2017

Nurses' Reflection, Compassion Fatigue, and Work Burnout - A Correlational Analysis

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Abstract

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Nursing

Walden University

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Abstract

Compassion fatigue and work-related burnout are harmful reactions to patient situations and work environments that negatively affect nurses' well-being and ability to provide safe, effective patient care. However, research is needed to understand how reflection as a self-care response to patient situations is related to nurses' development of work burnout, compassion fatigue, and secondary traumatic stress, a type of compassion fatigue. The purpose of this correlational, cross-sectional quantitative study was to determine the relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. The study was based on Hentz and Lauterbach's model for reflective practice and Kearney, Weininger, Vachon, Harrison, and Mount's self-awareness-based model of self-care. Internet-based surveys consisting of demographic items, the Groningen Reflective Ability Scale, and the Compassion Fatigue—Short Scale were distributed to a randomly selected sample of 2,000 registered nurses in the southeastern United States. Spearman correlation, Pearson correlation, and binary linear regression analyses revealed no significant relationship between the variable of reflection and the variables of compassion fatigue, secondary traumatic stress, and work burnout among hospital-based acute care nurses. Incidental findings revealed significant positive correlations among compassion fatigue, secondary traumatic stress, and work burnout. The study findings can be used to effect positive social change and inform future research within the nursing profession by highlighting reflective nursing practice and providing awareness of the positive relationships among compassion fatigue, secondary traumatic stress, and work burnout in nurses.

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Acknowledgments

I would like to thank my family and friends for all their support, encouragement, and prayers while I completed my dissertation, especially my parents, who have invested so much in helping me become the person I am today. Also, I appreciate my dissertation committee's incredible patience and willingness to help during the entire dissertation process. Most of all, the credit for completing this work goes to my Lord and Savior Jesus Christ, because "His compassions fail not. They are new every morning: great is thy faithfulness" (Lamentations 3:22-23, King James Version).

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Chapter 1: Introduction to the Study

Reflection has been recognized as a quality inherent in nurses' critical thinking and practice (Asselin, Schwartz-Barcott, & Osterman, 2013). When nurses reflect on situations they encounter in practice, they may experience negative as well as positive effects on their psychological and physical well-being (Asselin et al., 2013; Koh et al., 2015; Stein & Grant, 2014). As nurses progressively encounter various patient and workplace situations, they may also develop negative physical, psychological, emotional, and spiritual changes that are associated with the two phenomena of compassion fatigue and work burnout (Austin, Saylor, & Finley, 2017; Coetzee & Klopper, 2010; Hegney et al., 2014; Kaur, Sambasivan, & Kumar, 2013; Neville & Cole, 2013). Theoretically, low reflection during encounters with patient and workplace situations may lead to less self-awareness and, subsequently, contribute to the progressive development of compassion fatigue and work burnout (Hentz & Lauterbach, 2005; Kearney, Weininger, Vachon, Harrison, & Mount, 2009). Few researchers have examined the effects that reflection may have on nurses' psychological and physical well-being, especially on the occurrence of compassion fatigue and work burnout. I explored the relationships between the occurrence of reflection and the occurrence of compassion fatigue and work burnout among registered nurses practicing in hospital-based acute care environments.

Understanding the relationship between the occurrence of reflection and the occurrence of compassion fatigue and work burnout among nursing professionals has important implications for nursing practice and education. The two phenomena of compassion fatigue and burnout may affect nurses' caring ability and skills, increase

nurses' job turnover, and lead to poor-quality patient care (Cimiotti, Aiken, Sloane, & Wu, 2012; Kaur et al., 2013; Rudman & Gustavsson, 2012; Sawatzky, Enns, & Legare, 2015; Van Bogaert et al., 2014). In addition, compassion fatigue may manifest itself in several detrimental forms, including *secondary traumatic stress*, a state in which traumatic memories of patient suffering lead to negative psychological and physical changes in the caregiver (Coetzee & Klopper, 2010; Figley, 1995). Several scholars have recommended engaging in reflection to decrease compassion fatigue based on the assumption that it may decrease compassion fatigue or work burnout (Romano, Trotta, & Rich, 2013; Sheppard, 2016). However, little available research evidence clarifies the exact relationship between levels of reflection and levels of compassion fatigue, secondary traumatic stress, and work burnout among nurses in the United States. Further research is needed so that nurses can properly integrate reflection into practice in a way that minimizes their risk of developing compassion fatigue, secondary traumatic stress, and work burnout.

In addition, clarifying the relationship between nurses' levels of reflection and their levels of compassion fatigue and work burnout could positively affect social change in the nursing profession and healthcare in general. The prevalence of nursing professionals' compassion fatigue, secondary traumatic stress, or work burnout varies from as low as 26% to as high as 81% of samples of nurses in the United States (Sacco, Ciurzynski, Harvey, & Ingersoll, 2015; Sheppard, 2015). Nursing leaders and scholars need additional information about compassion fatigue, work burnout, and the effects of reflection on nurses (Asselin et al., 2013; Cocker & Joss, 2016; van Mol, Kompanje,

Benoit, Bakker, & Nijkamp, 2015). Data about the phenomena of reflection, compassion fatigue, secondary traumatic stress, and work burnout could be used to inform positive change within nursing practice and education environments and to inform interventions to reduce the stigmatizing and harmful occurrence of compassion fatigue, secondary traumatic stress, and work burnout among nurses (Sheppard, 2015). Positively changing the social environment of nursing practice could ultimately improve the quality and safety of nursing care given to patients.

In this introductory chapter, I describe the study background, research problem, purpose, and research question and hypothesis. I also outline a theoretical framework for the study. Finally, the chapter contains details on the nature of the research, variable definitions, assumptions, scope and delimitations, limitations, and significance of the study.

Background

Compassion fatigue has been defined as emotional, physical, social, intellectual, and spiritual changes that occur with nurses' progressive exposure to stress and nurse-patient interactions (Coetzee & Klopper, 2010). Another phenomenon related to compassion fatigue is *work burnout*, which has been defined as emotional, mental, and physical exhaustion in response to job-specific interpersonal stress (Maslach, Schaufeli, & Leiter, 2001; Pines & Aronson, 1988). Among nurses, compassion fatigue and work burnout are serious conditions that have been associated with significant problems such as moral distress, decreased job satisfaction, intent to leave nursing positions, low perceptions of patient care, and increased healthcare-associated infections (Cimiotti et al.,

2012; Kaur et al., 2013; Kelly, Runge, & Spencer, 2015; Luquette, 2016; Maiden, Georges, & Connelly, 2011; Rudman & Gustavsson, 2012; Rushton, Batcheller, Schroeder, & Donahue, 2015; Sheppard, 2015). Among nurses and other caregivers, compassion fatigue may also result in traumatic memories of patient suffering that lead to the negative psychological and physical changes of the phenomenon known as *secondary traumatic stress* (Coetzee & Klopper, 2010; Figley, 1995). Many psychological and emotional factors have been associated with compassion fatigue, secondary traumatic stress, or work burnout among nurses and other healthcare professionals, including empathy, depression, level of self-care or resilience, and low emotional intelligence (Cho & Jung, 2014; Dasan, Gohil, Cornelius, & Taylor, 2015; Drury, Craigie, Francis, Aoun, & Hegney, 2014; Hegney et al., 2014; Zeidner, Hadar, Matthews, & Roberts, 2013). Overall, compassion fatigue, secondary traumatic stress, and work burnout may negatively affect nurses physically, psychologically, and psychosocially. Negative physical, psychological, and psychosocial changes in nurses may ultimately decrease their well-being and the quality of the patient care that they provide.

The same patient and workplace situations that lead to the development of compassion fatigue, secondary traumatic stress, and work burnout may involve the process of reflection. Reflection, a sense-making mental process of understanding experiences in nursing practice, has been identified as a key aspect of nurses' thinking processes, feelings, self-awareness, and actions (Asselin et al., 2013; Bulman, Lathlean, & Gobbi, 2012). Theoretically, self-awareness resulting from reflection may negatively affect the development of compassion fatigue, secondary traumatic stress, and work

burnout (Hentz & Lauterbach, 2005; Kearney et al., 2009). Among nurses, reflection has been associated with both negative effects, such as anxiety and recurring painful memories, and positive effects, such as empathetic care and self-care practices (Asselin et al., 2013; Sheppard, 2015). For example, some researchers have found that self-care practices and interventions including reflection may help to decrease work burnout but not compassion fatigue or secondary traumatic stress (Chan, Wong, Tsui, & Tam, 2016; Koh et al., 2015). However, researchers have not yet clearly determined the exact relationship between reflection and the specific patient-care and workplace-related responses of compassion fatigue, secondary traumatic stress, and burnout among hospital-based acute care nurses in the United States.

Problem Statement

Compassion fatigue, secondary traumatic stress, and work burnout are harmful phenomena resulting from nurses' exposure to stressful patient and workplace situations (Coetzee & Klopper, 2010; Figley, 1995; Maslach et al., 2001; Meyer, Li, Klaristenfeld, & Gold, 2015). Over 25% of nurses across a variety of settings have been found to have moderate to high levels of compassion fatigue, and over 30% of samples of nurses across the United States may have work burnout (Aiken et al., 2012; Branch & Klinkenberg, 2015; Hinderer et al., 2014; Hunsaker, Chen, Maughan, & Heaston, 2015; Mason et al., 2014). Compassion fatigue, secondary traumatic stress, and work burnout may decrease nurses' physical, psychological, psychosocial, spiritual, and professional well-being as well as their ability to provide safe, compassionate patient care (Aiken et al., 2012; Anglade, 2014; Cimiotti et al., 2012; Drury et al., 2014; Hegney et al., 2014; Kaur et al.,

2013; Neville & Cole, 2013; Sawatzky et al., 2015). Researchers have clearly defined and assessed many factors that are related to compassion fatigue and work burnout, but they have not clearly identified all factors that may affect the development of compassion fatigue and work burnout.

Although the relationship between reflection and compassion fatigue, secondary traumatic stress, and burnout is not clearly understood, scholars recommend reflection as a mechanism to decrease compassion fatigue among nurses (Romano et al., 2013; Sheppard, 2016). According to Hentz and Lauterbach's (2005) model for reflective practice and Kearney et al.'s (2009) self-awareness-based model of self-care, low reflection during interactions with patients and the work environment may lead to less self-awareness and subsequently contribute to compassion fatigue and secondary traumatic stress. Compassion fatigue may contribute to work burnout (Kearney et al., 2009). Few researchers have validated the theoretical relationship between the concept of reflection and the problems of compassion fatigue, secondary traumatic stress, and work burnout among hospital-based acute care nurses in the United States. For example, reflection as a self-care or coping mechanism has been found to be negatively related to compassion fatigue or burnout among limited populations of hospice and palliative care workers but not among registered nurses in acute care settings (Alkema, Linton, & Davies, 2008; Koh et al., 2015). Therefore, studies are needed to provide a greater understanding of the relationship between reflection and compassion fatigue, secondary traumatic stress, and work burnout; to inform the proper integration of reflection into

nursing practice; and to inform interventions to decrease compassion fatigue, secondary traumatic stress, and burnout among hospital-based acute care nurses.

Purpose of the Study

The purpose of the study is to determine the relationship, if any, between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. I used a cross-sectional, correlational quantitative design to discover whether the variable of reflection is related to the variables of compassion fatigue, secondary traumatic stress, and work burnout. The study could be used to inform further studies to determine causation and prediction between the variable of reflection and the variables of compassion fatigue, secondary traumatic stress, and work burnout.

Research Question and Hypotheses

The research study was guided by the following question: What is the relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout? Based on the research question, the null hypothesis was as follows:

> H0: There is no significant relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout.

