Evidence-Based Practice Question

The evidence-based practice question guiding this evidence-synthesizing project is as follows: Within prelicensure nursing programs, is there a difference in the clinical judgment abilities of nursing students provided with structured debriefing after simulation-based learning

compared to nursing students provided with no structured debriefing after simulation-based learning?

Significance to Nursing Education

Within nursing education, there has been an increased emphasis on the importance of developing nurses with the clinical judgment skills necessary to provide patients with safe, high-quality nursing care to improve patient outcomes (Weaver, 2014). This increased emphasis on safety and quality has been coupled with an increased emphasis on the use of constructivist teaching methods that are learner-centered and engage the cognitive, affective, and psychomotor domains of learning. Nurse educators have sought to address the emphasis on clinical judgment and constructivist teaching that reaches all three domains of learning by using SBL activities.

Furthermore, the use of SBL within prelicensure nursing curricula has been continually growing in response to the technological advancements that have improved simulation fidelity as well as the results of the landmark study by the National Council of State Boards of Nursing (NCSBN) where SBL activities were determined to be a suitable replacement for up to 50% of in-hospital clinical hours (Hayden, Smiley, Alexander, Kardong-Edgren, & Jeffries, 2014). Since in-hospital clinical sites and clinical nurse educators are becoming increasingly more difficult to attain and the number of nursing students continues to grow, SBL activities have been used even more. However, although there is consistent evidence to suggest that the debriefing portion of simulation is where the acquisition of clinical judgment skills occur, there is a lack of standardization regarding how to organize, implement, and debrief SBL activities. The lack of standardized debriefing practices has created variations in the quality of learning derived from SBL, thus impacting the clinical judgment skills gained from SBL.

In order to standardize debriefing practices in a way that may produce better clinical judgment among prelicensure nursing students, structured debriefing tools have been developed. Customary forms of debriefing were more facilitator-focused and thus, believed to be less likely to develop clinical judgment. In contrast, structured debriefing tools are developed to be learner-centered, thus complying with constructivist teaching methods while also creating the potential to develop improved clinical judgment. By developing clinical judgment skills, prelicensure nursing students may be better able to move beyond memorization-based learning and use higher-level thinking skills to that promote safe decision-making within the clinical setting, thus allowing them to deliver quality nursing care that could potentially improve patient outcomes (Forneris et al., 2015).

Definitions

Within simulation-based learning activities, several terms are commonly used, but have varying definitions within the literature. For this evidence-synthesizing project, definitions for the terms clinical judgment, clinical reasoning, critical thinking, reflective thinking, simulation, debriefing, customary debriefing, structured debriefing, and prelicensure nursing students, have been derived from the literature and are as follows:

Clinical judgment. Clinical judgment is a complex problem-solving thought process guided by knowledge, clinical reasoning, critical thinking, and self-reflection where several consecutive safe and effective decisions are made based on assessment and prioritization of objective and subjective data. The results of past decisions are then used to inform future decisions (Cantrell, Meakim, Prieto, & Dreifuerst, 2013; Forneris et al., 2015; Victor, Ruppert, & Ballasy, 2017; Weaver, 2014).

Clinical reasoning. Clinical reasoning is a form of higher-level thinking where nurses demonstrate an understanding as to why a clinical situation has happened, requiring the transfer of previously acquired knowledge to new clinical situations (Dreifuerst, 2012; Forneris et al., 2015; INACSL, 2016; Weaver, 2014). Unlike clinical judgment which demonstrates the ability to make safe and effective decisions, clinical reasoning demonstrates the ability to derive deeper meaning from clinical situations (INACSL, 2016).

Critical thinking. A systematic thinking process where new meaning is derived from objective information via inductive and deductive reasoning, thus leading to deeper understanding (Dreifuerst, 2012; INACSL, 2016; Weaver, 2014).

Debriefing. Defined in relation to SBL with prelicensure nursing programs, debriefing is a type of reflective learning used to develop clinical reasoning and clinical judgment in prelicensure nursing students by engaging higher-level thinking skills to analyze the clinical portion of the SBL experience (Dreifuerst, 2012; Mariani et al., 2013; Palaganas, Fey, & Simon, 2012). Debriefing can be further defined as customary debriefing and structured debriefing.

Customary debriefing. There is inconsistency within the literature regarding the definition of customary debriefing. For the purposes of this Capstone project, the definition of customary debriefing is that of a faculty-led constructivist teaching technique that lacks a standardized format and usually limits the amount of time devoted to self-reflective learning (Dreifuerst, 2012; Forneris et al., 2015; INACSL, 2016; Weaver, 2014). Customary debriefing can be referred to in a variety of ways including usual debriefing, unstructured debriefing, and debriefing. For the purposes of this Capstone project, customary debriefing will be used to define debriefing methods after SBL activities that do not use a structured format.

Structured debriefing. A standardized approach to debriefing that reframes the self-reflective learning process in a way that is learner-centered and engages higher-level thinking skills, which may facilitate clinical reasoning and clinical judgment while also enabling facilitators to evaluate learners' understanding and level of knowledge acquisition (Forneris et al., 2015; Mariani et al., 2014; Mariani et al., 2013; Weaver, 2014).

Prelicensure nursing student. A nursing student currently enrolled in a baccalaureate, associate, or diploma nursing program.

Simulation. A learning technique that mimics real-life clinical situations in a controlled learning environment for the purpose of engaging the cognitive, psychomotor, and affective domains of learning with the intention of facilitating the development of critical thinking, clinical reasoning, and clinical judgment (Mariani et al., 2013; Victor, 2017; Weaver, 2014).

Chapter Summary

In this chapter, background information was provided on the types of debriefing methods used within SBL. The problem statement, purpose statement, and evidence-based practice question were also provided within this chapter. Additionally, the significance of exploring structured debriefing comparatively to customary debriefing methods to the field of nursing education was described. Lastly, a list of definitions specific to this evidence-synthesizing project were included.

CHAPTER II

METHODS

Debriefing within SBL has been identified as a critical component of facilitating clinical judgment among prelicensure nursing students. However, debriefing methods used within SBL are inconsistent, thus threatening the quality of learning derived from SBL, which may limit clinical judgment development. As a result, new graduate nurses may be ill-equipped to safely care for patients in the clinical setting due to under-developed clinical judgment skills (Aldridge, 2016). Thus, the purpose of this evidence-synthesizing project was to collect evidence that has evaluated the effect of structured debriefing on clinical judgment development within prelicensure nursing students. The results derived from the evidence collected answered the PICO question for this evidence-synthesizing project, which asked if there was a difference in the clinical judgment abilities of prelicensure nursing students provided with structured debriefing after SBL when compared to prelicensure nursing students not provided structured debriefing after SBL.

Data Collection Procedures

For this evidence-synthesizing project, evidence was collected from three databases, including CINAHL, PubMed, and Medline. Keywords used to search the databases included “structured debriefing,” “simulation-based learning,” “clinical judgment,” “clinical judgment development,” “prelicensure nursing students,” “simulation,” and “nursing education.” Inclusion and exclusion criteria were also applied to each search conducted. Furthermore, articles with the terms “baccalaureate nursing program,” “associate degree nursing program,” and “diploma nursing program” were all included as being types of prelicensure nursing programs.

Since this paper is an evidence-synthesizing project, the participants within this study consisted of 10 pieces of evidence, which were analyzed and synthesized to gain further knowledge regarding the impact of structured debriefing on the development of clinical judgment skills among prelicensure nursing students. However, initial search results from all three databases yielded 3,827 articles, with 885 articles meeting the initial criteria of being published in English and between the years 2013 and 2018. From the 885 articles that met the initial criteria, 64 articles met the inclusion and exclusion criteria. Finally, 10 articles were selected for further review based on their relevance to the purpose of this evidence-synthesizing project (see Figure 1 for a flow diagram of the article selection process).

Inclusion criteria. To be selected for analysis and synthesis within this evidence-synthesizing project, the pieces of evidence were obtained from peer-reviewed journals that were published between the years 2013 and 2018. However, landmark evidence was also considered for review even if published before 2013. Additionally, the pieces of evidence were original works that were published in English and written by researchers with credentials that validate their expertise in the area of SBL and structured debriefing. Each piece of evidence had to be of good quality, with a quality ranking of A or B according to the Johns Hopkins Evidence-based Nursing Model and Guidelines (Dang & Dearholt, 2018).

Exclusion criteria. Evidence that was not published in peer-reviewed journals were excluded. Pieces of evidence that were not original works or do not include critical appraisal, such as literature reviews, were not used. Additionally, although it was sometimes necessary to use studies that are greater than five years old, it was preferable that the pieces of evidence had been published between the years 2013 to 2018 so that the data being evaluated were the most current data available. Studies published in a language other than English

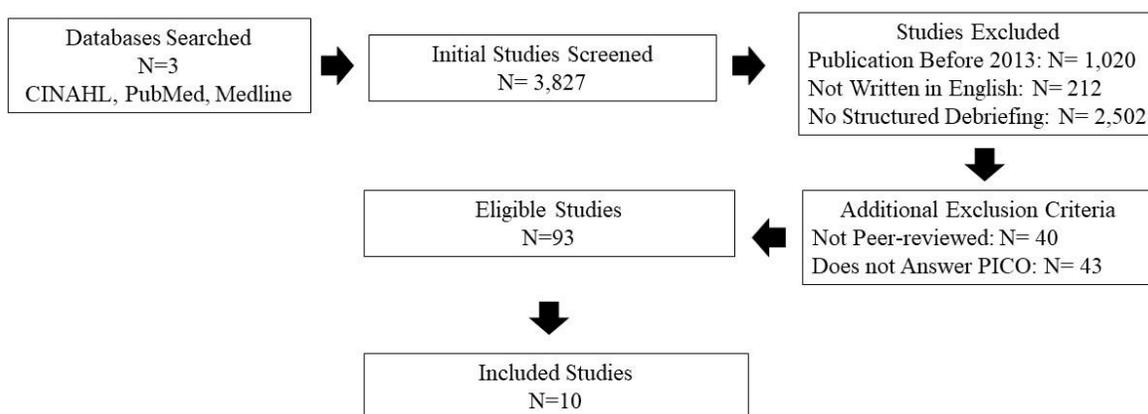


Figure 1. Data Collection Procedure

were also be excluded. Additionally, web documents from education websites that end in .edu, as well as web documents from .org sites were not included. Lastly, any piece of evidence evaluated to be of C quality was excluded.

Explanation of Evidence-based Practice Model and Critical Appraisal

The Johns Hopkins Nursing Evidence-Based Practice Model (JHNEBP) was used as the evidence-based practice model for this evidence-synthesizing project (Dang & Dearholt, 2018). Within the JHNEBP, evidence will be categorized into one of five levels; however, evidence can also be classified as being research or non-research, as well as being an individual piece of evidence or a summative piece of evidence (Dang & Dearholt, 2018). For this purpose of this evidence-synthesizing project, research evidence will be referred to as research studies. Non-research evidence will be referred to as non-research evidence.

Within quantitative research studies, there are three levels of quality, labeled as A, B, or C. Quality A indicates a high-quality work, meaning that an adequate literature review was performed, the sample size was large enough to make the results and recommendations consistent and generalizable. Quality B indicates that a study may have had a sufficient sample size but has a lesser degree of reliability regarding the conclusions and recommendations due to

less control over the intervention and a slightly more limited literature review. Unlike quality A and B, quality C indicates that a study is unusable as the study design contains flaws that may include an insufficient sample size, an inadequate literature review, or inconsistencies in the results and recommendations of the study (Dang & Dearholt, 2018).

Quality ratings for qualitative studies differs slightly from quantitative evidence as the quality rankings include A/B, which indicates high or good quality, and C, which indicates a poor-quality study that should not be included as a piece of supporting evidence (Dang & Dearholt, 2018). For a qualitative study to be classified as an A/B ranking, a qualitative study must include information regarding how data were obtained, recorded, critiqued for accuracy and potential bias, and how the data connected with current literature (Dang & Dearholt, 2018). In contrast, a qualitative study with a C quality ranking will not contain all of the characteristics described for A/B quality.

Similar to research evidence, quality rankings for non-research evidence will also contain three quality rankings, categorizes as A, B, and C. Non-research evidence evaluated to be of A quality indicates a high quality piece of evidence that contains clear, concise, and consistent information and, if applicable, is sponsored or supported by well-respected experts or organizations (Dang & Dearholt, 2018). Quality B non-research evidence is of good quality, indicating that the information within the piece of evidence is useful, but that one two elements may be missing or not fully explained. Lastly, non-research evidence of C quality is the lowest quality and should be used as a piece of evidence to inform practice.