The alternative hypothesis was the following:

H1: There is a significant relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout.

Theoretical Foundation for the Study

The study was based on Hentz and Lauterbach's (2005) model for reflective practice and Kearney et al.'s (2009) self-awareness-based model of self-care. Few authors have developed conceptual or theoretical models that address both concepts of reflection and compassion fatigue; however, synthesizing the model for reflective practice and the self-awareness-based model of self-care provided an appropriate study foundation. According to Hentz and Lauterbach's model for reflective practice, reflection leads to awareness, specifically self-awareness. In the self-awareness-based model of self-care, Kearney et al. further developed the concept of self-awareness by discussing that low self-awareness during interactions with patient suffering and the work environment may lead to clinicians' empathy of liability, a negative form of empathy, and loss of perspective. Subsequently, empathy of liability and loss of perspective contribute to compassion fatigue and secondary traumatic stress disorder (Kearney et al., 2009). Compassion fatigue and secondary traumatic stress may directly promote the development of work-related burnout (Kearney & Weininger, 2011). Further research on the model for reflective practice and the self-awareness-based model of self-care has demonstrated their validity among healthcare professionals and nurses (Sansó et al., 2015; Williams, Gerardi, Gill, Soucy, & Taliaferro, 2009). Based on the model for reflective practice and the self-awareness-based model of self-care, reflection as an aspect

of self-awareness could theoretically be a contributing factor to compassion fatigue, secondary traumatic stress, and work burnout.

Nature of the Study

Based on the existing research, study background, study variables, and hypotheses, I used a quantitative, cross-sectional, correlational research method to determine whether there is a relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. A correlational quantitative research design was appropriate for the study to determine relationships between variables (Curtis, Comiskey, & Dempsey, 2016). Because few researchers have explored the relationships between the variable of reflection and the variables of compassion fatigue, secondary traumatic stress, and work burnout, a nonexperimental, correlational approach was selected to clarify relationships before designing and testing specific interventions involving the variables (Curtis et al., 2016). Several researchers have successfully used correlational studies to examine topics related to compassion fatigue as well as reflection and the related concept of self-reflection (Sansó et al., 2015; Slocum-Gori, Hemsworth, Chan, Carson, & Kazanjian, 2013; Stein & Grant, 2014). The study findings may be useful as a foundation for future experimental, quasi-experimental, or nonexperimental studies.

The research question and its associated hypotheses included four variables: reflection, compassion fatigue, secondary traumatic stress, and work burnout. A correlational study design was undertaken to determine positive or negative relationships between reflection and each of the variables of compassion fatigue, secondary traumatic

stress, and work burnout; therefore, no causal relationships were implied for variable classification as dependent or independent (Grove, Burns, & Gray, 2013). Reflection was operationally defined using the Groningen Reflective Ability Scale (GRAS), and compassion fatigue, secondary traumatic stress, and work burnout were operationally defined using the Compassion Fatigue—Short Scale (CF-Short Scale) and its subscales (Adams, Boscarino, & Figley, 2006; Aukes, Geertsma, Cohen-Schotanus, Zwierstra, & Slaets, 2007). Therefore, each variable was quantified as questionnaire scores for nurses' levels of reflection, compassion fatigue, secondary traumatic stress, and work burnout.

Quantitative Internet-based surveys were used to collect data about the variables of reflection, compassion fatigue, secondary traumatic stress, and work burnout. The surveys consisted of demographic items, the GRAS, and the CF-Short Scale and were distributed to registered nurses in a state of the southeastern United States (Adams et al., 2006; Aukes et al., 2007). To accept or reject the null hypothesis, I planned to use two-way multivariate analysis of variance (MANOVA) and simple regression analyses to analyze nurses' survey scores for relationships between nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout.

Definitions

Operationalization of the variables of reflection, compassion fatigue, secondary traumatic stress, and work burnout is presented in this section. In addition to developing operational definitions, I have considered each variable's conceptual definition and use in scholarly literature. Both the operational and conceptual definitions of each variable are used throughout the study.

Reflection

Reflection has been considered a way of being that includes thoughts, feelings, self-awareness, and action in a sense-making mental process of understanding experiences in nursing practice (Asselin et al., 2013; Bulman et al., 2012; Tashiro, Shimpuku, Naruse, Matsutani, & Matsutani, 2013). In the study, I examined reflection as a mental process among registered nurses practicing in hospital-based acute care settings. I operationalized experience-related reflection as nurses' total scores on the 23-item Groningen Reflective Ability Scale (GRAS; Aukes et al., 2007).

Compassion Fatigue

Coetzee and Klopper (2010) defined *compassion fatigue* as emotional, physical, social, intellectual, and spiritual changes that occur with nurses' progressive exposure to stress and nurse-patient interactions. I operationally defined the concept of compassion fatigue using the Compassion Fatigue—Short Scale (CF-Short Scale; Adams et al., 2006). Because compassion fatigue may theoretically lead to burnout according to Kearney et al. (2009), I measured nurses' overall levels of compassion fatigue.

Secondary Traumatic Stress

Secondary traumatic stress is a specific type of compassion fatigue that occurs as nurses are exposed to others' suffering or traumatic events (Coetzee & Klopper, 2010; Figley, 1995). Specifically, nurses experiencing secondary traumatic stress develop negative physical, psychological, and psychosocial changes due to remembering or knowing about others' suffering and traumatic experiences (Coetzee & Klopper, 2010; Figley, 1995, 2002). Secondary traumatic stress has been considered either a synonym for

compassion fatigue or a concept separate from compassion fatigue (Figley, 2002; Jenkins & Warren, 2012; Kearney et al., 2009). For the purposes of the study, I considered secondary traumatic stress to be a specific manifestation of compassion fatigue. I operationalized secondary traumatic stress using the five-item secondary traumatic stress subscale of the CF-Short Scale (Adams et al., 2006).

Work Burnout

Burnout, especially work-related burnout, is a concept that has been closely associated with compassion fatigue and secondary traumatic stress (Figley, 1995; Kearney et al., 2009). Theoretically, burnout may be a result of exposure to work environments as well as the patient suffering that typically contributes to compassion fatigue or secondary traumatic stress (Kearney et al., 2009). Because of the close association of burnout with the work environment, I have referred to the concept of burnout as *work burnout* for the purposes of the study. According to Pines and Aronson (1988), burnout is emotional, mental, and physical exhaustion among those included in situations involving emotions. Low personal accomplishment, depersonalization, and emotional exhaustion may also characterize a person experiencing burnout in the workplace (Maslach & Jackson, 1981). I operationalized work burnout as hospital-based acute care nurses' total scores on the eight-item job burnout subscale of the CF-Short Scale (Adams et al., 2006).

Assumptions

The structure and nature of the study were based on several assumptions. One assumption was that the subjects would provide instrument-based survey responses that

accurately represented their levels of reflection, compassion fatigue, secondary traumatic stress, and work burnout. Nurses experiencing work burnout, secondary traumatic stress, and compassion fatigue may experience emotional or psychological changes that could influence survey responses (Coetzee & Klopper, 2010; Maslach & Jackson, 1981). The stigmatizing nature of compassion fatigue could also influence nurses' responses (Sheppard, 2015). Reflection may affect nurses and nursing students emotionally, potentially contributing to anxiety, repetitive self-questioning, and emotional detachment (Asselin et al., 2013; Rees, 2013). Therefore, I took several measures to promote accurate responses and improve response rates for accurate result analysis and interpretation (Halbesleben & Whitman, 2013). Because the Internet-based surveys used for data collection were confidential, the subjects could complete the survey on their own time with results approximately equivalent to paper survey methods (Weigold, Weigold, & Russell, 2013). Further, because the study was not affiliated with a specific healthcare facility, subjects may have had less fear of retaliation from an employer than subjects of a facility or organization-sponsored study might have had. Despite attempts to increase accurate responses, I assumed that subjects' responses were valid.

Second, I assumed that the subjects had representative levels of reflection, compassion fatigue, work burnout, and secondary traumatic stress. Nurses who felt strongly about the topics may have been more likely to respond to the study, affecting nonresponse bias (Halbesleben & Whitman, 2013). However, the assumption that nurses have representative levels of the major variables used in the study was not a major

limitation, because the primary objective of the research was to examine the relationships between variables, not to examine the prevalence of variables.

Scope and Delimitations

The scope of the study was the correlation between reflection and compassion fatigue, secondary traumatic stress, and work burnout among practicing, hospital-based acute care registered nurses. I selected a quantitative correlational research focus to determine whether the theoretically related study variables were truly related among registered nurses practicing in hospital-based acute care settings (Hentz & Lauterbach, 2005; Kearney et al., 2009). Future researchers could use the study results to examine the causative nature of relationships; to develop physical, psychosocial, emotional, or spiritual interventions for compassion fatigue, secondary traumatic stress, and work burnout; to promote the proper integration of reflection into practice; and to educate nursing students about reflection and its interactions with compassion fatigue, secondary traumatic stress, and work burnout. Although many factors could potentially be related to compassion fatigue, secondary traumatic stress, and work burnout, the scope of the study was limited to the single factor of reflection.

Another specific focus of the study in relation to its validity was the selected population. Reflection, compassion fatigue, secondary traumatic stress, and work burnout have each been documented to occur within nursing populations in the United States (Aiken et al., 2012; Asselin & Fain, 2013; Asselin et al., 2013; Hinderer et al., 2014; Smart et al., 2014). Many of the situations that registered nurses encounter in practice may contribute to reflection, compassion fatigue, secondary traumatic stress, and work

burnout as well as the physical, emotional, psychological, psychosocial, and spiritual risks associated with these phenomena (Asselin et al., 2013; Coetzee & Klopper, 2010; Hinderer et al., 2014). Nurses in many practice settings may experience reflection, compassion fatigue, secondary traumatic stress, and work burnout; however, hospital-based acute care nurses were selected specifically as the target population because they comprised the largest section of the United States' nursing workforce as of 2015 (Smart et al., 2014; U.S. Department of Labor, Bureau of Labor Statistics, 2016). Therefore, examining the correlation between the concept of reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout has been a very relevant problem for the specific population of hospital-based acute care registered nurses in the United States.

There were several delimitations in the study. First, I selected a population of acute care nurses registered in one state due to the impracticality of sampling all hospital-based acute care nurses in the United States. I further delimited the target population of acute care nurses to registered nurses who were employed at the time of the study within hospital-based acute care settings in one state in the southeastern United States. Although restricting the population decreased the generalizability of the study findings to nursing populations in other states, examining a specific population improved the feasibility of the study. According to the U.S. Department of Labor, Bureau of Labor Statistics (2016), 1,587,040 nurses work in general medical and surgical hospitals in the United States. Therefore, I restricted the study scope and generalizability to a population of registered nurses employed in hospital-based acute care settings in one state.

A second major delimitation in the study was the choice of the model for reflective practice and the self-awareness-based model of self-care as a theoretical framework (Hentz & Lauterbach, 2005; Kearney et al., 2009). Other existing models such as Stein and Grant's (2014) self-reflection and insight path model and Figley's (2002) compassion stress and fatigue model addressed reflection and self-reflection separately from compassion fatigue, work burnout, and secondary traumatic stress (Aukes, Cohen-Schotanus, Zwierstra, & Slaets, 2009). However, the model for reflective practice and the self-awareness-based model of self-care contain a common concept of self-awareness that can be used to link the two models' propositions (Hentz & Lauterbach, 2005; Kearney et al., 2009). Considering both Hentz and Lauterbach's (2005) model for reflective practice and Kearney et al.'s (2009) self-awareness-based model of self-care, reflection may potentially influence the development of compassion fatigue, secondary traumatic stress, and work burnout. In addition, few studies have validated the conceptual relationships among reflection, compassion fatigue, secondary traumatic stress, and work burnout as they are expressed in the two models (Hentz & Lauterbach, 2005; Kearney et al., 2009; Sansó et al., 2015; Williams et al., 2009). The study findings have helped to determine the usefulness of the model for reflective practice and the self-awareness-based model of self-care, especially as the models are applied to hospital-based acute care nursing populations in the United States.

Limitations

Performing a correlational study limited potential inferences based on the study results (Curtis et al., 2016). However, future researchers could use correlational data on

the relationships between reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout to inform studies that examine causation or intervention. Greater understanding of relationships among the study variables may help future researchers to properly safeguard subjects' well-being. Therefore, the limitation of study design was not a significant concern for the study.

Second, the assumption that the chosen instruments accurately measured selected variables limited the study to concepts as operationalized by the GRAS and CF-Short Scale (Adams et al., 2006; Aukes et al., 2007). Each variable may have included other relevant aspects not assessed by the GRAS and CF-Short Scale. One area that decreased the limitation of concept measurement was that the validity of the GRAS and CF-Short Scale were strong as compared to previous literature on reflection and compassion fatigue (Adams et al., 2006; Aukes et al., 2007). The reliability levels of the GRAS-English version and CF-Short Scale are relatively high at .80 and .90, respectively (Adams et al., 2006; Grosseman et al., 2014). The CF-Short Scale has had relatively high reliability and validity in comparison to other scales measuring compassion fatigue and secondary traumatic stress (Bride, Radey, & Figley, 2007). One additional limitation to using the CF-Short Scale was the lack of available literature to validate its use among nurses; however, it has been validated among social workers and other professionals who work closely with stressful interpersonal situations (Adams et al., 2006; Ahmad, Arshad, & Kausar, 2015). Findings generated from the study helped to establish the reliability and validity of the CF-Short Scale among nurses. Overall, the reliability and validity of the GRAS and CF-Short Scale partially mitigated the limitation of concept measurement.

Third, the study was limited by using Internet-based survey methods. Because the surveys were Internet-based, it was difficult to decrease nonresponse bias and improve completion rates. According to Halbesleben and Whitman (2013), nonresponse bias is an important limitation to consider, especially given that it may originate from several different sources. To improve survey completion and response rates, I selected relatively short instruments compared with other available instruments. In the informed consent and informational materials for subjects, I emphasized the significance of the study for nursing professionals. The response rate, though, was still low due to distributing the surveys through registered nurses' publicly available email addresses. Although nurses may have access to the Internet if they have a valid email address, they may not access that email or may only access the email using a mobile device. Therefore, I used a survey software that allowed mobile device capabilities to increase the surveys' accessibility for all potential subjects.

A fourth limitation related to study design was that using a cross-sectional research design prevented the study of variables over time. The study was limited to determining data at one point in time. Future studies, however, may examine the variables through a longitudinal design. Because the primary objective of the study was to examine relationships between variables as they occurred in a sample of registered nurses, it was appropriate to use a cross-sectional design for the study.

A final limitation was the generalizability of the study findings. Because the study was performed with a population of hospital-based acute care nurses licensed in one geographical region, I was unable to generalize the results to other populations and

specialties of nurses throughout the United States. Recruiting subjects from the largest possible pool of the population helped to increase the generalizability of the study findings within the target population. Throughout the study and results interpretation, I acknowledged the limitation of generalizability, and I attempted to increase the generalizability of the study when possible.

Significance

The study findings are significant for nursing research, practice, and education. Understanding the relationship between hospital-based acute care nurses' reflection and their compassion fatigue, secondary traumatic stress, and work burnout helps to fill a gap in the research literature. Although researchers have documented the potentially negative psychological effects of reflection, few researchers in the United States have examined how reflection may relate to levels of compassion fatigue, secondary traumatic stress, and burnout among nurses in response to patient and work situations (Asselin et al., 2013; Kearney et al., 2009). The study findings could be the basis for future experimental or quasi-experimental studies that determine causation between the variable of reflection and the variables of compassion fatigue, secondary traumatic stress, and work burnout. Additionally, the findings can be used to raise awareness about reflective nursing practice, compassion fatigue, secondary traumatic stress, and work burnout, and they could help to inform interventions to reduce the rate of compassion fatigue, secondary traumatic stress, and work burnout among nurses.

The study findings can also inform nursing practice. Popular sources and scholars recommend reflection and self-reflection to reduce compassion fatigue in nurses but do

not provide strong, if any, research to support the recommendations (Romano et al., 2013; Sheppard, 2016). Therefore, the research findings could provide an evidence base for scholars to appropriately integrate reflection into nursing education, nursing practice, and psychosocial, emotional, and spiritual interventions for compassion fatigue, secondary traumatic stress, and work burnout.

Finally, the study findings can contribute to positive social change within the nursing profession. Compassion fatigue, secondary traumatic stress, and work burnout have been associated with nurses' increased job turnover and decreased caring ability as well as with decreased patient care quality and increased healthcare-associated infections (Anglade, 2014; Cimiotti et al., 2012; Kaur et al., 2013; Rudman & Gustavsson, 2012; Sawatzky et al., 2015; Van Bogaert et al., 2014). Given that the prevalence of compassion fatigue or work burnout may be greater than 70% among some populations of nurses in the United States, the study and related studies could raise awareness of the need for interventions and education to decrease the rate of compassion fatigue, secondary traumatic stress, and work burnout among nurses (Sheppard, 2015). Reducing compassion fatigue, secondary traumatic stress, and work burnout could promote positive changes in nurses' well-being and overall job performance. Ultimately, positive social change resulting from the research could contribute to improved patient care quality.

Summary

Compassion fatigue, secondary traumatic stress, and work burnout are three related phenomena that have been found to occur because of exposure to patient situations and the work environment and that lead to changes that affect nurses

physically, psychologically, and professionally (Coetzee & Klopper, 2010; Figley, 1995; Kearney et al., 2009). However, few studies have empirically validated the theoretically proposed influence of reflection on the occurrence of compassion fatigue, secondary traumatic stress, and work burnout (Hentz & Lauterbach, 2005; Kearney et al., 2009). Using a correlational, cross-sectional quantitative study design, I determined the relationship between the variable of reflection and the variables of compassion fatigue, secondary traumatic stress, and work burnout among hospital-based acute care nurses. I made several assumptions, defined the study scope and delimitations, and set several limitations on the study. The study findings could be significant in promoting positive social change within the nursing profession and informing readers of the potential risks or benefits of using reflection-based interventions to decrease compassion fatigue, secondary traumatic stress, and work burnout among registered nurses.

Chapter 2: Literature Review

Compassion fatigue has been defined as emotional, physical, social, intellectual, and spiritual changes that occur with nurses' progressive exposure to stress and nurse-patient interactions (Coetzee & Klopper, 2010). Researchers have identified many psychological factors that are associated with compassion fatigue, secondary traumatic stress, and work-related burnout, including empathy, resilience, emotional intelligence, and self-care strategies (Cho & Jung, 2014; Dasan et al., 2015; Zeidner et al., 2013). According to Hentz and Lauterbach's (2005) model for reflective practice and Kearney et al.'s (2009) self-awareness-based model of self-care, low reflection may lead to lessened self-awareness and subsequently contribute to the phenomenon of compassion fatigue and its specific manifestation as secondary traumatic stress as well as the phenomenon of work-related burnout. However, few researchers have validated the theoretical relationship between reflection and compassion fatigue, secondary traumatic stress, and work burnout among hospital-based acute care nurses in the United States. The purpose of the study was to determine the relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout.

Researchers and leaders in nursing and other disciplines have examined many aspects of reflection and compassion fatigue. Reflection has been found to be not only a key part of nurses' critical thinking processes, but also an emotional coping mechanism in response to exposure to patient situations (Asselin & Schwartz-Barcott, 2015; Asselin et al., 2013; Koh et al., 2015). Researchers have discovered that the use of reflection as a

coping or self-care mechanism may be associated with positive psychological effects such as professionalism and increased empathy as well as negative psychological effects such as anxiety, emotional detachment, and reliving traumatic experiences (Asselin & Schwartz-Barcott, 2015; Rees, 2013). Among nurses, compassion fatigue has been proposed to result from negative responses to patient suffering (Kearney et al., 2009). Reflection has been found to be protective against work burnout, a result of compassion fatigue, among palliative care nurses and providers in Singapore (Kearney et al., 2009; Koh et al., 2015). However, few researchers have clearly documented whether reflection is directly correlated with compassion fatigue and associated concepts such as secondary traumatic stress and work burnout in the United States. I examined the potential relationship between reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout among acute care nurses practicing in hospital settings in the United States.

In this literature review chapter, I review the literature relevant to the potential relationships between reflection and the variables of compassion fatigue, secondary traumatic stress, and work burnout. First, I describe the strategy for searching the relevant literature. Second, I present the theoretical foundation that was used to guide the literature review and subsequent study. Third, I examine the literature related to the variables of reflection, compassion fatigue, secondary traumatic stress, and work burnout. Finally, I conclude the chapter with a critical analysis of the current knowledge and gaps in the literature related to the study variables.

Literature Search Strategy

Multiple databases, search terms, and limiters were used in searching the existing literature for sources relevant to reflection, compassion fatigue, secondary traumatic stress, and work burnout among nurses and other healthcare workers. I systematically searched several databases, including CINAHL, MEDLINE, ProQuest, PubMed, Ovid, and Science Direct. I used the Google and Google Scholar search engines to search for additional resources and literature. Search terms used included *compassion fatigue*, *secondary traumatic stress*, *burnout*, *self-reflection*, *reflection*, *reflective practice*, *reflective ability*, *compassion fatigue prevention*, *registered nurses*, *nurses*, *nursing*, *self-care*, *self-awareness*, and *empathy*. I used the search terms alone and in various combinations to find additional sources. Article reference lists and journal webpage links were also examined to find other related literature. I evaluated the results of the searches based on their relevance and quality.

During the literature review, I applied several limits to the searches, such as publication date and source characteristics. In limiting publication dates, I searched literature published from 2012 to 2017, although I examined older literature for sources related to theory and concept development. In addition to reviewing peer-reviewed journal articles, I examined dissertations, theses, books, conference papers and presentations, and other published works for relevant research findings, concept development, and theoretical models. Few sources directly examined relationships between the concept of reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout among nurses. However, I located many literature

sources related to the individual concepts or to related concepts. The sources that I located were more than adequate to establish a study foundation in the literature.

Theoretical Foundation

The study was based on Hentz and Lauterbach's (2005) model for reflective practice and Kearney et al.'s (2009) self-awareness-based model of self-care. Few theoretical or conceptual models describe a relationship between the concept of reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout. However, a synthesis of the model for reflective practice and the self-awareness-based model of self-care was an appropriate foundation for the study because it could explain relationships between the concept of reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout. Therefore, low reflection as an aspect of self-awareness could contribute theoretically to compassion fatigue, secondary traumatic stress, and work burnout in nurses who interact directly with patient suffering within a work environment (Hentz & Lauterbach, 2005; Kearney et al., 2009). The following subsections include a description and analysis of the two models as a theoretical foundation for the study. The final subsection concludes with a synthesis and application of both models.

Model for Reflective Practice

Hentz and Lauterbach (2005) published their model for reflective practice to explain how reflection affects nurses' actions and self-care. According to Hentz and Lauterbach's model for reflective practice, reflection leads to awareness. Awareness may include awareness of self or of other people (Hentz & Lauterbach, 2005). Ultimately,

reflection along with awareness results in reflection-informed action (Hentz & Lauterbach, 2005). In the study, I examined the correlation of nurses' reflection to their responses to patient care situations, especially the responses of compassion fatigue, secondary traumatic stress, and work burnout.