After the level and quality rating of each piece of evidence has been determined, the strengths and limitations of each piece of evidence has been identified, and themes has been derived, the evidence was then compiled into a synthesis and recommendation tool. This tool

organized the evidence based on the themes present, identified results, and level of evidence along with the associated quality ratings. Based on the overall findings from synthesis and recommendation tool, changes in current practice were recommended.

Chapter Summary

In this chapter, the methods used for performing this evidence-synthesizing project were presented. An explanation was provided of the data search methods used to identify pieces of evidence that fit the inclusion and exclusion criteria. Also, the JHEBP model was explained as the method for level of evidence determination and critical appraisal of evidence. An explanation of the quality ratings for both quantitative and qualitative evidence were also provided, along with a description of the way the synthesis and recommendation tool was created and evaluated so that well-informed recommendations could be made if a change in practice was indicated from this evidence-synthesizing project.

CHAPTER III

LITERATURE REVIEW AND ANALYSIS

The use of structured debriefing within SBL may help prelicensure nursing students to develop clinical judgment skills in a more efficient and effective way than SBL experiences that do not use structured debriefing methods. As such, the effectiveness of structured debriefing in facilitating clinical judgment skills has been a topic of increasing interest within nursing education. As a result, the evidence focused on the impact of structured debriefing on learning with prelicensure students has been increasing in recent years. Despite the increased focus on structured debriefing within SBL, there is a lack of consistency regarding the debriefing methods used by nursing educators following SBL activities (Aldridge, 2016). Thus, the purpose of this evidence-synthesizing project is to use 10 pieces of evidence to evaluate the effect of structured debriefing on clinical judgment development among prelicensure nursing students engaged in SBL activities when compared to the absence of structured debriefing methods after SBL activities. The collection and evaluation of these 10 pieces of evidence was then used by the author of this Capstone project to answer the evidence-synthesizing question as to whether there is a difference in the clinical judgment abilities of prelicensure nursing students provided with structured debriefing after SBL compared to prelicensure nursing students not provided with structured debriefing methods after SBL.

Based on the results of the evaluation of the 10 pieces of evidence collected, the following three themes were identified: “thinking like a nurse,” safety, and confidence. The first theme, “thinking like a nurse,” pertains to the way that clinical judgment development through the use of structured debriefing may better prepare students to develop higher-level thinking skills and thought processes inherent in the nursing profession. Safety is the title of the second

theme and refers to the impact of structured debriefing on maintaining patient safety as well as the mental, physical, and emotional safety of students and simulation facilitators. Through structured debriefing, students are provided with a controlled learning environment where they receive psychological support, both of which are conducive to clinical judgment development. Additionally, simulation facilitators are safe in knowing that the format with which they are teaching, and the information communicated through that teaching format is conducive to clinical judgment development. The third theme is entitled, “confidence.” For the purposes of this Capstone project, the theme of confidence refers to students and facilitators having confidence in the clinical judgment skills derived from structured debriefing sessions, as well as comfort in the uncomfortable situations where clinical judgment is necessary to make patient care decisions. Each theme is further summarized in Appendix A of this evidence-synthesizing project.

Thinking like a Nurse

Dreifuerst (2012) performed an exploratory quasi-experimental pretest-posttest study to evaluate the impact of the Debriefing for Meaningful Learning (DML) structured debriefing tool on the clinical reasoning skills of prelicensure nursing students. Additionally, although qualitative analysis was not performed, nursing students were asked to answer several open-ended questions about their perceived view on the overall quality of the debriefing experience. The sample of the study consisted of 240 nursing students at one midwestern four-year baccalaureate nursing program, but the study ultimately concluded with 238 nursing students due to two students not completing the posttest and, thus, being eliminated from the study. Although a power analysis was performed, which revealed that 74 participants total were necessary for the study to have adequate power, the sample was intentionally made larger by combining three

smaller samples from three different semesters. The purpose of increasing the sample size was to normalize the shape of the sampling distribution and to reduce the risk of sampling error (Dreifuerst, 2012). It was stated that each of the three samples were statistically consistent. The students within the sample were assigned to clinical groups, and these clinical groups of students were randomly assigned to the experimental and control groups. Based on increased sample size, the significance level of the study was set to $p < 0.10$ with a medium effect size of 0.50, and a power of 99%. The sample represented the demographics of the undergraduate population at the baccalaureate nursing program.

Data collection began approximately three weeks before the DML tool was used on the experimental group, as the participants were asked to complete the Health Sciences Reasoning Test (HSRT) as well as six demographic questions. The HSRT is a copyrighted tool that evaluates clinical reasoning and is focused on healthcare-based simulations, but is not specific to nursing. Internal consistency of the HSRT was evaluated using the Kuder-Richardson-20, and received 0.81 ($N = 444$), thus demonstrating a high level of reliability. Content and construct validity has also been established for the HSRT. However, criterion validity has not been established. The HSRT pretest and six demographic questions were provided to the students via an online platform.

Following the completion of the pretest, the participants performed a high-fidelity simulation-based learning experience that lasted four hours, with 30 minutes provided for the actual simulation and 30 minutes allotted for debriefing. It was not explicitly stated how the remaining three hours of the SBL experience were used. Each student was randomly assigned to portray a different role within the simulation, with the different roles including that of the primary nurse, the secondary nurse, a family member, and two recorders. After the simulation

experience ended, the debriefing began outside of the simulation room, within a debriefing room where the students completed the Debriefing Assessment for Simulation in Healthcare- Student Version (DASH-SV), as well as the Debriefing for Meaningful Learning Supplemental Questions (DMLSQ). Criterion and content validity have been established for the DASH tool, but data were not available regarding the reliability of the tool. The DMLSQ is associated with the DML tool, and, as such, is a newer tool where validity and reliability have not yet been established. Three weeks after the simulation, the students completed a second HSRT online posttest and were able to voluntarily comment on the DMLSQ tool that was used.

Since the statistical significance of the study may have been better represented by the median, a Mann-Whitney-Wilcoxon test was used, which demonstrated a change in pretest to posttest scores that were significant, with $p = 0.000$. Furthermore, an ANCOVA also revealed statistically-significant results, with $p = 0.05$ and a large effect size of 0.84 (Dreifeurst, 2012). Based on these results, it can be inferred that students debriefing using the DML structured debriefing tool will have improved clinical judgment skills than students debriefing using customary debriefing methods.

The results of this study also indicated that the nursing students who were exposed to the use of the DML structured debriefing tool demonstrated an increased level of clinical reasoning via the open-ended questions a more positive perception of the debriefing experience. Based on the statistical and non-statistical data gathered on the use of the DML tool it can be inferred that the use of a structured debriefing format allowed for increased clinical reasoning development among prelicensure nursing students.

This is a level II, quality A study. Despite the relevance of the DML tool in recent literature, this study was published in 2012, meaning that it is slightly older than five years and

thus, is not as current as other pieces of evidence. However, the DML tool is a relatively newer structured debriefing tool, as other structured debriefing methods are older, but are used in more current studies. Thus, because this DML study was the first published work of the author who developed the DML tool, it was considered acceptable for inclusion within this evidence-synthesizing project.

Additionally, it is questionable if the study should be a mixed-methods study. According to Dreifuerst (2012), the students were asked several open-ended questions that, although not analyzed based on qualitative study standards, did influence the author's results and recommendations for future practice. If the open-ended questions had not been considered within the discussion and results, the concept of making the study a mixed-methods study would be less concerning. Furthermore, the use of a nonparametric test may indicate that the results have less statistical power even if they are considered to be consistently significant.

There is a lack of generalizability because the study was performed at one school. So, this was a convenience sample of 238 students. Also, were the students randomly assigned into clinical groups? That would certainly affect the randomization factor of things. Additionally, two students were lost from the study, and both of these students were from the third clinical group. Although the loss of the two students does not create a significant threat to internal validity via mortality, the fact that both students were from the third group may impact the results of the study. Also, although the sample represented the demographics of the nursing program population at the school, it may not represent the demographics of other parts of the country, which limits the generalizability of the findings of the study.

Even though Dreifuerst (2012) had more than enough participants for her study, she chose to collect study participants over three different semesters using the assumption that, as a

sample size increases, the sampling distribution is normalized, and sampling error is reduced. Dreifuerst (2012) also asserts that the sample collection method was acceptable because there was statistical consistency among the three samples. However, collecting three different samples from three different semesters may have impacted the results based on outside sources with regard to affecting internal validity as the students from the first sample may have talked about the DML tool to the students in the second sample, and the first and second sample may have talked to the students in the third sample, thus affecting the overall results of the study.

The mortality of the two students may be attributable to the use of the HSRT, which was 33 questions and may have been considered too long for some students. However, providing the HSRT and demographic questions online allowed the students accessibility, making them more likely to complete the pretest. However, the HSRT was 33 questions long, which may have influenced how much thought was given to each question as students may have rushed through the pretest. The length of the simulation (four hours) may have also influenced the results.

Forneris et al. (2015) performed a multi-site quantitative study with a quasi-experimental, pretest-posttest, repeated measures design. Forneris et al. (2015) structured the study in a way that replicated the study performed by Dreifuerst's (2012) single-site study, but with a multi-site design. Thus, the purpose of the study conducted by Forneris et al. (2015) was to use a multi-site study similar to the study by Dreifuerst (2012) to further evaluate the impact of using the DML structured debriefing tool on the clinical reasoning skills of prelicensure nursing students versus the impact of usual and customary debriefing methods on prelicensure nursing students. Forneris et al. (2015) also considered the perceptions of the prelicensure nursing students in the quality of the simulation based on the use of the DML structured debriefing tool.

In developing this multi-site quasi-experimental study, a convenience sample of 153 senior-level prelicensure nursing students enrolled full-time in baccalaureate nursing programs was obtained. The sample was originally composed of 156 nursing students, but three students did not finish the simulations, thus causing mortality, which may have negatively-impacted the results of the study. The sample of 153 participants was collected from four private faith-based colleges and universities. A power analysis was performed, which demonstrated that a sample of 200 nursing students was necessary to achieve a medium effect size of 0.5 and 80 percent power; thus, the sample of 153 students indicates that the study by Forneris et al. (2015) did not have adequate powers, which could skew the results of the study. Since prelicensure nursing students entering their second year of course work was the purposive population from which the sample was to be derived, the study was not altered to accommodate a larger sample size. The authors' decision not to alter the study to allow for a larger sample size further differentiated this study from Dreifuerst's (2012) study, which was the model for this study. The sample of 153 senior-level full-time prelicensure nursing students enrolled in baccalaureate colleges and universities was determined to be homogenous.

Prior to performing this multi-site study, Forneris et al. (2015) indicated that a pilot study was conducted as well. Forneris et al. (2015) used the National League for Nurses (NLN) Millie Larsen geriatric simulation scenario, which is an unfolding case study that focuses on an elderly female with dehydration and a urinary tract infection, both of which are topics that are common to the medical-surgical courses taught at all four institutions at which the study was conducted. In carrying out this study, the sample of 153 nursing students were randomly assigned to the intervention group and control group; as such, 78 students were randomly assigned to the intervention group and 75 students were randomly assigned to the control group. The students

assigned to the intervention group were debriefed using the DML structured debriefing tool and the students assigned to the control group were debriefed using usual and customary debriefing methods. In addition to having a different format, the intervention group, which used the DML structured debriefing tool, and the control group, which used usual and customary debriefing methods also differed in the time spent engaging in debriefing after a simulation-based learning experience. The intervention group was debriefed for 40 minutes, while the control group was debriefed for 20 minutes. The length of time devoted to debriefing may be important to note as the Millie Larsen unfolding case study contained three scenarios, each of which were 20 minutes in length, and upon completion of each of the three 20 minute scenarios, debriefing sessions were performed using either the DML structured debriefing tool or usual and customary debriefing methods depending on if the students were in the intervention or control groups. In total, the intervention group simulations were four hours long, whereas the control group simulations were three hours long.

The students in the intervention and control groups were required to complete the Health Sciences Reasoning Test (HSRT) and complete pre-work prior to participating in the simulation. When engaging in the SBL experience, each student was randomly assigned to a specific role within the scenario (primary nurse, secondary nurse, safety checker?, and observer). After completing the SBL experience, the students were debriefed by one of the four research team members who had been educated on the use of the DML structured debriefing tool. These four team members did not perform debriefing at their home institutions; in contrast, the nursing students within the sample stayed at their home institutions. The students also completed the DASH-SV evaluation tool after completing the SBL experience. The students also took an alternate post-test version of the HSRT three weeks after they completed their SBL activity.

The results from the HSRT for the intervention and control groups were compared to determine clinical reasoning development (Forneris et al., 2015). The DASH-SV was used to determine the students' perceptions of the quality of the debriefing sessions. The HSRT is a multiple choice test consisting of 33 questions specifically designed to evaluate critical thinking skills in health sciences students. The HSRT has been established as reliable, as it has achieved Kuder-Richardson-20 scores ranging between 0.77 to 0.84. Furthermore, the HSRT has also been established as having content and construct validity as the HSRT test items were correlated with the Delphi Report. However, criterion validity has not been established. The DASH-SV, which contains open-ended questions, was determined to have reliability by Dreifuerst's (2012) study. Furthermore, criterion and content validity were established as well.

According to Forneris et al. (2015), using a simple paired t-test, the results of the data derived from the HSRT revealed a change in the mean scores of the intervention group from the pretest scores ($n = 78$, $M = 22.74$, $SD = 3.6$) to the posttest scores ($n = 78$, $M = 23.56$, $SD = 3.9$), with a statistically-significant p-value of 0.03, when evaluated at the 0.05 level. In contrast, there was not a significant change in the mean scores of the control group between the pretest scores ($n = 75$, $M = 22.41$, $SD = 3.7$) and the posttest scores ($n = 75$, $M = 22.41$, $SD = 4.6$). The results from the control group were also evaluated using a simple paired t-test, and revealed a p-value of 0.44, which was determined to be statistically insignificant (Forneris et al., 2015). An additional simple paired t-test was used to compare the results of the intervention and control group, resulting in a p-value of 0.09, which was determined to be statistically-significant at the 0.10 level. Based on the comparison of the intervention and control group data, it can be inferred that clinical reasoning skills are improved when the DML structured debriefing tool was used. However, when further evaluated using an analysis of variance (ANOVA) to control for change

over time, a p-value of 0.23 was obtained, indicating that the change in reasoning skills between control group and the intervention group was statistically insignificant. Forneris et al. (2015) included a table outlining these results within the study, and also included a statement reinforcing their perceived belief in the importance demonstrated by the change in clinical reasoning scores between the intervention and control groups and that this change may be more significant considering that the study consisted of a small sample size.

The data derived from the DASH-SV demonstrated a change in the mean scores between the intervention group ($n = 78$, $M = 37.45$, $SD = 3.66$) and control group ($n = 75$, $M = 35.95$, $SD = 5.20$). The comparison of the intervention and control groups resulted in a p-value of 0.04 after a simple paired t-test was performed, thus demonstrating a statistically significant result. Therefore, the perceptions of the students exposed to the DML structured debriefing tool revealed a more positive debriefing experience when compared to the perceptions of the students exposed to usual and customary debriefing methods (Forneris et al., 2015).

Based on the results of the study, Forneris et al. (2015) believed that, within SBL experiences, the use of the DML structured debriefing tool was beneficial in developing clinical reasoning skills in prelicensure nursing students when compared to the use of customary and usual debriefing methods. In addition to the change in clinical reasoning skills, students in the intervention group perceived the quality of debriefing to be better when the DML structured debriefing tool was used. However, the several limitations of the study were also revealed, which included the small sample size as well as the use of the HSRT, which is a tool used to evaluate clinical reasoning skills among healthcare professionals, and is not specifically focused on nursing students.

Since Forneris et al. (2015) used a convenience sample within an experimental design, the study is a Level II piece of evidence. Furthermore, based on the threats to internal and external validity, this study by Forneris et al. (2015) was given a quality B rating. One of the threats to internal validity present within the study was maturation. Since the participants in the study were also learning in the classroom and in-hospital clinical setting, the statistically-significant change in clinical reasoning skills demonstrated by the intervention group may have been influenced by the participants' overall development as prelicensure nursing students. This threat of maturation was further verified by the results of the ANOVA test, which resulted in a statistically insignificant change in clinical reasoning skills between the intervention and control groups. Additionally, the HSRT instrument used to evaluate clinical reasoning skills may have altered the results of the study as the HSRT was not specifically developed to evaluate clinical reasoning among nursing students, but rather is used as a general clinical reasoning skills test for people in healthcare fields. Thus, the researchers' choice to use the HSRT may have caused an instrumentation threat to internal validity, which they recognized in the limitations section of their study. Furthermore, the DASH-SV is a more qualitative-based instrument as this instrument is designed to determine students' perceptions regarding the quality of simulation debriefing. Although the open-ended answers provided by the students through the DASH-SV were used to inform the results of the study, qualitative analysis was not performed, examples of the open-ended questions were not provided, and examples of the responses provided by participants were not provided, thus demonstrating another threat to internal validity through instrumentation. In addition to instrumentation and maturation, other threats to internal validity present within the study included selection bias and mortality as a convenience sample was used

to generate the data and three students did not complete the study. However, the pretest results of the three students were not included in the data analysis (Forneris et al., 2015).

Threats to external validity were also present within the study. For example, in addition to a convenience sample being used, the sample size was too small for the study as the sample of 153 participants did not have adequate power or effect size which may have also impacted the results of the study. The small sample size was acknowledged as a limitation to the study by the researchers. Additionally, although a strength of the sample as determined by the researchers was the homogeneity of the participants, the similarities between the participants may negatively impact generalizability to nursing schools in other parts of the country. However, the homogeneity of the sample may have caused a lesser threat to the internal validity factor of mortality as there were other participants within the study who were similar to the participants that did not complete the study. Despite the homogeneity of the group lessening the impact of mortality on the results of the study, information regarding the age range, race, ethnicity, and gender of the participants is not provided. Thus, the researchers' determination that the sample is homogenous is based on their statement that homogeneity exists as no data is provided to support that assertion. Furthermore, the use of a pretest-posttest design may negatively impact the generalizability of the results of the study as the posttest, although altered to be different and administered three weeks after the pretest, may have had higher scores because a pretest was used. Reactivity may also limit generalizability of the study results too as the DASH-SV responses could have been affected by the participants' knowledge that they were being studied. Additionally, although the participants were randomized into intervention and control groups, the students may have determined if they were in the randomized group or the control group via conversations with one another and identifying that the longer SBL experiences and debriefing

sessions were indicative of being a member of the intervention group. However, the participants were evaluated with four different researchers all educated on the use of the DML structured debriefing tool. Additionally, the researchers were required to collect data from an institution other than their home institution to avoid bias.

Mariani et al. (2013) developed a convergent mixed-methods study intended to guide practice on the use of structured debriefing by evaluating the impact of structured debriefing on clinical judgment development, as well as to gain a better understanding of the students' perceptions of the quality of the debriefing experience derived from using a structured format. The quantitative portion of the study used a quasi-experimental pretest-posttest design and used the Lasater Clinical Judgment Rubric (LCJR) to measure clinical judgment development. For the qualitative portion of the study, a phenomenological approach via focus group conversations. There was confirmed interrater reliability among the researchers for the first SBL experience.

Data for the quantitative portion of the study were derived from a convenience sample of 86 prelicensure nursing students enrolled in a medical-surgical course during their junior year in a baccalaureate program located in the mid-Atlantic region of the United States. The sample was homogenous, containing 82 women and four men, with an average age of 20.5 years. Of the 86 students, 42 were randomly assigned to the intervention group, and 44 were randomly assigned to the control group, which, based on the results of a power analysis were at least 27 students were needed for each group, this study had an adequate sample size, but inadequate power and only moderate effect size. However, it was not ascertained if data saturation had been achieved for the seven students derived from both the intervention and control group who chose to participate in the qualitative portion of the study.

Quantitative data was collected from the results of two simulations, which occurred at two separate occasions at the mid-point of the semester and end of the semester. The mid-semester and end-of-the-semester simulations were two entirely different simulation scenarios. The control group was debriefing using customary debriefing methods after each of the two simulations, while the intervention group was debriefed using the DML structured debriefing tool after each of the two simulations. Clinical judgment was measured using the LCJR after each SBL experience, but before the debriefing took place, for both the control and intervention groups (Mariani et al., 2013). The first simulation occurred at the mid-semester point of the semester and the second occurred at the end of the semester. Course faculty completed the LCJR for both the control and intervention groups after the first simulation, while members of the research team completed the LCJR for the second simulation. The first and second simulations were separated by a period of four to five weeks.

The mean scores of the LCJR results were analyzed using a repeated multivariate analysis of variance (RMANOVA) to control for variance over time. However, based on the results of the RMANOVA, the change in clinical judgment between the intervention and control group was not statistically significant. A multivariate analysis of variance (MANOVA) was then used to determine if statistically significant results could be found within subscales within the data, however, these results were also statistically insignificant.

Qualitative data was collected by two of the researchers via one hour-long focus groups, which were tape-recorded and held after the second simulation at the end of the semester. Notes were also taken during the focus group sessions. Topics of the focus groups included the timing of when the simulations occurred, length of the simulations, the role of the debriefer, and factors that positively and negatively impacted the SBL experience (Mariani et al., 2013). The focus

group recordings were professionally transcribed and analyzed for themes, with separate themes being generated for the intervention and control groups. The instruments used for this study are as follows: the LCJR, the DML, and the facilitators of the debriefing. The LCJR was determined to have interrater reliability via Cronbach's alpha, which also helped to confirm internal consistency.

When evaluating the qualitative portion of the study, it was not noted as to whether data saturation was achieved and so, the results of the qualitative data and the themes derived from that data may be prematurely formulated. Despite the qualitative data lacking data saturation, the focus groups were professionally transcribed by an outside source; however, it was not stated as to whether confirmation of the themes by an outside source was performed.

Through the statistical results of the study, it was determined that, although the change in clinical judgment from the first simulation to the second simulation were higher for the intervention group, it was not a statistically significant change. The findings of the study were consistent with some studies that evaluated the change in thinking skills of prelicensure nursing students after using a structured debriefing tool, but inconsistent with others, thus further verifying the variability in results of studies on the topic of structured debriefing. However, similar to most of the previous studies conducted in a similar manner, the qualitative findings of the study were similar as students perceived as students within the intervention group believed that the debriefing sessions better enhanced their learning.

The study is a Level III, quality B as it is a convergent mixed-methods study where the quantitative and qualitative evidence are collected at the same time and the results of the study are combined Mariani et al. (2013). It is also important to note that Dreifuerst (2012) and Forneris et al. (2015) were trying to measure clinical reasoning and thus used the HSRT;

conversely, Mariani et al. (2013) were measuring clinical reasoning and thus used the LCJR. What they actually said was that the study contained an adequate number of participants but lacked adequate power. So, the sample, in addition to being a convenience sample, was too small, thus presenting a threat to internal validity and also may have skewed the results of the study, which indicated statistically-insignificant results. The homogeneity of the sample was also a limitation, which may have prevented issues associated with mortality, but decreased the generalizability of the results of the study. Furthermore, since the definition of structured debriefing is broad, multiple methods were used to debrief the control groups, which may have skewed the results as the quality of the debriefing sessions varied and were entirely dependent on the debriefer. There are also questions as to whether the faculty who were not educated on the use of DML may have subconsciously included elements of DML into the debriefing sessions of the control group (Mariani et al., 2013). Additionally, a MANOVA was performed to control for change over time due to maturation, but maturation may still have impacted the results of the study. The length of the study may have also impacted results. According to Mariani et al. (2013), a longitudinal study may be indicated.

Mariani et al. (2014) developed a qualitative descriptive phenomenological study that investigated structured debriefing from the perspective of nurse educators. Using a convenience sample of 22 nurse educators, data were collected by asking the participants to respond to questions and discuss topics that reflected the aims of the study. Purposive sampling was used as each of the study participants were nurse educators from seven accredited nursing schools in the mid-Atlantic region of the United States. Although the participants' each had at least four years of teaching experience, the participants' level of experience with structured debriefing ranged from one to seven years, and the highest educational level attained for each participant varied.

Two of the participants had a bachelor's degree in nursing science as their highest degrees attained but were both working on a master's in nursing science. One of the participants also had a bachelor's degree in nursing science as the highest nursing-related degree attained, but also had a master's degree in business administration. Additionally, 11 of the participants had master's degrees in nursing, and eight of the participants had earned doctoral degrees, and 12 of the participants were nurse educators at the investigators' home institution (Mariani et al., 2014). Although Mariani et al. (2014) did not state that data saturation was achieved, themes were derived from the data. These themes were further confirmed by outside investigators, thus helping to reinforce the accuracy of the themes.