Model development and validation. Few researchers have validated the model for reflective practice, especially Hentz and Lauterbach's (2005) proposed relationship between reflection and self-awareness. Using Hentz and Lauterbach's model as a framework for a qualitative study of nursing graduate students, Williams et al. (2009) found that reflective journaling led to greater awareness of self and others. Although they have not cited the model for reflective practice, other researchers have documented a causative relationship between the concepts of reflection and self-awareness among hospital volunteers, nursing students, and social work students (Germain et al., 2016; Hsu & Wang, 2012; Kwong, 2016). Braun, Gill, Teal, and Morrison (2013) qualitatively analyzed medical students' reflective essays, finding evidence of self-awareness as a result of the reflective process. The validated relationship between reflection and self-awareness could be linked to the relationship that Kearney et al. (2009) proposed between self-awareness and compassion fatigue. As proposed in Hentz and Lauterbach's model for reflective practice, reflection has been found to contribute to the development of self-awareness.

Rationale for model selection. Hentz and Lauterbach's (2005) model for reflective practice was selected as part of the study's theoretical background for several reasons. First, few available models clearly link the concepts of reflection and

compassion fatigue, secondary traumatic stress, and work burnout. Therefore, I selected a model that linked reflection to a known factor, self-awareness, that affects compassion fatigue, secondary traumatic stress, and work burnout (Hentz & Lauterbach, 2005; Kearney et al., 2009; Sansó et al., 2015). Second, other models do not clearly describe the exact relationship between reflection and self-awareness. For example, Aukes et al. (2009) developed the float model of personal reflection in healthcare, in which personal reflection and awareness are the unseen stabilizing support for healthcare workers' professional behavior and self-care. In another model, the self-reflection and insight path model, Stein and Grant (2014) described and validated positive relationships between reflection on self and the concepts of insight and dysfunctional attitudes. Both the float model of personal reflection in healthcare and the self-reflection and insight path model do not clearly relate reflection to compassion fatigue, secondary traumatic stress, or work burnout. Ultimately, based on the available models, I selected Hentz and Lauterbach's model for reflective practice as one of the components of the theoretical foundation for the study.

Self-Awareness-Based Model of Self-Care

Kearney et al.'s (2009) self-awareness-based model of self-care applies the concept of self-awareness introduced in Hentz and Lauterbach's (2005) model for reflective practice by suggesting that low self-awareness during interactions with patient suffering and the work environment may result in clinicians' empathy of liability and loss of perspective. The harmful phenomena of empathy of liability and loss of perspective subsequently result in compassion fatigue and secondary traumatic stress disorder

(Kearney et al., 2009). Kearney et al. included work burnout as a consequence of exposure to the work environment as well as a result of compassion fatigue and secondary traumatic stress. From the opposite perspective, Kearney et al. described that increased self-awareness may lead to the concept of exquisite empathy toward patients and expanded perspective about the workplace. Exquisite empathy and expanded perspective may result in the beneficial phenomena of compassion satisfaction, vicarious posttraumatic growth, or healing connections (Kearney et al., 2009). For the study, I focused specifically on the relationships that Kearney et al. proposed among self-awareness, compassion fatigue, and work burnout.

Model development and validation. Kearney et al. (2009) first developed the self-awareness-based model of self-care through a case study analysis of physician self-care during interactions with dying patients. In 2011, Kearney and Weininger published a pictorial model of the self-awareness-based model of self-care. Kearney and Weininger's pictorial model is similar to that described in their original article, although the pictorial model includes the concept of expanded perspective and specifies the concept of healing connections as synonymous with compassion satisfaction or vicarious posttraumatic growth. However, Kearney and Weininger did not significantly change the central concepts of self-awareness and compassion fatigue, secondary traumatic stress, and burnout throughout their revision and development process. Although Kearney and Weininger interpreted the model from a Buddhist perspective in 2011, in the current study I applied the model primarily from a conceptual perspective.

The conceptual relationships that Kearney et al. (2009) expressed in the self-awareness-based model of self-care are supported by research literature, especially the proposed relationship between self-awareness and the phenomena of compassion fatigue, secondary traumatic stress, and work burnout. However, very few researchers have used the self-awareness-based model of self-care as a theoretical foundation. One study that applied the self-awareness-based model of self-care was a study by Sansó et al. (2015), which validated Kearney et al.'s proposed negative relationship between awareness and the two concepts of burnout and compassion fatigue among Spanish palliative care nurses and other healthcare professionals. Although few researchers have used the self-awareness-based model of self-care as a theoretical framework, early research using the model seems to validate at least some of its proposed conceptual relationships.

Few researchers have used the self-awareness-based model of self-care as a theoretical foundation for their studies; however, other researchers' results support some of the model's theoretical propositions. For example, Ketola and Stein (2013) performed a mixed-methods study of undergraduate nursing students, finding that students' interactions with psychiatric patients led to increased empathy. Kearney et al.'s (2009) proposition that patient interactions incorporating either high or low self-awareness affect the development of empathy is strengthened by Ketola and Stein's findings. In addition, Williams, Cameron, Ross, Braadbaart, and Waiter (2016), during the development of the Action and Feelings Questionnaire, found that empathetic traits are positively associated with self-awareness of feeling-based actions among adults in the United Kingdom. The Williams et al. findings support the proposition of Kearney et al. that self-awareness

during interactions with patients influences the development of either phenomena of empathy of liability or exquisite empathy among healthcare professionals. Other researchers have correlated empathy with compassion fatigue, as Kearney et al. proposed in their model (Cho & Jung, 2014). Existing studies, although not based on the self-awareness-based model of self-care, validate some of its key propositions, especially the propositions linking some of the key concepts relevant to the study.

Rationale for model selection. The self-awareness-based model of self-care was selected as part of the theoretical foundation of the study for several reasons. Of other theoretical and conceptual models of compassion fatigue, Kearney et al.'s (2009) model specifically addresses the reflection-associated concept of self-awareness (Hentz & Lauterbach, 2005; Hsu & Wang, 2012; Kwong, 2016). In addition, models such as Figley's (2002) compassion stress and fatigue model do not address concepts related to self-care, such as self-awareness, as specifically as they are addressed in the self-awareness-based model of self-care. In that reflection has been documented as a self-care response to patient suffering, a self-care model that emphasizes responses to patients such as compassion fatigue and burnout was an appropriate choice for the study (Asselin et al., 2013). For example, Nolte, Downing, Temane, and Hastings-Tolsma (2017) proposed a model of compassion fatigue that includes reflection as a self-care strategy that could affect triggering factors for compassion fatigue, but not necessarily burnout. Ultimately, I selected the self-awareness-based theory of self-care based on its relevance to the study.

Theory Integration and Application to Current Study

In the study, I examined the correlation between the concept of reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout. According to propositions within the model for reflective practice and the self-awareness-based model of self-care, reflection positively influences the development of self-awareness, a key factor that influences whether medical professionals' responses to patient suffering result in empathy of liability and, subsequently, compassion fatigue, secondary traumatic stress, and work burnout (Hentz & Lauterbach, 2005; Kearney et al., 2009). If reflection contributes to self-awareness, lower levels of reflection could potentially be related to higher levels of compassion fatigue, secondary traumatic stress, and work burnout (Hentz & Lauterbach, 2005; Kearney et al., 2009). I attempted to determine the validity of the relationship between reflection and compassion fatigue, secondary traumatic stress, and work burnout in the study. A pictorial representation of the theoretical foundation for the study can be found in Figure 1.

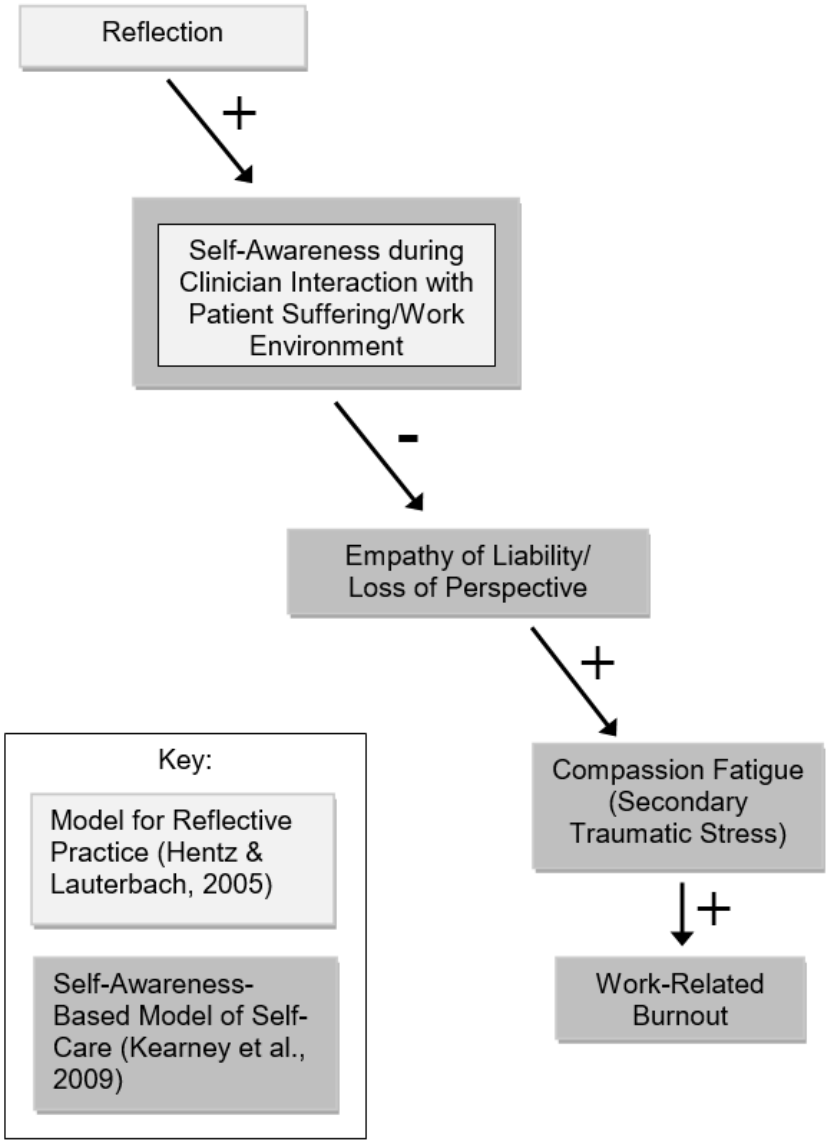

Figure 1. Theoretical foundation synthesizing propositions of the model for reflective practice and the self-awareness-based model of self-care.

In addition, the study contributes to the body of literature validating the model for reflective practice and the self-awareness-based model of self-care among hospital-based acute care nurses. The study results could contribute to the development of a new theoretical model that integrates some of the key concepts and propositions in the model for reflective practice and the self-awareness-based model of self-care. In the following sections, I discuss some of the two models' key concepts that were used in the study.

Literature Review Related to Key Variables

This literature review section addresses the definitions and current knowledge about the key study variables of reflection, compassion fatigue, secondary traumatic stress, and work burnout. Each of the study variables has been conceptually and operationally defined as well as studied among nurses and other populations. In the following sections, I define each variable, discuss methods in which the variables have been operationalized, and synthesize current research regarding the variables.

Reflection

Definition. Historically, scholars have attempted to clearly define the concept of reflection. Schön (1983) described two types of reflection within professional practice: reflection-in-action and reflection-on-action. Reflection, according to Schön, may involve recognition and critical evaluation of attitudes, processes, and theories either during an action, process, or situation (reflection-in-action) or following the completion of an action, process, or situation (reflection-on-action). Within the field of education, Boud, Keogh, and Walker (1985) specifically presented reflection as a process of thinking before, during, and after a situation or action within learning. Although Schön and other

historical authors developed the concept of reflection in general, they did not define reflection within nursing practice.

Researchers have continued to define and develop the concept of reflection specifically as a process occurring in nursing practice. According to Bulman et al. (2012), reflection is a method of being that includes thoughts, feelings, self-awareness, and action in a critical, sense-making process of understanding experiences. Self-reflection via reflexivity is a part of the reflection process (Bulman et al., 2012). In a concept analysis of reflection, Tashiro et al. (2013) described reflection as a process that includes description, internal examination, critical analysis, evaluation, planning actions, and emotional reactions. Asselin et al. (2013) constructed a four-phase process of reflection based on qualitative interviews with experienced acute care nurses. Analysis of the interviews revealed a process for reflection with four phases of framing the situation, pausing, engaging in reflection, and developing intentions about future practice (Asselin et al., 2013). Each definition by Bulman et al., Tashiro et al., and Asselin et al. defined reflection as a process. Based on existing definitions, reflection was considered as a process for the purposes of the study.

The concept of reflection has been discussed in context of several other related concepts, such as reflective thinking, reflective practice, and reflective ability. Reflection in general has been closely linked to both reflective thinking and reflective practice, especially in nurses (Asselin & Fain, 2013). Schön (1983) explained the concept of reflection within the context of practice, essentially introducing the concept of reflective practice. In a concept analysis of reflective practice, Goulet, Larue, and Alderson (2016)

described reflective practice as a guided, deliberate process toward change or learning. Reflective ability is another quality that has been found to develop as a result of developing skills in reflection (Aronson, Niehaus, Hill-Sakurai, Lai, & O'Sullivan, 2012). Based on the literature, the related concepts of reflective thinking, reflective practice, and reflective ability appear to be results of the actual process or event of reflection.

Operationalization. The concept of reflection has been operationalized by several researchers. First, Aukes et al. (2007) measured personal experience-related reflection among medical students by developing the 23-item Likert scale-based Groningen Reflective Ability Scale (GRAS). During the development of the GRAS, Aukes et al. (2007) established face and construct validity by rigorous expert analysis and psychometric structure analysis. The GRAS has been validated among various populations and in different languages, including Danish, Dutch, and English (Andersen, O'Neill, Gormsen, Hvidberg, & Morcke, 2014; Aukes et al., 2007; Aukes, Geertsma, Cohen-Schotanus, Zwierstra, & Slaets, 2008; Morse, 2012). Reliability of the GRAS has been reported as Cronbach's alphas of .83 and .74 on two separate tests of the Dutch version and as a Cronbach's alpha of .80 of a study using the English version (Aukes et al., 2007; Grosseman et al., 2014). The GRAS is one of several instruments that researchers have used to operationalize reflection.

A second instrument that measures reflection directly within nursing practice is the Critical Reflective Inquiry (CRI) Assessment Tool, developed by Asselin and Fain (2016). In the CRI, three subscales assess the descriptive, reflective, and critical phases of reflection (Asselin & Fain, 2016). According to Asselin and Fain, the 45-item CRI tool

had adequate content validity with expert analysis but will need additional construct validity and reliability testing in the future.

Third, a less recently developed instrument that measures self-reflection is the 20-item Self-Reflection and Insight Scale (SRIS), which was developed by Grant, Franklin, and Langford (2002) and validated among English- and Chinese-speaking populations (Chen, Lai, Chang, Hsu, & Pai, 2016; Roberts & Stark, 2008). The SRIS's two subscales of self-reflection and insight had adequate reliability levels with test-retest correlations of .77 and .78, respectively. In addition, Grant et al. found that the discriminant and convergent validity was adequate based on other psychometric measures related to self-reflection and insight. Overall, the SRIS, CRI, and GRAS are some key instruments that researchers and scholars have used to operationally define and study the concept of reflection and specific types of reflection, such as self-reflection.

Synthesis of research findings. Researchers have examined many aspects of reflection among nurses, healthcare professionals, and various other populations. I primarily reviewed literature related to reflection among nurses as well as relevant literature among other populations, especially healthcare professionals. In the following sections, I examine the occurrence of reflection among nurses, situations in which nurses engage in reflection, and positive and negative effects of reflection.

Occurrence of reflection. Reflection has been found to be an important quality among nurses, nursing students, and other healthcare professionals. Asselin et al. (2013) found that nurses identified reflection as a key aspect of critical thinking processes and practice decisions. Reflection and reflective ability may be facilitated by various

interventions, including group discussions, educational interventions, and reflective journals (Aronson et al., 2012; Asselin & Fain, 2013; Asselin & Schwartz-Barcott, 2015; Duke, Grosseman, Novack, & Rosenzweig, 2015; Hsu & Wang, 2012). Also, the ability to reflect may decrease over time. Chalmers, Dunngalvin, and Shorten (2011) found that final-year Irish medical students experienced decreased reflective ability throughout the school year. The exact amount of reflection that nurses engage in has yet to be clearly quantified in the literature. For example, scales such as the Groningen Reflective Ability Scale measure relatively higher or lower amounts of reflection (Aukes et al., 2007). Although reflection has not been clearly quantified among nurses, researchers have examined how reflection occurs in nursing practice as well as how to increase reflection among nurses and nursing students.

Situations that stimulate reflection. Nurses and nursing students have been found to engage in reflection in many types of situations. Reflection often occurs in response to various patient situations either directly or in later recall (Asselin et al., 2013; Koh et al., 2015; Rees, 2013). Asselin et al. (2013) performed qualitative interviews to understand the reflection process in experienced nursing professionals, revealing that patient situations that stimulate reflection often include situations that require medical or nursing interventions. A secondary narrative analysis of Asselin et al.'s study revealed that reflection-stimulating situations may include those that require a follow-up or an urgent response to a crisis (Asselin & Schwartz-Barcott, 2015). Bulman et al. (2012) found that change, confirmation, and evaluation were important aspects of nurses' reflective process. In addition, according to analysis of surveys administered to Norwegian nursing

students, nursing students may acquire reflective thinking as they correlate theory with practice (Hatlevik, 2012). However, Hatlevik's (2012) study needed additional validation to confirm the influence of reflective thinking on practice. A final influencing factor on nurses' reflection may be environment and psychosocial factors, according to interviews with nurses and instructors in a palliative care training program (Bulman et al., 2012). Many types of situations and stimuli may lead to reflection among nurses and nursing students.

Positive effects of reflection. Reflection has been found to have several positive effects on nurses and healthcare professionals. Among medical students, physicians, hospital volunteers, and nursing students, reflection and reflective ability have been associated with empathy, compassion, improved problem-solving and decision-making ability, goal-setting, professionalism, and increased critical thinking ability and skills (Braun et al., 2013; Burman, Boscardin, & Van Schaik, 2014; Germain et al., 2016; Hoffman, Shew, Vu, Brokaw, & Frankel, 2016; Hsu & Wang, 2012; Lobo, Noronha, & Prakash, 2013; Stirling, 2015). In addition, reflection may lead to greater self-awareness in populations such as nursing graduate and undergraduate students as well as medical students (Braun et al., 2013; Hsu & Wang, 2012; Kwong, 2016; Williams et al., 2009). Researchers have often found that self-awareness occurs as a result of formal reflective processes, such as journaling and reflective essays (Braun et al., 2013; Hsu & Wang, 2012; Kwong, 2016; Williams et al., 2009). According to research on psychology students, Stein and Grant (2014) found that reflection on self may go beyond perspectives and self-awareness to impact self-insight and well-being. In several qualitative studies,

nurses, nursing students, and healthcare volunteers described how reflection may also contribute to various coping and self-care strategies as well as empathetic care (Asselin et al., 2013; Germain et al., 2016; Rees, 2013). A reflective response to patients is one of several protective responses against burnout among nurses and other healthcare professionals (Koh et al., 2015). Overall, reflection seems to have several positive effects on nurses and other healthcare professionals' well-being and practice.

Negative effects of reflection. Although reflection may affect nurses positively, it may also have several negative effects on nurses and other healthcare professionals. Stein and Grant (2014) pointed out that various emotions may arise from the reflection process depending on the subject of reflection and on personal characteristics. For example, in a study by Lutz, Roling, Berger, Edelhäuser, and Scheffer (2016), medical students' emotions were affected through group reflection. Another study by Jack (2017) identified experiences with and contributing factors to compassion fatigue that were revealed within nursing students' reflective poetry. Asselin and Schwartz-Barcott (2015) and Asselin et al. (2013) found that nurses often experience pauses in reflection that lead to anxiety and repetitive self-questioning, obstructing the resolution of the reflective process. An incomplete reflection process may occur in response either to patients' situations or to nurses' actions in those situations (Asselin & Schwartz-Barcott, 2015). According to Rees (2013), nursing students used reflection to develop emotional detachment in response to patients' situations. However, painful memories may continue to resurface even after they occur (Sheppard, 2015). Further research is needed to understand how reflection affects nurses' well-being, because reflection can be either a beneficial or

potentially detrimental psychological response to patient situations encountered in nursing practice.

Compassion Fatigue and Secondary Traumatic Stress

In the study, I examined the synonymous concepts of compassion fatigue and secondary traumatic stress. Although some authors consider secondary traumatic stress to be different from compassion fatigue, many other scholars consider compassion fatigue and secondary traumatic stress to be concepts describing the same phenomenon (Figley, 1995; Jenkins & Warren, 2012; Kearney et al., 2009; Sansó et al., 2015). According to the self-awareness-based model of self-care, one of the key models of the theoretical foundation for the study, secondary traumatic stress is the same phenomenon as compassion fatigue (Kearney et al, 2009). Therefore, in the following subsections, I address both concepts of compassion fatigue and secondary traumatic stress together. For clarity, however, I use the term *compassion fatigue* to refer to both concepts unless I am referring to a source that specifically uses the term of *secondary traumatic stress*. In the following sections, I define compassion fatigue, give an overview of how the concept has been operationalized, and explain causes, results, and interventions for compassion fatigue among nursing professionals.

Definitions.

Compassion fatigue. Compassion fatigue has been widely studied and documented in nursing literature. In 1992, Joinson applied the concept of compassion fatigue to nurses without formally studying or developing a clear definition among nursing professionals. Several years later, Figley (1995) described compassion fatigue as

both secondary traumatic stress and associated burnout that occurs as caregivers are exposed to trauma. According to Figley (2002), traumatic events or suffering in patients' lives cause compassion fatigue and secondary traumatic stress, or preoccupation, arousal, and tension in a caregiver. Figley's definition has been widely accepted and applied in the development of compassion fatigue models, such as the self-awareness-based model of self-care which was used in the study (Kearney et al., 2009). Also, the concept of compassion fatigue was developed to describe negative responses to people's suffering (Stamm, 2002). More recently, Coetzee and Klopper (2010) defined compassion fatigue specifically as emotional, physical, social, intellectual, and spiritual changes that occur with nurses' progressive exposure to stress and nurse-patient interactions. As the body of literature grows related to compassion fatigue in nurses and other healthcare providers, scholars have called for additional clarification and research related to the concept of compassion fatigue (Sorenson, Bolick, Wright, & Hamilton, 2016). Although the various definitions of compassion fatigue vary slightly, they emphasize caregivers' responses to stressful or traumatic situations in the caregiving experience.