Data were collected from the 22 total participants through the formation of four focus groups, which met once for a sixty minute meeting. Participants met face-to-face or via Go To Meeting, an online meeting service. The transcriptions generated from the participants had been sent to a professional transcription service. These transcriptions were further evaluated via comparison to the oral recordings of the participants. Study team members also analyzed the data, which were collated by the principal investigator, and then the themes were validated by an outside investigator (Mariani et al., 2014).

The findings of the study were as follows: for debriefing to be effective in enhancing higher-level learning, some form of structured debriefing is necessary; most of the participants believed that structured debriefing may have a positive impact on the clinical judgment of nursing students; structured debriefing helps nursing students to make connections within abstract concepts; and structured debriefing may have helped nurse educators to develop their teaching skills in a way that better facilitated clinical judgment development within nursing students (Mariani et al., 2014). Thus, based on the findings of this study, structured debriefing

may positively influence the clinical judgment skills of nursing students through reflective learning.

This qualitative study by Mariani et al. (2014) is a level III, quality B study. Although the authors of the study were experienced nurse educators, and their data analysis procedure where the study team members, the principal investigator, and an external expert reviewer all evaluated the data to ensure validity of the themes, the authors did not state that data saturation had been achieved. However, the use of multiple people to confirm the themes of the study including an outside reviewer helped to provide credibility and dependability to the study. The authors also recognized their potential biases toward the study, thus demonstrating self-scrutiny and, also provided direct quotes from the data that helped to support the themes and findings of the study, which supported the trustworthiness of the study (Dang & Dearholt, 2018).

The study purpose and method were clearly described, and each of the participants were able to express their thoughts and opinions based on their own experience. Since this is a pilot study, adequate time was allotted for the smaller nature of this study's structure. However, in the future, additional time will need to be allotted to fully understand the phenomena. Additionally, the researchers' organized the study in a logical and easy-to-follow format that followed the research process, and direct quotes from the transcripts of the participants were used to exemplify themes. Furthermore, the clearly-described findings of the study correlated with the conclusion of the study.

Mariani et al. (2014) were qualified researchers to conduct a qualitative pilot study on the use of structured debriefing within simulation-based learning as each of the authors of the study are nurse educators with doctoral degrees and years of experience in the education of nursing students. Furthermore, the use of a qualitative pilot study is appropriate is the authors of the

study had performed an extensive literature review on the topic and were only able to find one article on the phenomena of interest (nurse educators' perceptions on the use of structured debriefing within clinical simulation). And, the authors chose to conduct a pilot study in order to perform the study on a smaller scale first before conducting a larger, more extensive study. As such, it was necessary that the sample of nurse educators within the study had experience using structured debriefing within simulation, which is why a purposive sample was used, so that the findings would reflect the thoughts and feelings of the people who use structured debriefing and simulation-based learning on a day-to-day basis (Lobiondo-Wood & Haber, 2018).

Although a purposive sample is most likely to be the most appropriate for the study based on the qualitative design used and the researchers did state the various positions that the nurse educator participants held at the time of the study, the researchers did not specify how many of the participants were adjunct professors and how many of the participants were associate professors. Although the input from the adjunct professors may be just as credible as the input from the associate professors, the educational rank of the nurse educators may impact their perspective on types of behaviors that exemplify the use of higher-level thinking skills. Furthermore, although the researchers listed the highest degrees attained by the nurse educator participants as being bachelor's, master's, or doctoral, the type of master's degree and bachelor's degree attained is not specified. Knowing the type of master's and doctoral degree earned may be significant as the master's and doctoral degrees aimed at academia have a different focus than the master's and doctoral degrees focused on clinical practice. Additionally, it is questionable as to whether clinical adjunct professors should be involved in the discussion about structured debriefing unless their adjunct position is catered toward simulation-based learning and the use of structured debriefing. It would also be helpful to know what each title's role in structured

debriefing after simulation was, and also, who's years of experience with structured debriefing correlated with who's title.

Additionally, since 12 of the 22 participants were from the researchers' home institution, it may have impacted the findings of the study. Villanova, this may have skewed results. For example, since the participants used various methods of structured debriefing, this can be good and bad. It may add some consistency for every participant to use the same type of structured debriefing format; however it is nice to know that, no matter what type of structured debriefing method is used, each type found to improve student learning from the nurse educator's perspective – especially considering that the ability of nurse educators to debrief is dependent on their preparation for taking on the role of the debriefer.

A quantitative non-experimental correlational study by Victor, Ruppert, and Ballasy (2017) was conducted to evaluate the relationship between clinical judgment development and simulation performance and how this relationship translates into the ability to act with clinical judgment in the clinical setting. When the study began, data was collected from a convenience sample of 80 students, all of whom were entering their first clinical course in a baccalaureate nursing program within a private college located in Pennsylvania. Demographically, the 80 participants were all younger than 30, and included 65 females and 15 males. Also, 63 participants were white and 17 were nonwhite. No other racial demographic information was provided. It was not determined if a power analysis was used and two participants were lost, thus the study was concluded with 78 participants.

The first simulation took place during the fifth week of the semester, allowing the participants to gain five weeks of knowledge about care of the post-operative patient leading up to the SBL experience, which used standardized patients (SPs) to create a SBL experience

focused on care of the post-operative patient. The SBL experience was designed to follow the principles of the landmark study by the NCSBN (2014), which originally was published in 2010, and the Experiential Learning Theory, both of which include the use of a structured debriefing format for the debriefing portion of the simulation (Victor et al., 2017). The simulations were observed by two raters who each evaluated thinking of the participants using a separate tool. One rater used the LCJR to measure clinical judgment and the other used the Creighton Competency Evaluation Instrument (CCEI) to evaluate clinical performance and the Creighton Simulation Evaluation Instrument (C-SEI) to evaluate simulation performance. The LCJR was determined to have interrater reliability, with good K scores, and internal consistency with a Cronbach's alpha of 0.92. The CCEI and C-SEI also had internal consistency, with Cronbach's alpha scores of 0.95 and 0.90 respectively; furthermore, interrater reliability of the CCEI and C-SEI was confirmed through the Cohen's Kappa scores ranging from 0.8 to 0.843.

Students were required to earn 77% or greater on the C-SEI in order to be eligible to participate in the second SBL activity, which was held near the end of the semester. The second SBL used the same scenario and SP design and the participants were evaluated using the C-SEI, and the LCJR. The same two raters evaluated the SBL but did not necessarily evaluate the same participants again. In addition to the end-of-the-semester SBL, clinical instructors were also asked to evaluate the participants within their clinical groups using the CCEI.

The data was then compiled into a database and analyzed using SPSS software. Results of the study evaluated the relationship between clinical nursing judgment and simulation performance, clinical nursing judgment and clinical performance, and, most notably, simulation performance and clinical performance. The relationship between clinical nursing judgment and simulation performance revealed a significant positive relationship as evidenced by the results

where $r = 0.43$ and $P < 0.001$. Similarly, there was also a positive relationship between clinical nursing judgment development and clinical performance where $r = 0.79$ and $P < 0.001$. Lastly, the relationship between simulation performance and clinical performance was also determined to be both positive and significant with $r = 0.87$ and $P < 0.001$.

In addition, a paired t-test was used to analyze clinical judgment development and simulation performance scores from the first and second SBL experiences. However, unlike the correlational analyses, the impact of SBL experiences on clinical judgment development was statistically insignificant, with $t = 6.38$ and $P = 0.27$; however, a small amount of improvement was appreciated in this area along with the area of communication. Conversely, technical proficiency scores decreased. Despite the statistically insignificant results, the positive correlations found between clinical nursing judgment and simulation performance, clinical nursing judgment and clinical performance, and simulation performance and clinical performance are consistent with previous studies that demonstrate that SBL experiences benefit students' thinking skills and clinical performance. Thus, it can be inferred that knowledge gained from SBL experiences can be transferred to the clinical setting (Victor et al., 2017).

Despite several issues with the threats to internal and external consistency present within this study, it is a Level III, Quality A study. Several strengths of the study were that the tools used within the study had internal consistency, with a Cronbach's alpha of 0.92, and the raters who used the LCJR and the C-SEI had experience using these tools, thus allowing for more accurate results than the CCEI. They did multiple statistical analyses of the SBL experiences and clinical experiences as well.

However, there were several issues that may need to be considered prior to replicating similar studies in the future. For example, threats to internal validity via and selection bias

occurred as the researchers lost two participants and used a convenience sample. Furthermore, maturation may have also affected the results as the students were taking classes during the times they were involved in the study, so positive results could be related to learning outside the simulation-setting. Although the male to female ratio may be more consistent with the nursing population as a whole, there was a lack of diversity among the sample, which may negatively impact generalizability, which is a threat to external validity via selection effects. Additionally, the same simulation was used for the first and second simulation experience, which may have skewed the results, which is another threat to external validity via measurement effects. Also, the participants who did not earn at least 77% on their first SBL were remediated using the same post-operative simulation until they achieved the 77% and then were again exposed to the same SBL activity during the last SBL. The clinical instructors gave the students the CCEI during the 13th week of the simulation, but the study does not stipulate as to whether the clinical instructors were prepped on how to use it, which is something that the developers of the CCEI stress is necessary in order to use it correctly. Also, since the clinical instructors were required to complete the CCEI on top of the usual clinical competency tool required by the school, they may not have been as thorough to make the evaluation take less time. Furthermore, the researchers did not state if there was a time frame within which the clinical instructors had to turn in these evaluations. If the clinical instructors were low on time, they may not have completed them with the necessary care, which may have negated their accuracy in the evaluation of the students or may have caused them not to complete them at all, which did occur as 17 participants were not evaluated using the CCEI by their clinical instructors due to lack of time (Victor et al., 2017). Furthermore, if such time constraints existed, it is less likely that the clinical instructors would both take the time to learn how to use the CCEI and then use it to evaluate the students unless

there was a benefit to them monetary or otherwise, especially since the use of the CCEI was not required. So, there was poor interrater reliability of the CCEI. The type of structured debriefing format used was not identified. The scores of the SBL experiences from the simple paired t-test were not statistically-significant. Furthermore, although communication scores did slightly improve, the participants were repeating the same simulation scenario, with some of the participants even having to go through the SBL experience more than twice if they failed to meet the minimum simulation score during the first simulation experience.

Safety

Palaganas, Fey, and Simon (2016) developed an expert opinion article that is intended to facilitate novice nurse educators to use a structured format in debriefing in order to facilitate deeper learning. The article addresses a general format for nurse educators to follow when providing debriefing education to nursing students. The authors emphasize that these guidelines may provide some additional benefit to novice nurse educators who may not be as comfortable with providing debriefing after simulation and emphasizes the importance of developing learning objectives that align with the curriculum of the nursing program, as well as the course or clinical from which the simulation scenario is derived. According to Palaganas, Fey, and Simon (2016), without specific learning objectives for the simulation, the structured debriefing format they describe will not accomplish the goal of allowing the student to develop meaningful learning.

This structured format created by Palaganas, Fey, and Simon (2016) does not have a specific name but is based on Adult Learning Theory, and follows a structured format where the debriefing portion of the simulation-based learning experience has three distinct phases. These phases include the following: the reaction phase, the understanding phase, and the summary phase. The understanding phase is the most time-consuming of the three phases and includes

three subphases. The first subphase is called exploring, the second subphase is called discussion and teaching, and the third subphase is called generalizing and apply.

Using structured debriefing is ideal for creating a learner-centered approach to the debriefing process (Palaganas, Fey, & Simon, 2016). As such, despite the term “structured debriefing,” using a structured framework for debriefing allows for a more adaptable and collaborative learning experience following simulation. Since the debriefing portion of a simulation-based learning experience influences learners’ overall perceptions of the effectiveness of simulation-based learning, it is essential for nurse educators, and most notably novice nurse educators, to use a structured debriefing format in order to allow for meaningful learning that will develop clinical reasoning skills within nursing students. Development of these clinical reasoning skills may better-enable nursing students to become safe-practicing nurses once they enter the clinical setting, which may increase the probability of achieving positive patient outcomes, thus improving the quality of patient care that is provided (Palaganas, Fey, & Simon, 2016).

The article is level V with an A quality rating. The authors of this article are experts in the field of medical simulation, and are all affiliated with the Center for Medical Simulation (CMS) at Harvard University. Palaganas, Fey, and Simon (2016) state in the article that the framework they established are derived from established educational theories and debriefing-focused research from multiple fields, some of which are not associated with healthcare, such as education, aviation, and organizational behavior. Additionally, the authors list their years of experience, as well as their professional involvements in order to demonstrate that the structured debriefing framework explained within the article was created based on their real-world experience in addition to the best evidence available. However, the authors also acknowledge

that additional evidence is still necessary on the use of structured debriefing within simulation-based learning.

According to Palaganas, Fey, and Simon (2016), meaningful learning cannot occur without structured debriefing and that having a structured framework from which to derive simulation-based structured debriefing sessions is essential for nurse educators, with particular emphasis on novice nurse educators. The authors describe the framework clearly and concisely, and explain why and how it should be used, particularly for novice nurse educators. Additionally, the authors state within the footnotes of the article that they have no conflicts of interest, indicating that there are no potential biases within the article. Although each of the authors are experts in the field of simulation and simulation debriefing and have worked at other academic institutions in other parts of the United States, it may have been beneficial to have input from a source outside the CMS team to provide a perspective on debriefing within simulation that differs from the perspective they have based on the institution where they work.

Reierson, Haukedal, Hedeman, and Bjork (2017) performed an explorative phenomenological qualitative case study that used cross-case analysis to evaluate the impact of structured debriefing on nursing students. The impetus for this study was the authors' acknowledgement of the four key factors inherent within simulation which include the following: reflection, feedback, knowledge development, and psychological safety (Reierson et al., 2017). Based on these four factors, the authors wanted to attain in-depth knowledge on the process necessary to conduct structured debriefing sessions after SBL experiences and, as such, performed two qualitative evaluations in 2013 and 2014 using the same data collection procedures and analysis.

The sample was recruited during two separate years in 2013 and 2014 via face-to-face requests and digital requests via an online learning management platform. The sample consisted of second-year baccalaureate nursing students participating in a two week-long pre-clinical simulation scenario course designed to prepare them for a six-week long nursing home-based clinical internship. The authors required that those involved in the study were from the same SBL activity group (Reierson et al., 2017). In 2013, the sample consisted of 12 women and four men, for a total of 16 students. Ages ranged from 20-40 years, with a mean age of 25.6 years. The 2014, there were 10 female participants, all of whom were female and ranged in age from 20 to 45 years, with a mean age of 25.5 years. Thus, although the gender ratio differed between 2013 and 2014, the age of the participants did not.

The two week-long pre-clinical SBL course involved six total simulations involving eight different scenarios featuring eight different deteriorating patient conditions such as chest pain, hypovolemia, hypoglycemia, and post-operative bleeding. Each SBL group consisted of five to nine students, with two students serving in the nursing role, and the remaining students serving as observers. In 2013, the faculty used a traditional pre-briefing, simulation, and facilitator-led debriefing structure for each SBL experience. Interestingly, in 2014 the nursing faculty reformatted the SBL experience to align with the First 2 Act model (Reierson et al., 2017). Using the First 2 Act model led to several changes as faculty used a standardized observation tool that described correct nursing actions and interventions that students should take in relation to the clinical situation occurring within the simulation scenario. Thus, in 2014, the observers used the standardized observation tool. An example of the tool was provided within the study. Additionally, each simulation session was videoed so that students could observe themselves after the clinical portion of the simulation ended (Reierson et al., 2017). During the time the

students viewed their performance, the facilitator and observers compared notes regarding their assessment of the participants' performances using the standardized observation tool.

After each of the six SBL scenarios debriefing sessions were held, which is where data collection occurred for the participants from 2013 and 2014. There were 12 debriefing sessions that were videoed and transcribed in 2013, and 11 debriefing sessions that were videoed and transcribed in 2014, resulting in nine hours of data. The data were transcribed verbatim via an external source and checked for inaccuracies by one of the researchers of the study who reviewed video recordings of the debriefing sessions. After transcription was completed, themes were identified within the a priori categories of reflection, feedback, knowledge development, and psychological safety (Reiersen et al., 2017). The themes identified in 2013 were then compared with the themes identified in 2014, and patterns of change were derived from the comparison to inform the results of the study.

Overall, the results of the study indicated that the changes introduced in 2014, which included structured debriefing, allowed students to be more reflective and assertive, while also relying less on the facilitator. Participants appreciated the video recordings, which gave them the opportunity to see what the observers had seen, thus creating a more conducive social environment for evaluation of SBL experiences. Furthermore, the debriefing sessions held in 2014 offered participants more detailed information regarding their performances, and also demonstrated a more supportive social environment, allowing for psychological safety of all participants. From these changes, four patterns of change were identified when the results from 2013 and 2014 were compared. The first pattern identified was that the thought processes of the participants acting as nurses within the simulation experienced transitioned from being emotional to objective. Second, the debriefing sessions changed from being one-way discussions in 2013,

to two-way conversations in 2014 where the participants' reflections on the experience were more valued than the critique of the performance. Third, clinical reasoning skills were developed via learner-centered methods rather than facilitator-centered methods. And, lastly, analysis of performance in 2013 was negatively worded as criticism, whereas in 2014, analysis of performance was positively-worded. Direct quotes were provided to support each pattern described.

This is a level III quality A study. However, one of the threats to external validity for this study is that it is from a source outside the United States and, as such, standards and norms may differ from those used in America thus limiting the generalizability of the results. It should also be noted that the format used for the SBL experience was a new format, having never been used prior to 2014. Thus, the lack of familiarity with the new simulation format may have altered the participants experience. Additionally, the fact that the participants in 2013 used the old format and the participants in 2014 used the new format may explain why the two participant groups from 2013 and 2014 were compared. However, since the study was qualitative, having the students involved in a new simulation method may also prevent bias from the authors as they had no previous opinions or in-depth knowledge regarding the actual implementation and execution of the new SBL method. Although an external source was used to transcribe the data and one of the researchers checked the transcriptions for accuracy, the participants were not contacted for further clarifications of potential misunderstandings or inaccurate derivations of meaning. It was not mentioned in data saturation had been achieved. The study also does not specify if the remaining students not acting as the nurse were all acting as observers. Additionally, it is not indicated if the student observers were educated on the use of the standardized simulation observation tool used in 2014. The themes for this study were already "pre-set" based on the

four key attributes of SBL, reflection, feedback, knowledge development, and psychological safety, which may indicate bias as themes are not supposed to be performed in qualitative research.

The researchers did acknowledge their potential biases as three of the four authors also acted as facilitators within the study. Furthermore, the researchers' potential biases are not bracketed to explain to the readers how they avoided bias within the study. Additionally, all four researchers participated in each stage of the study. Although it may seem like the results from 2013 may bias the results from 2014, perhaps this is why the researchers chose to use two different SBL structures, as one was old to them and the other was new to them. So, potentially the 2013 simulation would have more risk of bias because the researchers were more accustomed to the prior method.

Confidence

Sabei and Lasater (2016) developed a concept analysis via a literature review to provide a more in-depth looking at debriefing practices used within SBL activities with particular emphasis on describing debriefing practices that positively impacted clinical judgment development. Using keywords like clinical judgment, debriefing, and simulation as search terms, data were collected from five databases including Cumulative Index to Nursing and Allied Health (CINAHL) Plus, Medline Ovid, Education Resources Information Center (ERIC), Science Direct, and Google Scholar (Sabei & Lasater, 2016). In order to be included, the articles and studies had to be published in English between the years of 2005 and 2015. The authors' research resulted in 47 pieces of evidence eligible for inclusion.

Data were analyzed using the Walker and Avant systematic approach where debriefing is conceptualized as being the tool to develop clinical judgment. After that the purpose of, pre-

work for, and consequences of using debriefing as a means of producing clinical judgment were described (Sabei & Lasater, 2016). Next, the following seven themes were identified and defined: concept definition, defining attributes, antecedents, consequences, empirical referents, uses of the concept, and a model case. From the previous steps, a framework for debriefing that is both integrative and reflective was devised, presented, and explained. Entitled as the integrated structured reflective debriefing guide for promoting clinical judgment (IRDG-CJ), the purpose of the framework was to further enhance understanding, a case model was provided as well. to the readers. as this framework allows for a more accurate description of how a topic is defined within current literature. In concluding the concept analysis, Sabei and Lasater (2016) integrated the results from the literature review and, from that, created a standardized simulation debriefing guide specifically aimed at developing clinical judgment within nursing students.

The concept analysis by Sabei and Lasater (2016) was evaluated as a literature review and was thus rated as a Level V, Quality A piece of evidence. The concept analysis was deemed to be of high quality because the focus of the study was clearly identified as the authors emphasized that the purpose of the concept analysis was to create a more standardized method of defining debriefing and, from that develop a general structured framework that could be used to increase the consistency with which clinical judgment was developed from debriefing after SBL. Additionally, greater meaning was derived from the information provided by the results and conclusions of the 47 studies as definitions of the words debriefing, simulation, and clinical judgment were provided along with greater explanation from the themes extrapolated from the pieces of evidence. Furthermore, gaps in the literature were identified as being the lack of consistency in how debriefing after SBL is performed. Recommendations for future research

were also provided as Sabei and Lasater (2016) suggested that the framework they developed, the IRDG-CJ, be tested within future studies to evaluate the effectiveness of it.

The purpose of a concept analysis is to create a framework for a topic that is not well-defined or is inconsistently defined within the literature. Furthermore, since concept analyses are associated with research where there is a lack or an absence of empirical evidence, the meaning derived may lack validity and reliability (Lobiondo-Wood & Haber, 2018). Also, Google Scholar was used as a resource, which is not generally considered to be a database suitable for scholarly work. One of the authors of the study is from outside the United States; as such, requirements for developing pieces of evidence with rigor may be different, thus potentially limiting the validity and reliability of the results. The LCJR was used as part of the framework around which a more standardized approach to debriefing for clinical judgment was formulated, which may create bias as Lasater, one of the authors of the concept analysis, developed the LCJR. Although the sources used sometimes were older than five years, the resources were still relevant and, thus, applicable for current SBL experiences.

A retrospective non-experimental study by Victor (2017) evaluated the differences in clinical judgment development within prelicensure nursing students before and after the introduction of SBL activities based on experiential learning theory (ELT). According to Victor (2017), ELT-based SBL activities combine Kolb's Model of Experiential Learning, and Tanner's Model of clinical judgment in nursing. The use of ELT with SBL is usually performed with an unfolding scenario and places increased emphasis on the value of developing clinical judgment through debriefing via self-reflection, a concept based on the use of metacognition.

The sample for this retrospective study, which took place at Wilkes University in Pennsylvania, was generated from the comparison of two prelicensure baccalaureate nursing

student participant cases. These cases included in the study were randomly selected from two cohorts, Cohort A, which experienced ELT-based SBL activities, and Cohort B, which did not experience use a theory-based SBL design. Participant cases included students who transferred into the nursing program during their second year of study, and students who took longer than one year to complete the prerequisite courses necessary to enter the nursing program. Participant cases where students required more than three years to complete the nursing program were excluded. For this study, 102 participant cases from Cohort A and B were analyzed using the LCJR, a tool which was determined to have interrater reliability and internal consistency.

Simulation specialists who had received education on the LCJR and had at least five years of experience using the LCJR tool analyzed the participant cases. Since the nursing program at Wilkes University begins during the second year of study, the academic years analyzed were the sophomore, junior, and senior years of study. Retrospective analysis was performed on each cohort during the first semester of sophomore year, and the last semester of senior year. Prior to the analysis of data, a clerk coded the data from each Cohort after which, data were analyzed using independent sample t-tests via SPSS software.

The results of the data demonstrated a statistically significant increase in clinical judgment after ELT-based SBL activities were integrated into the curriculum (Victor, 2017). Data from the LCJR for Cohort A during the first semester of sophomore year were as follows: $M = 27.81$ with a standard deviation (SD) of 4.84. For Cohort B, $M = 20.75$ and $SD = 3.96$, with an effect size of 1.2 based on Cohen's d (Victor, 2017). Data from the last semester of senior year revealed a mean of $M = 42.72$ and $SD = 3.98$ for Cohort A. For Cohort B, $M = 38.79$ and $SD = 4.62$ with an effect size of 0.91. Thus, according to Victor, compliance with recommendations for use of ELT within SBL can positively impact clinical judgment in

prelicensure nursing students. Furthermore, the LCJR results from Cohort A revealed higher scores than Cohort B.