Compassion fatigue has often been linked to the concepts of secondary traumatic stress and burnout. Figley (1995) described secondary traumatic stress and burnout as subcategories of compassion fatigue, although more recently scholars have viewed burnout or secondary traumatic stress as either different from or synonyms for compassion fatigue (Figley, 2002; Jenkins & Warren, 2012; Stamm, 2005). In 2002, Figley proposed that compassion fatigue is a type of burnout. Other authors, such as Coetzee and Klopper (2010), have simply considered compassion fatigue as a solitary

phenomenon. In their self-awareness-based model of self-care, Kearney et al. (2009) proposed that secondary traumatic stress is a synonym of compassion fatigue and that work-related burnout is a result of compassion fatigue. Because of the many differing perspectives on the concepts of compassion fatigue and secondary traumatic stress, I used Kearney et al.'s construct of compassion fatigue, secondary traumatic stress, and work-related burnout for the study.

Secondary traumatic stress. *Secondary traumatic stress* has been described as a specific manifestation of compassion fatigue in which traumatic memories of patient suffering lead to negative psychological and physical changes in the caregiver (Coetzee & Klopper, 2010; Figley, 1995). Secondary traumatic stress has been closely associated with posttraumatic stress disorder because both concepts are associated with exposure to traumatic experiences (Mealer & Jones, 2013). However, long-term worldview changes tend to characterize posttraumatic stress disorder rather than the recall of memories that characterizes secondary traumatic stress (Mealer & Jones, 2013). Although posttraumatic stress shares common characteristics with secondary traumatic stress and compassion fatigue as analyzed by Mealer and Jones (2013), I limited this study to the exploration of secondary traumatic stress and compassion fatigue.

Many authors have considered secondary traumatic stress to be synonymous with compassion fatigue (Figley, 2002; Kearney et al., 2009; Jenkins and Warren, 2012). Qualitative analysis of secondary traumatic stress and compassion fatigue among nurses has revealed that the two concepts share many factors (Sheppard, 2015). Many researchers have used the construct of secondary traumatic stress as an aspect of

compassion fatigue (Branch & Klinkenberg, 2015; Craigie et al., 2016; Flarity, Gentry, & Mesnikoff, 2013; Hegney et al., 2014; Kelly et al., 2015; Mason et al., 2014; Neville & Cole, 2013; Smart et al., 2014). Still others have described compassion fatigue as a specific manifestation of secondary traumatic stress (Duarte & Pinto-Gouveia, 2016). Additional researchers have assessed compassion fatigue and secondary traumatic stress separately or have not differentiated secondary traumatic stress from compassion fatigue (Hinderer et al., 2014; Hunsaker et al., 2015; Măirean, 2016; Meyer et al., 2015; Slocum-Gori et al., 2013). For the purposes of the study, I considered secondary traumatic stress to be a more specific manifestation of compassion fatigue. However, because of the close relationship between compassion fatigue and secondary traumatic stress and differing uses in much of the research literature, I will use the general concept of compassion fatigue to describe both of the concepts of compassion fatigue and secondary traumatic stress in the following literature review sections. The concept of secondary traumatic stress will be used specifically in the case of several authors who clearly differentiate secondary traumatic stress from compassion fatigue.

Operationalization. Several scholars have developed methods to operationalize the abstract concept of compassion fatigue. One of the most well-known and well-used methods to operationalize compassion fatigue is the Professional Quality of Life (ProQOL) Scale, which was originally developed from the earlier Compassion Satisfaction and Fatigue Test and the Compassion Fatigue Self-Test (Figley, 1995; Stamm, 2002; Stamm, 2005). Another less-common test, the Compassion Fatigue Scale-Revised, was developed by Gentry, Baranowsky, and Dunning (2002) from the

Compassion Fatigue Self-Test (Figley, 1995). Of the existing compassion fatigue tests, the ProQOL scale has had several versions, with its fifth version published by Stamm in 2010. The ProQOL version 5 has 30 Likert scale items and contains subscales for compassion satisfaction, secondary traumatic stress, and burnout (Stamm, 2010). Since their development, the various versions of the ProQOL have been validated among various populations of nurses and other health professionals (Branch & Klinkenberg, 2015; Craigie et al., 2016; Sacco et al., 2015; Smart et al., 2014; Zeidner et al., 2013). However, Stamm (2010) did not present the validity or reliability for the ProQOL version 5, instead mentioning that construct validity had been established by the many papers that have used the scale. Other studies have since found reliable Cronbach's alpha levels for the ProQOL subscales. For example, Craigie et al. (2016) found that the compassion fatigue, burnout, and compassion satisfaction subscales had $\alpha = .82$, $\alpha = .80$, and $\alpha = .90$, respectively. Overall, the ProQOL scale has been a comprehensive and widely-used measure of compassion fatigue and related concepts.

A second instrument used to operationalize compassion fatigue is the Compassion Fatigue—Short Scale (CF-Short Scale), developed by Adams et al. (2006). The CF-Short Scale, a 13-item Likert scale, has subscales for secondary traumatic stress and burnout (Adams et al., 2006). Adams et al. (2006) found that the CF-Short Scale had strong factor, predictive, and concurrent validity. Overall, the instrument had a Cronbach's alpha of .90 and a high correlation to other scales measuring related variables (Adams et al., 2006). In a comparison to other compassion fatigue scales, the CF-Short Scale has had relatively high reliability and validity (Bride et al., 2007). Several researchers have

since validated the CF-Short Scale or its subscales in populations including firefighters, Pakistani and Chinese emergency workers, and Israeli creative arts therapists and students (Ahmad et al., 2015; Orkibi, 2016; Sun, Hu, Yu, Jiang, & Lou, 2016). However, the CF-Short Scale does not appear to have been formally validated among nursing professionals as a measure to operationalize compassion fatigue.

A final instrument that has been commonly used to operationalize compassion fatigue is the Secondary Traumatic Stress Scale (STSS), published by Bride, Robinson, Yegidis, and Figley (2004). Bride et al. (2004) developed the 17-item Likert-scale STSS to measure secondary traumatic stress, which was considered by Figley (1995) to be synonymous with compassion fatigue. Also, the instrument was later described by Bride et al. (2007) to be a measure of compassion fatigue with three subscales for intrusion, avoidance, and arousal (Bride et al., 2004). Cronbach's alphas for reliability were .83, .80, and .87 for the arousal, intrusion, and avoidance subscales, respectively (Bride et al., 2004). The overall scale $\alpha = .93$, indicating the strong reliability of the STSS (Bride et al., 2004). In addition, the STSS had acceptable convergent, discriminant, and factorial validity upon statistical analysis (Bride et al., 2004). Originally validated among social workers, the STSS has since been applied to evaluate secondary traumatic stress among nursing professionals (Duffy, Avalos, & Dowling, 2015). The STSS is one of several instruments, such as the CF-Short Scale and ProQOL Scale, that have been developed and used to operationalize the concept of compassion fatigue and its related concept of secondary traumatic stress.

Synthesis of research findings. Researchers have examined many aspects of compassion fatigue among nurses, healthcare professionals, and other populations. In the following sections, I examine some of the literature findings related specifically to nurses and nursing professionals. Also, I will synthesize literature about the occurrence of compassion fatigue, factors that influence the development of compassion fatigue, results of compassion fatigue, and interventions to reduce compassion fatigue.

Occurrence in nursing professionals. Researchers have documented the existence of compassion fatigue among a variety of nurses (Kelly et al., 2015). Nurses in nearly every nursing specialty practice have experienced compassion fatigue or secondary traumatic stress, including nurses in various acute care medical, surgical, and intensive care units; trauma units; procedural units; pediatric acute and critical care units; emergency departments; palliative care environments; and labor and delivery units (Beck & Gable, 2012; Branch & Klinkenberg, 2015; Hinderer et al., 2014; Hunsaker et al., 2015; Kelly et al., 2015; Meyer et al., 2015; Sansó et al., 2015). Nurses with compassion fatigue have been found to have worked in large and small hospitals, teaching hospitals, pediatric hospitals, and palliative care settings, among others (Branch & Klinkenberg, 2015; Kelly et al., 2015; Smart et al., 2014; Sansó et al., 2015). In studies involving multiple types of acute care units, Kelly et al. (2015) and Smart et al. (2014) did not find that compassion fatigue differed significantly among several types of acute care units and specialties. However, other researchers have found varying levels of compassion fatigue on different units. For example, Branch and Klinkenberg (2015) found that secondary traumatic stress levels were higher among pediatric intensive care unit nurses than among

pediatric nurses on medical or surgical units. Despite differences in the prevalence of compassion fatigue, compassion fatigue remains a factor in the personal and professional lives of nurses in many positions.

Compassion fatigue also affects nurses with varying demographic characteristics. Compassion fatigue may affect male and female nurses of varying ages and levels of experience (Kelly et al., 2015; Hunsaker et al., 2015; Li, Early, Mahrer, Klaristenfeld, & Gold, 2014; Sacco et al., 2015). Also, research findings suggest that students may have a consistently low baseline level of compassion fatigue even before entering nursing practice (Michalec, Diefenbeck, & Mahoney, 2013). Overall, nurses may experience compassion fatigue despite their demographic status.

The exact prevalence of nurses' compassion fatigue has been difficult to determine due to the varying results of studies in different settings as well as the subjective nature of instruments such as the ProQOL and its secondary traumatic stress subscale in measuring compassion fatigue and secondary traumatic stress (Kelly et al., 2015; van Mol et al., 2015). The stigmatizing nature of compassion fatigue may also influence nurses' self-reporting about compassion fatigue (Sheppard, 2015). Among critical care and progressive care nurses as well as surgical intensive care unit nurses, 26% and 38% of nurses, respectively, had at least moderate levels of secondary traumatic stress as an aspect of compassion fatigue (Mason et al., 2014; Sacco et al., 2015). Hinderer et al. (2014), assessing secondary traumatic stress separately from compassion fatigue among trauma nurses, found a relatively low occurrence of secondary traumatic stress in 7% but a higher occurrence of compassion fatigue in 27.3% of the nurses

studied. In a study of emergency department nurses across the United States, Hunsaker et al. (2015) documented moderate or high compassion fatigue among 34.1% of nurses. Branch and Klinkenberg (2015) documented that 26.9% of nurses on several pediatric inpatient and critical care units were at high risk for secondary traumatic stress. According to a study of doctor of nursing practice students, secondary traumatic stress levels were moderate or high in 74% of the students surveyed (Sheppard, 2015). However, according to several authors, it is difficult to generalize how many nurses in the United States have experienced compassion fatigue or secondary traumatic stress because of study limitations in scope, sites, and time (Sacco et al., 2015; Smart et al., 2014; van Mol et al., 2015). Using tools such as the secondary traumatic stress scale of the ProQOL scale, researchers have found varying levels of compassion fatigue in the United States.

In other countries such as South Korea and Spain, researchers have found elevated levels of compassion fatigue among nurses (Cho & Jung, 2014; Sansó et al., 2015). For example, moderate to high compassion fatigue was reported by 72.5% of a sample of South Korean oncology nurses (Cho & Jung, 2014). In a review of literature about the prevalence of compassion fatigue and burnout among nurses, van Mol et al. (2015) found significantly diverse results and suggested further topic exploration. Therefore, compassion fatigue is a problem prevalent among many types of nurses, including those practicing in hospital-based acute care settings.

Factors associated with compassion fatigue.

Physical factors. Many researchers have studied physical factors that affect compassion fatigue, such as gender and age (Sacco et al., 2015). First, females may be

more susceptible to higher levels of compassion fatigue than males, although further study is warranted to confirm the findings in larger populations of male nurses (Sacco et al., 2015). Second, age may also influence the development of compassion fatigue. In a multiunit study by Kelly et al. (2015), older nurses in the so-called Generation X and Baby Boomer generations were more likely to have lower compassion fatigue than younger nurses in the Millennial generation. However, Sacco et al. (2015) found that compassion fatigue levels were high among both 40 to 49-year old critical care nurses and 20 to 29-year old nurses compared to other age groups. Therefore, younger, female nurses may carry a greater risk for compassion fatigue than other nursing populations.