This study is a Level III quality A piece of evidence. To prevent against selection bias, Victor (2017) had data coded by an outside source to provide anonymity so that she would not be aware of which students were in Cohort a or B. They used the same number of participant cases from Cohort A and B. The inclusion and exclusion criteria were created in a way that better analyzed clinical judgment skills developed from the nursing program rather than outside forms of education. Data were analyzed at the beginning and end of the nursing program for both Cohorts.

However, Victor (2017) did not provide a definition of clinical judgment or debriefing, thus potentially limiting the generalizability of the results of the study. Furthermore, the sample was derived from one school of nursing and no demographic data was provided regarding the age range, gender, race, and other characteristics of the participant cases, which may negatively impact generalizability. Maturation of the nursing program itself could have skewed results. Unlike previous studies explored within this Capstone project, the study by Victor (2017) differs in that it necessitates the use of theory-based SBL activities which include structured debriefing. The authors of other pieces of evidence instead used a more concrete approach to the application of structured debriefing by choosing a structured debriefing tool. Additionally, unlike the other pieces of evidence, Victor's (2017) study evaluated students at all levels within a baccalaureate nursing program rather than focusing on students within a specific year of study in a nursing program. The literature review section was not very long and only included information about learning theories, but not much information about previous studies associated with theory-based

SBL activities. Victor does not state how many simulation specialists used the LCJR to evaluate participant cases.

A dissertation by Weaver (2014) used a mixed-methods design to determine the impact of structured debriefing on clinical reasoning and clinical judgment skills in baccalaureate nursing students using the DML structured debriefing tool. The quantitative portion of the study used a quasi-experimental pretest-posttest design that also included a qualitative component, which used a phenomenological design.

Using a convenience sample derived from one baccalaureate nursing program, 110 students were randomly divided into an intervention and control group. The intervention group was debriefing using the DML structured debriefing tool. The control group was debriefed using customary debriefing methods. The customary debriefing sessions were performed by the faculty members who taught at the school, while the structured debriefing sessions were facilitated by the author of the study. The qualitative portion of the study used general open-ended questions as prompts, but the students mostly guided these discussions. The open-ended questions were answered by participants in the intervention and control groups.

Since a convenience sample was used and the sample was small, which may negatively impact generalizability. Additionally, the sample of 110 BSN students were divided into two groups of 55, with each group having a different didactic professor. Weaver (2014) identified several potential confounding variables, including age, GPA, test anxiety, other academic experiences outside of nursing, and different clinical instructors among other things.

Additionally, previous clinical experiences could have altered study results. Also, multiple faculty members were facilitating the debriefing sessions for the control groups, while only the researcher debriefed the intervention groups, which could create bias in the results.

Chapter Summary

In summary, the third chapter of this Capstone project provided a list and explanation of each of the three themes derived from the literature. The 10 pieces of evidence were then organized under one of the three themes as part of the comprehensive literature review. Lastly, each piece of evidence was critically-appraised using the JHEBP, and thus the Levels and quality ratings of each of the 10 pieces included for review were identified.

CHAPTER IV

RESULTS AND SYNTHESIS

The use of structured debriefing within SBL activities may be more effective in developing clinical judgment skills within prelicensure nursing students compared to SBL activities that do not use structured debriefing methods. As a result, structured debriefing has been studied more frequently in recent years in response to the increased use of SBL as a constructivist learning activity that can supplement classroom learning as well as supplement or replace up to 50% of in-hospital clinical hours (Hayden et al., 2014). In addition to helping to develop clinical judgment within prelicensure nursing students, using structured debriefing may also improve patient outcomes by helping new graduate nurses deliver safe patient care. The increased likelihood of providing safe patient care may be attributable to nursing students being better-prepared through the benefits of structured debriefing, which allow student nurses to “think like nurses” prior to graduation. The ability to “thinking like a nurse” may increase the confidence of student nurses; however, the nurse-like thinking skills and confidence resulting from structured debriefing were facilitated by the physical and psychological safety afforded to students and simulator facilitators through the use of structured debriefing methods.

Results

This evidence-synthesizing project was used to appraise 10 pieces of evidence. These 10 pieces of evidence included four quantitative studies, two qualitative studies, two non-research studies, and two mixed-methods studies one of which was a dissertation. These 10 quantitative, qualitative, mixed-methods, and non-research studies were further classified as being either Level II, III, or IV according to the JHNEP model (Dearholt & Dang, 2012). Among these pieces of evidence, there two Level II studies, six level III studies, and two Level V articles. The

level II studies included two quasi-experimental studies. The Level III studies included two qualitative studies, two mixed-methods studies, and two non-experimental studies. The Level V studies included an expert opinion and a concept analysis.

Synthesis of Results

Based on the 10 pieces of evidence used to develop this evidence-synthesizing project, three themes were identified. These three themes included “thinking like a nurse,” safety, and confidence. Pieces of evidence grouped within the first theme, “thinking like a nurse,” contained information that explained the way structured debriefing impacted the foundational higher-level thinking skills of critical thinking and clinical reasoning, which are both necessary to produce clinical judgment. For the first theme, “thinking like a nurse,” was used to describe the way in which structured debriefing facilitates the development of higher-level thinking skills that mimic the thinking skills required of bedside nurses. The theme of “thinking like a nurse” was the largest category, containing five pieces of evidence. Of the five pieces of evidence, one study was a Level II, quality A quasi-experimental pretest-posttest design, one piece of evidence was a Level II, quality B quasi-experimental pretest-posttest multi-site study, one piece of evidence was a Level III, quality B convergent mixed-methods study, and one piece of evidence was a Level III, quality A non-experimental study. Each of the pieces of evidence included within the first theme identified the positive impact of structured debriefing on developing clinical judgment in prelicensure nursing students. However, for the quantitative studies, the improvement in clinical judgment abilities through the use of structured debriefing were not statistically-significant. Thus, despite consistent identification of an improvement in clinical judgment, there is a lack of statistically-significant data to support the idea there is a positive relationship between structured debriefing and improved clinical judgment among prelicensure

nursing students. As a result, the overall quality of evidence for the “thinking like a nurse” theme was assigned B quality rating.

The second theme, entitled “safety” is the smallest theme, but was listed second because of its importance in relation to clinical judgment. Within this “safety” theme, the term “safety” refers to psychological and physical safety afforded to prelicensure nursing students, simulation facilitators, and patients that may result from the use of structured debriefing. The third theme contains two pieces of evidence, a Level V, Quality A non-research article that provides an expert opinion, and a Level III, quality A qualitative explorative study. The researchers of each piece of evidence discussed the importance of creating a safe learning environment for prelicensure students to develop clinical judgment skills, as well as a safe debriefing method where nurse educators believe that the most important information necessary for clinical judgment development has been provided. Based on the quality ratings of each of the three pieces of evidence, the third theme was determined to have an A for overall quality rating.

The third theme is confidence and refers to students and simulation facilitators having assurance in the clinical judgment development that resulted from the use of structured debriefing. Confidence also refers to the concept of prelicensure students developing comfort with being uncomfortable clinical situations where clinical judgment is necessary. Three pieces of evidence were included within the third theme, including a Level V, quality A concept analysis, a Level III, quality A non-experimental retrospective study, and a Level III, quality B mixed methods dissertation. Within each piece of evidence included in the confidence theme, nurse educators and prelicensure nursing students communicated their increased comfort and trust in structured debriefing to develop clinical judgment. Based on the positive results, the overall quality rating of the confidence theme is an A.

Chapter Summary

Each source used within this evidence-synthesizing project was identified and was described based on the level of evidence and quality rating based on the JHEBP Model. The three themes derived from the 10 pieces of evidence were also described. From there, each of the 10 pieces of evidence were further classified based on the theme that was most closely associated with the information and results included within each piece of evidence.

CHAPTER V

DISCUSSION AND CONCLUSION

Nurse educators are using structured debriefing within SBL to facilitate the development of clinical judgment in prelicensure nursing students as a way of potentially improving patient outcomes by producing new graduate nurses who are capable of providing safe patient care. However, the use of structured debriefing is not standardized practice within prelicensure nursing programs despite the implementation of structured debriefing as a best practice guideline and being deemed necessary for clinical judgment development (Hayden et al., 2014; INACSL, 2016). Thus, the use of structured debriefing to develop clinical judgment is being studied more frequently within the literature so that it can become a standardized practice within SBL activities.

Discussion of Findings

Nurse educators' use of SBL and debriefing to develop clinical judgment and, as a result, safe practicing nurses, has been increasingly each year. Furthermore, evaluation and synthesis of the literature is consistent in the view that debriefing after SBL is arguably the most important component developing clinical judgment in prelicensure nursing students. However, standardization regarding debriefing practices has yet to be achieved.

Based on the results of the 10 pieces of evidence included for review, both students and nurse educators report perceived improvements in clinical judgment as a result of using structured debriefing after SBL experiences. Furthermore, statistical data also indicated a positive change in prelicensure nursing students' clinical judgment abilities through the use of structured debriefing with simulation. One reason that may explain the positive change in prelicensure nursing students' clinical judgment abilities is the emotions they felt that

accompanied the decision-making process during the SBL activities as emotions are heavily linked to memory and have the power to either improve focus or create a lack of focus within people. These emotions, regardless of being pleasant or unpleasant, may have benefitted learning.

Despite the perceived positive impact of structured debriefing on clinical judgment, there were inconsistencies among the literature regarding the statistical significance of the increase in clinical judgment scores. Additionally, organizations like INACSL and the NCSBN are advocating for the use of structured debriefing after SBL experiences and, as such, have included the use of structured debriefing as a best practice standard for debriefing with simulation (Hayden et al., 2014; INACSL, 2016). So, although the PICO question of this Capstone paper was answered with inconsistent results, it is the opinion of the author of this Capstone paper that the benefits of structured debriefing, regardless of statistical significance warrant translation; however, based on the requirements necessary for translation, it would be more beneficial to conduct further research so that new evidence can be produced to further support a practice change toward the use of structured debriefing.

Implication of Findings

The use of structured debriefing within SBL has the potential to redefine teaching and learning practices within nursing education by developing clinical judgment in prelicensure nursing students. Through this clinical judgment development, new graduate nurses can become capable of delivering safe, quality patient care without the use of extensive in-hospital clinical hours. Similarly, if prelicensure nursing students are successful in their ability to transfer knowledge from the simulation setting to the clinical setting, they will be able to draw on previous SBL experiences to inform patient care decisions made in clinical practice.

Within nursing practice, a change in thought must be initiated where simulation is no longer considered to be “just pretend” but is given due credit as real-world clinical experience that prepares nurses to practice safely within a controlled and safe environment. Therefore, there needs to be a conscious change in the way SBL experiences are described. In other words, instead of saying that students were not able to attain clinical hours, and instead engaged in SBL experiences, terminology should be altered to include the terms, in-hospital clinical hours and simulation-based clinical hours as both represent real experiences that can help nursing students practice as safe bedside nurses after graduation.

Just as classroom-based learning has been reformatted to include constructivist teaching methods, so too does structured debriefing after SBL experiences need to transform from being educator-centered to learner-centered. Furthermore, structured debriefing can be used as a teaching strategy for nurses at any practice or education level as structured debriefing models create standardization that allows the learning gained from SBL activities to be less reliant on the educators facilitating the debriefing process. However, nurse educators should receive additional education on effective use of structured debriefing within simulation.

Gaps in Knowledge and Recommendations for Future Research

Structured debriefing is where the academic world meets the clinical world as the understanding developed via structured debriefing facilitates clinical preparation more than academic preparation when performed correctly. As such, further research is needed to better inform implementation of structured debriefing as there are several structured debriefing models. Future research studies that consistently use the structured debriefing models and clinical judgment evaluation tools will better inform whether or not the change in clinical judgment abilities of prelicensure students is statistically significant. Additionally, there are multiple tools

used to measure clinical judgment. Firstly, it is recommended that tools be developed to assess clinical judgment specifically.

Limitations for Consideration

There were several limitations associated with the completion of this evidence-synthesizing paper. First, there were multiple tools used to measure clinical judgment. Additionally, due to the lack of consistency among the terminology used within SBL, some tools were used to measure clinical judgment, but were named “clinical reasoning” tools. Furthermore, there were varying structured debriefing methods used among the 10 pieces of evidence, with the most common structured debriefing tool being the DML tool. Some structured debriefing tools were referred to as “frameworks” or “theory-based simulation designs.” Limitations included inconsistencies in the evaluation tools used to measure clinical judgment, which may have contributed to the inconsistent results. Thus, further research using a consistent tool to measure the impact of structured debriefing on clinical judgment development is indicated.

Chapter Summary

Within the final chapter of this evidence-synthesizing project, further discussion was included regarding the reasons why certain findings were identified within the literature. Additionally, gaps in the literature were addressed along with suggestions for areas of future research. Furthermore, the implications of the topic of developing clinical judgment in prelicensure nursing students using structured debriefing on the nursing profession, nursing practice, and nursing education were identified.

Project Summary

Although the desire to develop clinical judgment in students through the use of debriefing within SBL activities is not a new topic, the idea of standardizing debriefing within SBL activities to potentially improve clinical judgment development through the use structured debriefing to is still an emerging area of study within nursing education research. As such, this evidence-synthesizing paper was intended to provide an in-depth look at the most current evidence regarding the effect of structured debriefing on clinical judgment. Structured debriefing within SBL activities may positively impact clinical judgment abilities of prelicensure nursing students; however, further research is indicated in order to generate statistically-significant results that support this assertion. Additionally, since the term “structured debriefing” is not widely known and the term “clinical judgment” has inconsistent definitions within the literature, the findings from these evidence-synthesizing paper should be presented at a convention or conference via a panel presentation or poster presentation to disseminate findings. After that, a qualitative improvement project evaluating clinical judgment development through a structured debriefing tool should be performed at the institution where the author of this evidence-synthesizing paper is employed.

References

- Aebersold, M. (2018). Simulation-based learning: No longer a novelty in undergraduate education. *The Online Journal of Issues in Nursing*, 23(2). DOI: 10.3912/OJIN.Vol23.No02PPT39
- Aldridge, M. D. (2016). How can nurse educators perform patient simulation efficiently. *Teaching and Learning in Nursing*, 11, 8-14. <http://dx.doi.org/10.1016/j.teln.2015.09.001>
- Buttimer, M. (2018). *Mary Fey to create buzz at WCHSE 2018 conference*. Retrieved from <https://harvardmedsim.org/blog/mary-fey-to-create-buzz-at-wchse-2018-conference/>
- Center for Medical Simulation. (2019). *Principal faculty*. Retrieved from <https://harvardmedsim.org/about/cms-team/>
- Dang, D., & Dearholt, S. L. (2018). *Johns Hopkins nursing evidence-based practice: Model and guidelines* (3rd ed.). Indianapolis, IN: Sigma Theta Tau International.
- Dreifuerst, K. T. (2012). Using debriefing for meaningful learning to foster development of clinical reasoning in simulation. *Journal of Nursing Education*, 51(6), 326-333. DOI: 10.3928/01484834-20120409-02
- Forneris, S. G., Neal, D. O., Tiffany, J., Kuehn, M. B., Meyer, H. M., Blazovich, L. M., Holland, A. E., & Smerillo, M. (2015). Enhancing clinical reasoning through simulation debriefing: A multisite study. *Nursing Education Perspectives*, 36(5), 304-310. DOI: 10.5480/15-1672

- Hayden, J., Smiley, R., Alexander, M., Kardong-Edgren, S., & Jeffries, P. (2014). The NCSBN national simulation study: A longitudinal, randomized, controlled study replacing clinical hours with simulation in prelicensure nursing education. *Journal of Nursing Regulation*, 5(2), 2-39. <http://dx.doi.org/10.1016/j.ecns.2012.07.070>
- International Nursing Association for Clinical Simulation and Learning. (2019). *About: Mary Fey: Vice-president for outreach*. Retrieved from <https://www.inacsl.org/about/board-of-directors/mary-fey/>
- International Nursing Association for Clinical Simulation and Learning Standards Committee. (2016). INACSL standards of best practice: Simulationsm simulation glossary. *Clinical Simulation in Nursing*, 12(S), S39-S47. <http://dx.doi.org/10.1016/j.ecns.2016.09.012>
- Lobiondo-Wood, G. & Haber, J. (2018). *Nursing research: Methods and critical appraisal for evidence-based practice* (9th ed.). St. Louis, MO: Elsevier.
- Mariani, B., Cantrell, M. A., & Meakim, C. (2014). Nurse educators' perceptions about structured debriefing in clinical simulation. *Nursing Education Perspectives*, 35(5), 330-331. DOI: 10.5480/13-1190.1
- Mariani, B., Cantrell, M. A., Meakim, C., Preto, P., & Dreifuerst, K. T. (2013) Structured debriefing and students' clinical judgment abilities in simulation. *Clinical Simulation in Nursing*, 9(5), e147-e155. doi: 10.1016/j.ccns.2011.11.009
- Oermann, M.H. & Gaberson, K.B. (2017). *Evaluation and testing in nursing education*. New York, NY: Springer Publishing Company.
- Palaganas, J. C., Fey, M., & Simon, R. (2016). Structured debriefing in simulation-based education. *American Association of Critical Care Nurses Advanced Critical Care*, 27(1), 78-85. DOI: <http://dx.doi.org/10.4037/aacnacc2016328>

Reierson, I. A., Haukedal, T. A., Hedeman, H., & Bjork, I. T. (2017). Structured debriefing: What difference does it make. *Nursing Education in Practice*, 25, 104-110. doi:

<http://dx.doi.org/10.1016/j.nepr.2017.04.013>

Rossi, G. (2012). *CMS welcomes Janice Palaganas to its team*. Retrieved from

<https://harvardmedsim.org/blog/cms-welcomes-janice-palaganas-to-its-team/>

Victor, J. (2017). Improving clinical nursing judgment in prelicensure students. *Journal of Nursing Education*, 56(12), 733-736. doi: 10.3928/01484834-20171120-05

Victor, J., Ruppert, W., & Ballasy, S. (2017). Examining the relationships between clinical judgment, simulation performance, and clinical performance. *Nurse Educator*, 42(5), 236-239. doi: 10.1097/NNE.0000000000000359

Weaver, R. (2014). *The impact of structured debriefing, following simulation, on BSN student development of clinical reasoning and clinical judgment skills*. Retrieved from Duquesne Scholarship Collection. (ETD1343)

Appendix A

Evidence Summary Matrix

| Article # | Author, Publication Source, & Date of Publication | Evidence Type and Purpose | Sample Type, Size, Setting | Study Findings | Strengths | Limitations | Evidence Level | Quality Rating |
|-----------|--|--|---|--|---|--|----------------|----------------|
| 1 | Using Debriefing for Meaningful Learning to Foster Development of Clinical Reasoning in Simulation Dreifuesrt, K. T. Journal of Nursing Education 2012 Theme: "Thinking Like a Nurse" | Type: Quasi-Experimental , Pretest-posttest Purpose: Used to determine the impact of using the DML structured debriefing tool on clinical reasoning development | Type: Convenience sample Size: 238 prelicensure nursing students Setting: one midwestern four-year baccalaureate nursing program | Nursing students who were exposed to the use of the DML structured debriefing tool demonstrated an increased level of clinical reasoning | <ul style="list-style-type: none"> - Large sample size - Good effect size - Homogeneity of sample - Results of the Mann-Whitney-U test were statistically significant | <ul style="list-style-type: none"> - Mortality via loss of two participants - Data was collected over several semesters - Convenience sample - Results of the t-test were not statistically significant. - Use of the Mann-Whitney U test may have resulted in results that, although statistically-significant, were not as statistically powerful | II | A |
| 2 | Enhancing Clinical Reasoning | Quasi-experimental, pretest- | Setting: Four faith-based private | - There was a difference in the improvement in | - A pilot study was conducted before the study was carried out | - The sample was not randomized and consisted of a homogenous group of | II | B |

| Article # | Author, Publication Source, & Date of Publication | Evidence Type and Purpose | Sample Type, Size, Setting | Study Findings | Strengths | Limitations | Evidence Level | Quality Rating |
|-----------|---|--|---|---|--|--|----------------|----------------|
| | <p>Through Simulation Debriefing: A Multisite Study</p> <p>Forneris, S. G., Neal, D. O., Tiffany, J., Kuehn, M. B., Meyer, H. M., Blazovich, L. M., Holland, A. E., & Smerillo, M.</p> <p>Nursing Education Perspectives</p> <p>2015</p> <p>Theme: "Thinking Like a Nurse"</p> | <p>posttest, repeated measure research design</p> <p>Purpose: to replicate the findings regarding the DML structured debriefing tool first explored by Dreifuerst (2012) in order to see if the use of the DML structure debriefing tool produced a change in clinical reasoning abilities of prelicensure students</p> | <p>colleges in the Midwest offering BSN programs</p> <p>Type: Convenience sample</p> <p>Size: 156 prelicensure students</p> | <p>clinical reasoning skills, with the which suggested that the DML structured debriefing tool improves clinical reasoning.</p> | <ul style="list-style-type: none"> - Each participant was required to complete the same simulation scenario, ensuring fairness (The NLN's Millie Larsen geriatric simulation scenario) - The HSRT's reliability is confirmed via a Kuder-Richardson-20 with overall internal consistency reliability estimates ranging from .77 to .84 - The HSRT validity was established via correlating test items to the Delphi Report along with support from health sciences faculty committees. However, criteria to confirm validity of the HSRT is still in development. - An ANOVA test was performed to prevent threats to the validity of the study based on change in knowledge over time just because of the participants being in school - A similar result was achieved among multiple schools with multiple facilitators, showing a degree of generalizability | <p>students</p> <ul style="list-style-type: none"> - Power analysis of sample was performed (200 students demonstrated medium effect size). Although 200 students were necessary to have medium effect size, only 156 students chose to participate. Of those 156 students, only 153 fully participated, meaning that the study lacked enough power based on sample size. - While the change in clinical reasoning skills between the intervention group and control group is not large enough to be considered robust, it is still clinically significant - The HSRT does not evaluate nursing specifically - Small sample size | | |

| Article # | Author, Publication Source, & Date of Publication | Evidence Type and Purpose | Sample Type, Size, Setting | Study Findings | Strengths | Limitations | Evidence Level | Quality Rating |
|-----------|---|--|---|---|---|--|----------------|----------------|
| | | | | | - Study was performed at multiple sites | | | |
| 3 | Structured Debriefing and Students' Clinical Judgment Abilities in Simulation Mariani, B., Cantrell, M. A., Meakim, C., Prieto, P., & Dreifuerst, K. T. Clinical Simulation in Nursing 2013 Theme: "Thinking Like a Nurse" | Type: Mixed-Methods Purpose: To evaluate the perceived and statistical change in clinical judgment of prelicensure nursing students through the use of a structured debriefing tool | Type: Convenience sample Size: 86 prelicensure students during their junior year of study Setting: A baccalaureate program in the Mid-Atlantic region of the United States | - There was a statistical improvement in clinical judgment skills of prelicensure students when structured debriefing was used. However, the change was not statistically-significant. - Prelicensure students perceived improved quality in their learning when a structured debriefing method was used | - The LCJR evaluation tool had interrater reliability - The sample was homogenous - The researchers considered both quantitative and qualitative data to inform their results, which generated more well-rounded findings | - Convenience sample - Small sample size (for the quantitative portion of the study) - Inadequate power of sample size - Moderate effect size - Data saturation was not stated to be achieved for the qualitative data - Results of the quantitative data were not statistically-significant - Homogeneity of the sample may have decreased generalizability of findings - Validity of the LCJR tool was not discussed - Inadequate power for the statistical analyses - Homogeneity of the sample - Two sets of faculty members rating students after simulation using the LCJR | III | B |
| 4 | Nurse Educators' Perceptions About | Type: Qualitative | Type: Qualitative, descriptive pilot study | - Every educator acknowledged the importance of debriefing | - The data was checked and rechecked by multiple sources and an outside expert reviewer | - Technical difficulties were encountered in conducting the focus groups, which may have | III | B |