Other physical factors may also relate to nurses' compassion fatigue. Increased secondary traumatic stress as an aspect of compassion fatigue may be predicted by factors such as decreased nightly hours of sleep (Smart et al., 2014). Working long 12-hour shifts and using medications or alcohol as coping strategies have been associated with greater compassion fatigue among nurses (Hinderer et al., 2014). However, having hobbies has been negatively correlated with compassion fatigue (Hinderer et al., 2014). Though certain physical factors may characterize nurses with high levels of compassion fatigue, other factors have been associated with nurses who are at low risk for compassion fatigue.

Psychosocial factors. Compassion fatigue among nurses may also be related to various psychosocial factors, including work position (Sacco et al., 2015). For example, Sacco et al. (2015) found that compassion fatigue levels were significantly higher for nurses in units with a mix of critically ill, progressive care, or medical-surgical patients

than they were among nurses in units with primarily critical care patients. In a pediatric setting, compassion fatigue levels have been found to be higher among critical care nurses than non-critical care nurses (Branch & Klinkenberg, 2015). However, other multiunit studies have not detected significant differences in compassion fatigue or secondary traumatic stress scores averaged by unit (Kelly et al., 2015; Smart et al., 2014). Based on conflicting results of existing studies, further research is needed to evaluate why different results may exist in some facilities and not others. Qualities of work positions in general could potentially influence nurses' development of compassion fatigue in certain organizations.

Second, work experiences may relate to nurses' development of compassion fatigue (Sacco et al., 2015). Compassion fatigue has been found to increase in units with significant practice changes or low manager support, although group cohesion may help to moderate the development of compassion fatigue in response to stressful situations (Hunsaker et al., 2015; Li et al., 2014; Sacco et al., 2015). Even in other healthcare-related professions such as social work, compassion fatigue has been increased by various organizational practice barriers (Yi, Kim, Choi, Kim, & O'Connor, 2016). However, nurses' compassion fatigue levels were significantly affected by nurses' years of experience in a study by Hunsaker et al. (2015). Perceived quality of work life may be another organizational factor related to compassion fatigue. Job satisfaction has been found to be negatively associated with compassion fatigue among acute care nurses (Kelly et al., 2015). However, the interpretation of quality of work life may be subjective. For example, a comparison of quantitative and qualitative data on quality of work life and

personal stressors revealed higher satisfaction on oncology nurses' qualitative reports comparted to their quantitative scores (Giarelli, Denigris, Fisher, Maley, & Nolan, 2016). Therefore, whereas nurses' experience levels may not strongly affect compassion fatigue, several organizational factors and job satisfaction can potentially influence compassion fatigue development among nurses.

Finally, compassion fatigue may be related to nurses' interpersonal interactions. Positive interpersonal relations as a health promotion strategy and positive coworker relationships have been associated with lower levels of compassion fatigue (Hinderer et al., 2014; Neville & Cole, 2013). As narrated in interviews with Australian nurses, peer and social support in the workplace is an important factor that may influence compassion fatigue in response to stress (Drury et al., 2014). Stressful work situations and interaction with patient situations in general may be triggers that stimulate nurses and other healthcare workers to develop compassion fatigue (Drury et al., 2014; Yi et al., 2016). Overall, interpersonal relations in addition to work experiences and work position appear to be important psychosocial factors in nurses' development of compassion fatigue.

Psychological, emotional, and spiritual factors. In addition to physical and psychosocial factors, psychological, emotional, and spiritual factors have been associated with nurses' compassion fatigue and secondary traumatic stress. These factors include coping ability, empathy, stress, depression, and self-care (Cho & Jung, 2014; Drury et al., 2014; Hegney et al., 2014). Findings from various quantitative studies have supported positive relationships between the occurrence of empathy, stress, depression, anxiety, moral distress, and burnout and nurses' levels of compassion fatigue or secondary

traumatic stress (Austin et al., 2017; Cho & Jung, 2014; Hegney et al., 2014; Hinderer et al., 2014; Meyer et al., 2015; Smart et al., 2014; Yom & Kim, 2012). According to Li et al. (2014), compassion fatigue levels can also be predicted by nurses' stress exposure and symptoms of posttraumatic stress disorder. A study by Craigie et al. (2016) found a positive correlation between compassion fatigue and trait-negative affect, or a tendency to have a negative psychological response to situations. In addition, compassion fatigue and secondary traumatic stress have been negatively correlated with nurses' resilience, ability to cope with death, perceptions of ability to provide end-of-life care, awareness, and cognitive reappraisal of situation-related emotions (Cho & Jung, 2014; Măirean, 2016; Sansó et al., 2015; Todaro-Franceschi, 2013). In summary, nurses' psychological and emotional qualities may be related to their development of compassion fatigue.

Another significant personal factor that may influence compassion fatigue among nurses is self-care and personal health promotion (Kearney et al., 2009; Neville & Cole, 2013; Sansó et al., 2015). Several researchers have found a negative relationship between nurses' compassion fatigue and self-care activities (Cho & Jung, 2014; Sansó et al., 2015). In another study, Neville and Cole (2013) discovered that personal health promotion strategies of spiritual growth and stress management were associated with lowered levels of nurses' compassion fatigue. In nurses, many factors, including psychological, emotional, spiritual, psychosocial, and physical factors, may be related to the development of compassion fatigue.

Results of compassion fatigue. Although compassion fatigue has been associated with several factors, it may also lead to several research-validated results. Moral distress,

lower perceptions of care, and intent to leave nursing positions are some of the many detrimental results of and changes associated with compassion fatigue and secondary traumatic stress (Duffy et al., 2015; Maiden et al., 2011; Sheppard, 2015; Sung, Seo, & Kim, 2012). In addition, Anglade (2014) found that secondary traumatic stress is negatively associated with unit safety measures, such as central line-associated bloodstream infections. Ultimately, compassion fatigue may result in burnout (Kearney et al., 2009; Yom & Kim, 2012). The many problems associated with compassion fatigue illustrate the detrimental changes that compassion fatigue may cause among nurses.

Interventions and coping mechanisms for compassion fatigue. Many researchers have examined interventions to reduce the incidence of compassion fatigue among nursing professionals. Many interventions have involved physical activities or treatments, such as knitting or acupuncture (Anderson & Gustavson, 2016; Reilly, Buchanan, Vafides, Breakey, & Dykes, 2014). Other interventions have been designed to increase qualities that have been negatively correlated with compassion fatigue. For example, Potter et al. (2013) developed a program to increase resiliency and manage stress, resulting in lowered secondary traumatic stress levels among oncology nurses. Houck (2014) described several topics that were incorporated in an educational intervention, including information on personal and spiritual self-care, compassion fatigue, and organizational resources. However, Houck did not evaluate the true effectiveness of the intervention other than informal evaluations, which appeared to be positive in respect to several class topics. Qualitative responses to another educational, self-reflective, and supportive intervention incorporating educational sessions, an educational retreat, and a

book club showed that nurses reported using new self-care strategies and having lowered levels of compassion fatigue (Saechao, Anderson, & Connor, 2017). Further research may be needed to develop additional physical and educational interventions for compassion fatigue.

Other interventions for compassion fatigue have been focused on self-care strategies. According to Yi et al. (2016), Korean social workers used several self-care adaptation strategies, such as employing professional boundaries, expression of grief, and self-help to deal with compassion fatigue. Formal coaching, having space for reflection, educating staff on coping methods, and discussing situations with a chaplain were identified as four methods that nurses themselves suggested to decrease compassion fatigue (Drury et al., 2014). Enhancing self-care has been a focus of several interventions targeted at compassion fatigue. Among oncology nurses, effective self-care interventions for compassion fatigue have included mindfulness-based interventions and meditation (Duarte & Pinto-Gouveia, 2016; Hevezi, 2016). Compassion fatigue levels have been reduced using a technology-assisted meditation program for hospice and palliative care professionals (Heeter, Lehto, Allbritton, Day, & Wiseman, 2017). Another documented intervention successfully decreased secondary traumatic stress among emergency department nurses by training nurses about compassion fatigue and self-care, self-regulation, networking, and other resiliency strategies (Flarity et al., 2013). Further research may help to develop a better understanding of and interventions for compassion fatigue, a concept that describes a problem prevalent among nursing professionals.

Work Burnout

Similar to nurses' experiences with compassion fatigue and secondary traumatic stress, nurses in a variety of settings have experienced the phenomenon of burnout related to work environments (Smart et al., 2014). According to Kearney et al.'s (2009) self-awareness-based theory of self-care, work-related burnout results from compassion fatigue and secondary traumatic stress as well as from low self-awareness during interactions with a work environment. Because compassion fatigue may mediate the development of work-related burnout, I included the specific concept of work burnout in the study in addition to the concepts of compassion fatigue and secondary traumatic stress (Meyer et al., 2015). In the following sections, I define the concept of work burnout, describe the operationalization of work burnout, and synthesize the existing research findings related to the occurrence of, factors related to, results of, and interventions for work burnout among nursing professionals.

Definition. The general concept of burnout has been defined and studied in detail, especially in relation to nurses and other healthcare workers. The concept of burnout was developed in the 1970s by scholars such as Freudenberger (1974) and Pines and Maslach (1978). In 1988, Pines and Aronson described how situations involving emotions may lead to emotional, mental, and physical exhaustion (burnout) to those included in those situations. Among nurses specifically, burnout has been strongly predicted by stressful patient care situations and is positively related to direct patient care (Hinderer et al., 2014; Li et al., 2014). According to Maslach et al. (2001), job-specific interpersonal stress over time may lead to the psychological condition of job or work burnout, which

involves feelings of ineffectiveness, cynicism, and exhaustion. Low personal accomplishment, depersonalization, and emotional exhaustion have been accepted as three main conceptual aspects of burnout, even in theoretical models involving work-related burnout among healthcare professionals (Figley, 1995; Kearney et al., 2009; Leiter & Maslach, 1988; Maslach & Jackson, 1981). Therefore, the study specifically used the concept of work-related burnout, which I will refer to as *work burnout* for the purposes of the study. Among the existing definitions of burnout and its more specific form of work burnout, many definitions emphasize the many negative effects of work burnout in nurses and other caregivers.

The general concept of burnout has frequently been associated with the concepts of compassion fatigue and secondary traumatic stress (Figley, 1995). In 1995, Figley described burnout as a result of the compassion fatigue that occurs as caregivers are exposed to trauma. Other models, such as the self-awareness-based model of self-care, have also described burnout as a result of compassion fatigue and work environments (Kearney et al., 2009). However, Figley (2002) later described burnout as a concept separate from compassion fatigue. Instead, he described compassion fatigue as a type of burnout (Figley, 2002). Nursing scholars have also described compassion fatigue as a concept slightly different from burnout (Jenkins & Warren, 2012; Sabo, 2011; Stamm, 2005). Sabo (2011), in a concept analysis of compassion fatigue, suggested that burnout may even lead to compassion fatigue. Since 2011, several researchers have established a positive relationship between work-related burnout and compassion fatigue or secondary traumatic stress, but a causational relationship between the concepts has yet to be clearly

established among nurses (Austin et al., 2017; Hegney et al., 2014; Hinderer et al., 2014; Smart et al., 2014; Yom & Kim, 2012). Because the relationship between compassion fatigue and burnout, specifically work-related burnout, is not known precisely, for the study I used the construct of work burnout as a phenomenon that may be influenced by the occurrence of compassion fatigue.