| Article # | Author, Publication Source, & Date of Publication | Evidence Type and Purpose | Sample Type, Size, Setting | Study Findings | Strengths | Limitations | Evidence Level | Quality Rating |
|-----------|--|--|--|---|---|--|----------------|----------------|
| | <p>Structured Debriefing in Clinical Simulation</p> <p>Mariani, B., Cantrell, M. A., & Meakim, C.</p> <p>2014</p> <p>Nursing Education Perspectives</p> <p>Theme: “Thinking Like a Nurse”</p> | <p>Purpose: To evaluate the perspectives of educators on the impact of structured debriefing on the learning and clinical judgment abilities on prelicensure nursing students</p> | <p>Size: 22 nurse educators via four focus groups</p> <p>Setting: Seven accredited nursing schools in the mid-Atlantic region, with the seven nursing schools consisting of six baccalaureate programs and one associate</p> | <ul style="list-style-type: none"> - Advantages of structured debriefing is that it is a type of active learning - Negative side of structured debriefing is that it requires a great deal of time and experience from the professor - The themes identified are as follows: Theme #1: Debriefing requires time; Theme #2: Debriefing Creates Change in Faculty’s Teaching Practices - The results of this study also found that structured debriefing helps improve clinical reasoning skills - Debriefing is extremely time intensive- it takes a long time to carry out, and it | <ul style="list-style-type: none"> - Direct quotes were provided that helped to validate findings - The researchers acknowledged their potential biases | <p>limited the knowledge gained via the focus groups</p> <ul style="list-style-type: none"> - 12 of the 22 participants were from the institution performing the study (all of who use the DML type of structured debriefing), which may have created sampling bias | | |

| Article # | Author, Publication Source, & Date of Publication | Evidence Type and Purpose | Sample Type, Size, Setting | Study Findings | Strengths | Limitations | Evidence Level | Quality Rating |
|-----------|---|---|---|--|--|--|----------------|----------------|
| | | | | <p>takes a long time for faculty to figure out how to do it</p> <ul style="list-style-type: none"> - Faculty require education on how to perform structured debriefing | | | | |
| 5 | <p>Examining the Relationships Between Clinical Judgment, Simulation Performance, and Clinical Performance</p> <p>Victor, J., Ruppert, W., & Ballasy, S</p> <p>Nurse Educator</p> <p>2014</p> | <p>Type: Qualitative, non-experimental, correlational study</p> <p>Purpose: To evaluate the relationship between clinical judgment development achieved through structured debriefing and clinical judgment within simulation-based</p> | <p>Type: Convenience sample</p> <p>Size: 80 prelicensure baccalaureate students during their first clinical course</p> <p>Setting: A private college in Pennsylvania</p> | <ul style="list-style-type: none"> - There is a positive relationship between clinical judgment developed via structured debriefing and clinical judgment skills demonstrated in simulation-based learning and in-hospital clinical experiences | <ul style="list-style-type: none"> - The LCJR and Crieghton tools were determined to be valid and reliable - Positive relationships were identified between structured debriefing and clinical judgment, which helps to answer the PICO question of this evidence-synthesizing project - Homogenous sample was used | <ul style="list-style-type: none"> - A convenience sample was used - The homogeneity of the sample may limit generalizability of results - A paired t-test was used within a correlational study, which is an incorrect statistical test to use because t-tests do not evaluate relationships - The sample size was small - They lost two participants - Nurse educators may not have had the knowledge or time to adequately evaluate the students using the LCJR and Crieghton tools | III | B |

| Article # | Author, Publication Source, & Date of Publication | Evidence Type and Purpose | Sample Type, Size, Setting | Study Findings | Strengths | Limitations | Evidence Level | Quality Rating |
|-----------|--|---|-------------------------------|---|---|---|----------------|----------------|
| | Theme: “Thinking Like a Nurse” | learning and the in-hospital clinical setting | | | | | | |
| 6 | Structured Debriefing in Simulation-Based Education Palaganas, J. C., Fey, M., & Simon, R. 2016 American Association of Critical-Care Nurses: Advanced Critical Care Theme: Safety | Type: Expert Opinion Purpose: To present a structured debriefing framework that improves safety of patients, students, and educators through clinical judgment development | Not applicable for this study | <ul style="list-style-type: none"> - When novice nurse educators use structured debriefing methods, it can facilitate learning through student-teacher discussions that lead to deeper learning. - The quality of a debriefing session following a simulation-based learning activity may be correlated with the experience level of the educator performing the debriefing and whether or not that educator uses a structured format | <ul style="list-style-type: none"> - The authors of the article are experts in the field of simulation - The structured debriefing methods suggested for use are based on simulation-based learning activities from multiple healthcare disciplines, not just nursing | <ul style="list-style-type: none"> - Since the expert opinions for this simulation include more than just nursing-focused simulation-based learning activities, some of the suggestions may be difficult to implement within a nursing program - The authors’ potential biases toward the subject are not discussed | V | A |

| Article # | Author, Publication Source, & Date of Publication | Evidence Type and Purpose | Sample Type, Size, Setting | Study Findings | Strengths | Limitations | Evidence Level | Quality Rating |
|-----------|---|--|--|---|---|--|----------------|----------------|
| 7 | Structured Debriefing: What Difference Does it Make? Reiersen, I. A., Haukedal, T. A., Hedeman, H., & Bjork, I. T. 2017 Theme: Safety | Type: Qualitative Case Study Research via Cross-Case Analysis Purpose: To evaluate the impact of structured debriefing on clinical judgment development within the simulation setting | Type: Convenience sample Size: 28 prelicensure students Setting: A two-week long simulation course held during the summer when nursing classes were not in-session to prepare students for summer nursing internships | - Positive changes in clinical judgment were appreciated after the implementation of structured debriefing into simulation-based learning | - Since classes were not in-session, maturation was not an issue - There was inter-rater reliability among the debriefing facilitators - Potential biases of the authors were acknowledged | - The study was conducted outside the United States - Although the authors acknowledge potential biases, the fact that they served as the facilitators of the structured debriefing sessions may negatively impact the validity of the results | III | A |
| 8 | Simulation Debriefing for Clinical Judgment Development: A Concept Analysis Sabei, S. D. & Lasater, K | Type: Concept Analysis Purpose: to create a framework for the topic of structured debriefing as it is | Size: 47 studies published between 2005 and 2016 Type: Evidence-synthesizing Setting: CINAHL Plus, | - A more standardized definition of structured debriefing was established based on best evidence. | - The concept analysis was thoroughly researched - The Walker-Avant Evaluation tool was used - Greater meaning was derived from the literature - The greater meaning derived from the literature was used to inform future studies | - One of the authors was from outside the United States - Google Scholar was used as a scholarly database, despite the lack of scholarship associated with this database - The studies were collected from outside the five year range where | V | A |

| Article # | Author, Publication Source, & Date of Publication | Evidence Type and Purpose | Sample Type, Size, Setting | Study Findings | Strengths | Limitations | Evidence Level | Quality Rating |
|-----------|---|---|---|--|--|--|----------------|----------------|
| | 2016 Nurse Education Today Theme: Confidence | consistently defined or used | Medline Ovid, ERIC, Science Direct, and Google Scholar databases | | | research is considered to be most relevant | | |
| 9 | Improving Clinical Nursing Judgment in Prelicensure Students Victor, J. 2017 Journal of Nursing Education Theme: Confidence | Type: Non-experimental, retrospective study Purpose: To evaluate differences in clinical judgment development within prelicensure nursing students before and after the introduction of SBL activities based on experiential learning theory | Type: Convenience sample Size: 204 BSN students Setting: One private BSN program in Pennsylvania | - The use of an ELT-based simulation framework that included a structure debriefing format produced improved clinical judgment skills in prelicensure BSN nursing students | - An outside coder was used to evaluate the data to avoid bias - The evaluators were experienced with the LCJR tool that was used | - A convenience sample was used - Maturation may have occurred - No demographic data was provided for the sample | III | A |

| Article # | Author, Publication Source, & Date of Publication | Evidence Type and Purpose | Sample Type, Size, Setting | Study Findings | Strengths | Limitations | Evidence Level | Quality Rating |
|-----------|---|--|--|---|--|--|----------------|----------------|
| 10 | The Impact of Structured Debriefing Following Simulation, on BSN Development of Clinical Reasoning and Clinical Judgment Skills Weaver, R. 2014 Duquesne University: Duquesne Scholarship Collection Theme: Confidence | Mixed Methods: Quasi-experimental pre-test, post-test design and Qualitative phenomenological study Purpose: To provide supporting evidence for the inclusion of structured debriefing within simulation-based learning activities | Setting: a baccalaureate nursing program in Northeastern Pennsylvania Type: convenience sample Size: 93 junior-level nursing students enrolled in a medical-surgical nursing course | - The improvement in clinical reasoning and clinical judgment of the BSN students was not found to be statistically significant. However, the qualitative data did indicate that the BSN students perceived themselves to have better clinical judgment and clinical reasoning skills when structured debriefing was used | - Thorough review of the literature to identify gaps in knowledge - Statistical analysis used to compensate for confounding variables - Tools used were both valid and reliable - The study considered both clinical reasoning and clinical judgment - The definitions of clinical reasoning and clinical judgment were derived from INACSL best-practice guidelines | - The sample size had insufficient power - There were multiple nurse educators performing the structured debriefing exercises, which may have influenced the results - A convenience sample was used which may impact generalizability | III | B |

Appendix B

Synthesis of Levels of Evidence and Quality Table

| Category (Level Type) | Total Number of Sources/Levels | Overall Quality Rating | Synthesis of Findings Evidence that answers the EBP Question |
|--|--------------------------------|------------------------|--|
| Level I: <ul style="list-style-type: none"> - Experimental Study - Randomized Control Trial (RCT) - Systematic Review of RCTs with or without meta-analysis - Explanatory mixed method design that includes only a Level I quantitative study | 0 | n/a | n/a |
| Level II <ul style="list-style-type: none"> - Quasi-experimental studies - Systematic review of a combination of RCTs and quasi-experimental studies, or quasi-experimental studies only, with or without meta-analysis - Explanatory mixed method design that includes only a Level II quantitative study | 2 | B | The results of the Level II studies are inconsistent, as the results of one study indicated a statistically significant difference between the intervention group and the control group where the intervention group demonstrated an improvement in clinical judgment based on the pre-test-post-test design of the study. |
| Level III <ul style="list-style-type: none"> - Nonexperimental study - Systematic review of a combination of RCTs, quasi-experimental and | 6 | A | Although the statistical results of structured debriefing methods have inconsistent results, it is consistent within the literature that a positive change in clinical |

| | | | |
|--|---|-----|---|
| <p>nonexperimental studies, or nonexperimental studies only, with or without meta-analysis</p> <ul style="list-style-type: none"> - Qualitative study or meta-synthesis - Exploratory, convergent, or multiphasic mixed-methods studies - Explanatory mixed method design that includes only a level III quantitative study | | | <p>judgment does occur and that students and educators perceive improvement in the clinical judgment abilities of students who were debriefed using structured debriefing tools. The improvements in clinical judgment through structured debriefing improve safety of patients, students, and educators, as well as confidence levels of students.</p> |
| <p>Level IV</p> <ul style="list-style-type: none"> - Opinions of respected authorities and/or reports of nationally-recognized expert committees or consensus panels based on scientific evidence | 0 | n/a | n/a |
| <p>Level V</p> <ul style="list-style-type: none"> - Evidence obtained from literature or integrative reviews, quality improvement, program evaluation, financial evaluation, or case reports - Opinions of nationally-recognized expert(s) based on experiential evidence | 2 | A | <p>The use of structured debriefing can produce higher-level thinking skills that lead to clinical judgment development in prelicensure nursing students.</p> |

Based on your synthesis, which of the following four pathways to translation represent the overall strength of the evidence?

- Strong, compelling evidence, consistent results: Solid indication for a practice change is indicated.
- Good and consistent evidence: Consider pilot of change or further investigation.
- Good but conflicting evidence: No indication for a practice change; consider further investigation for new evidence or develop a research study.
- Little or no evidence: No indication for practice change; consider further investigation for new evidence, develop a research study, or discontinue project.

If you selected either the first option of the second option, continue. If not, STOP- translation is not indicated.

Recommendations based on evidence synthesis and selected translation pathway

- Although statistical results were inconsistent, it was consistently noted that beneficial changes in clinical judgment abilities occurred when structured debriefing was used. Further investigation via new evidence or additional research studies should occur before a practice change can be recommended.

Consider the following as you examine *fit*:

Are the recommendations:

- Compatible with the unit/department/organizational cultural values or norms?
- Consistent with the unit/department/organizational assumptions, structures, attitudes, beliefs, and/or practices?
- Consistent with the unit/department/organizational priorities?

Consider the following questions as you examine feasibility:

- Can we do what they did in our work environment?
- Are the following supports available?
 - Resources
 - Funding
 - Approval from administration and clinical leaders
 - Stakeholder support
- Is it likely that the recommendations can be implemented within the unit/department/organization?