Many scholars have analyzed burnout as a result of exposure to work situations (Figley, 1995; Hinderer et al., 2014; Kearney et al., 2009; Li et al., 2014). In the study, I focused on work-related burnout, not burnout related to personal situations or situations outside of nursing work environments. Many authors describe burnout in the context of a certain profession or employment type, such as burnout among nurses, physicians, and social workers (Adams et al., 2006; Hinderer et al., 2014; Kearney et al., 2009; Smart et al., 2014). Work-related burnout has also been referred to as *job burnout* (Aukes et al., 2007; Kearney et al., 2009). To differentiate work or job-related burnout from other types of burnout such as athlete burnout or academic burnout, I referred to burnout as *work burnout* for the purposes of the study (DeFreese & Smith, 2013; Ríos-Risquez, García-Izquierdo, Sabuco-Tebar, Carillo-Garcia, & Martinez-Roche, 2016). In the following sections, I discuss literature that addresses burnout that is related to work or patient care situations among nurses. However, I have used the terms *burnout*, *work-related burnout*, and *work burnout* interchangeably as they are used in the literature.

Operationalization. Not only have various scholars defined the concepts of burnout and work burnout, but they have also developed various methods to operationalize burnout and work burnout. One of the most well-known methods to

operationalize burnout is the Maslach Burnout Inventory (MBI) (Maslach & Jackson, 1981). The MBI is a 22-item Likert scale that has three subscales for personal accomplishment, depersonalization, and emotional exhaustion (Maslach & Jackson, 1981). The original reliability measures for the MBI with three optional items was average, with Cronbach's alphas of .83 (frequency) and .84 (intensity) (Maslach & Jackson, 1981). Comparison of the MBI results with external reviewers, individual outcomes, and other related measures established convergent and divergent validity among several populations (Maslach & Jackson, 1981). Since its original development by Maslach and Jackson in 1981, the MBI has been used in its complete form as well as several additional versions, the MBI—General Survey, MBI—Educators Survey, and MBI—Human Services Survey (Maslach, Jackson, & Leiter, 1997). The MBI, including its versions, has been validated among nursing professionals in many countries (Aiken et al., 2012; Cimiotti et al., 2012; Hayes, Douglas, & Bonner, 2015; Khamisa, Oldenburg, Peltzer, & Ilic, 2015; Koh et al., 2015; Kunaviktikul et al., 2015; Laschinger, Borgogni, Consiglio, & Read, 2015; Montgomery, Spânu, Băban, & Panagopoulou, 2015; Peng et al., 2016). The MBI is a versatile scale used to operationalize burnout.

A second measure to operationalize burnout is the Burnout Measure (BM), an exhaustion-specific, Likert-scale-based measurement of general or work burnout (Pines & Aronson, 1988). Scores of 4 or above on the 21-item BM may be indicative of burnout (Pines & Aronson, 1988). Since its development, the BM has been criticized because it does not assess various perceptual aspects of burnout (Schaufeli & Van Dierendonck, 1993). Therefore, its validity may be lower than the multidimensional MBI, although it

has excellent reliability with a Cronbach's alpha greater than .90 (Pines & Aronson, 1988; Schaufeli & Van Dierendonck, 1993). In addition, the BM has been validated among nurses since its development (Berg, Hansson, & Hallberg, 1994; Labrague et al., 2016). In 2005, Malach-Pines published a 10-item Burnout Measure-Short Version (BMS) that was based on the BM. Among Israeli nurses, the BMS had both a Cronbach's alpha of .88 and effective face and construct validity in interviews and correlational analyses (Malach-Pines, 2005). Although less common than the MBI, the BM and BMS are two other tools used to operationalize burnout.

Burnout has also been operationalized in subscales of instruments developed to measure compassion fatigue, such as the Professional Quality of Life (ProQOL) scale and the Compassion Fatigue—Short Scale (CF-Short Scale) (Adams et al., 2006; Stamm, 2010). The ProQOL scale has a 10-item burnout subscale that has been validated among nurses with a Cronbach's alpha of .80 (Craigie et al., 2016; Stamm, 2010). In addition, the CF-Short Scale's five-item job burnout subscale has been validated in the context of the entire scale with a Cronbach's alpha of .90 (Adams et al., 2006). As discussed previously in the literature review addressing compassion fatigue, the ProQOL and CF-Short Scale operationalize work burnout as an aspect of compassion fatigue.

Synthesis of research findings. Many researchers have studied various aspects of work-related burnout both as a concept related to and separate from compassion fatigue (Austin et al., 2017; Epp, 2012; Hegney et al., 2014; Hinderer et al., 2014; Smart et al., 2014; Yom & Kim, 2012). Because the study examined work burnout among nurses, I focused primarily on research relevant to overall burnout among various nursing

populations. In the following sections, I synthesize research findings related to the occurrence of burnout, factors related to burnout, results of burnout, and interventions for burnout among nursing professionals.

Occurrence in nursing professionals. Burnout affects many different types of nursing professionals. Researchers have documented burnout in various nursing populations, including pediatric nurses, acute care nurses, trauma nurses, emergency department nurses, intensive care nurses, hemodialysis nurses, palliative care and hospice nurses, long-term care nurses, maternity nurses, community health nurses, mental health nurses, and nursing graduate students (Branch & Klinkenberg, 2015; Hayes et al., 2015; Hinderer et al., 2014; Hunsaker et al., 2015; Koh et al., 2015; Laschinger et al., 2015; Sacco et al., 2015; Sheppard, 2015; Smart et al., 2014). Even undergraduate nursing students have been found to maintain moderate levels of burnout throughout nursing school (Michalec et al., 2013). Burnout is a phenomenon that affects nurses in the United States as well as numerous other countries, some of which have significantly higher rates of burnout than nurses in the United States (Aiken et al., 2012). Based on the context of existing research findings, burnout appears to be a common challenge faced by nurses.

Researchers have examined the prevalence of burnout among specific groups of nursing professionals. In a study of nurses in 430 hospitals in the United States, Aiken et al. (2012) found that 34% of nurses considered themselves to be burned out according to the Maslach Burnout Inventory (MBI). However, Aiken et al.'s statistic on the prevalence of burnout in the United States was lower than levels in some European countries, such as

Greece with a burnout level of 78%. Across specialties, nurses have experienced differing levels of burnout.

The prevalence of burnout has been measured in various nursing specialties using the burnout subscale of the ProQOL measure (Stamm, 2010). In several studies, the level of moderate or high levels of burnout was found be approximately 35.9%, 36%, and 58% among trauma nurses, critical care and progressive care nurses, and surgical intensive care unit nurses, respectively (Hinderer et al., 2014; Mason et al., 2014; Sacco et al., 2015). According to Branch and Klinkenberg (2015), 30.9% of nurses on pediatric inpatient and critical care units were at high risk for burnout. Hunsaker et al. (2015) further discovered an average level of burnout in at least half of a sample of emergency nurses throughout the United States. Even among nursing doctoral students, Sheppard (2015) found moderate to high levels of burnout in 81% of the students surveyed. Considering nurses may accept burnout as a part of the nursing profession, it may be difficult to assess the true prevalence of burnout among nurses (Sheppard, 2015). Despite differences in the distribution and rates of burnout, burnout appears to be a problem inherent to the nursing profession.

Not only may nursing specialty and location affect the occurrence of burnout, but type of inpatient acute care unit may also be a factor in the incidence of nurses' burnout. For nurses on inpatient adult units, burnout has been found to be higher among medical unit nurses than critical care nurses (Smart et al., 2014). However, pediatric intensive care unit and surgical unit nurses may be more likely than nurses on other pediatric units, such as oncology units, to develop burnout (Branch & Klinkenberg, 2015; Sekol & Kim,

2014). Apparent inconsistencies of the prevalence of burnout may suggest that type of work environment many be only one among several factors affecting nurses' burnout. Some additional factors related to burnout are discussed in the next section.

Factors associated with burnout.

Physical factors. Many physical factors have been associated with burnout among nurses. Age has been negatively associated with burnout in several nursing settings (Hayes et al., 2015; Harkin & Melby, 2014; Hunsaker et al., 2015; Kelly et al., 2015). However, Sacco et al. (2015) found specifically that burnout levels were higher among nurses who were 40 to 49 years old than in other age groups practicing in critical care and progressive care settings. In addition, burnout may also be predicted by low amounts of exercise, nightly hours of sleep, and insomnia (Hinderer et al., 2014; Khamisa et al., 2015; Smart et al., 2014). According to Koh et al. (2015) and Neville and Cole (2013), nurses' health promotion behaviors and physical well-being were negatively related to burnout, although using medicines as a coping strategy has been positively related to burnout (Hinderer et al., 2014). Overall, burnout may be related to a variety of physical characteristics and activities.

Psychosocial factors. A variety of psychosocial factors have been associated with nurses' burnout, including characteristics of their employment or degree status. First, years of work experience, especially years in a single position, has been positively associated with burnout among nurses on multiple units, although surveys of emergency department nurses reveal that burnout risk is lowered among nurses with more years of experience (Hinderer et al., 2014; Hunsaker et al., 2015; Kelly et al., 2015). Second,

burnout may be predicted by the length of shift and type of unit worked (Hinderer et al., 2014). For example, nurses in non-critical care units may have a higher likelihood of developing burnout than critical care nurses (Smart et al, 2014). Also, burnout has been associated with 12-hour shifts as well as increased weekly work hours, especially when work hours exceed 60 hours weekly (Hinderer et al., 2014; Koh et al., 2015; Kunaviktikul et al., 2015). Finally, low burnout levels have been associated with holding a graduate degree, despite the high levels of burnout documented among nursing graduate students (Hunsaker et al., 2015; Sheppard, 2015). Work position characteristics and degree status may be influential factors on burnout among nurses.

Workplace characteristics are another psychosocial factor related to nurses' burnout. Burnout is positively related to direct patient care, emotion-related job demands, workload demands, stressful patient care situations, stress-inducing staffing issues, low manager support, and organizational demands as well as perceptions of politics in the work setting (Hunsaker et al., 2015; Khamisa et al., 2015; Labrague et al., 2016; Li et al., 2014; Montgomery et al., 2015). Work engagement and a positive nurse-perceived safety culture are other factors that Mason et al. (2014) and Vifladt, Simonsen, Lydersen, and Farup (2016) found to be negatively associated with burnout. Nurses who obtain professional counseling for work-related issues may be more likely to have burnout than those who do not (Hinderer et al., 2014). However, nurses may be protected against burnout by applying their own workplace coping self-efficacy skills, which may be increased in settings with authentic leadership (Fida, Laschinger, & Leiter, 2016; Laschinger et al., 2015). Because recent management changes in critical care and

progressive care units have been found to increase burnout among nursing staff, leadership may be another key factor in nurses' burnout (Sacco et al., 2015). Scholars have examined many workplace characteristics and their relation to burnout.

A final type of psychosocial factor associated with nurses' burnout is interpersonal relations. Coworker relationships, teamwork effectiveness, involvement in a marital relationship, and social support are various psychosocial factors that Harkin and Melby (2014), Hinderer et al. (2014), Montgomery et al. (2015), and Yom and Kim (2012) found to be negatively associated with burnout. Burnout also may be affected by exposure to stress, bullying, and prior traumatic experiences, although lower burnout has been documented in nurses who engage in coping strategies such as working in varied clinical practice settings and being engaged in organizational activities (Allen, Holland, & Reynolds, 2015; Koh et al., 2015; Li et al., 2014; Luquette, 2016; Meyer et al., 2015). Group cohesion has been found to influence the relationship between burnout and stress exposure (Li et al., 2014). Interpersonal relations, in addition to workplace characteristics and job position, are important factors related to burnout among nurses.

Psychological, emotional, and spiritual factors. Because of the psychological and emotional aspects of burnout, researchers have examined many psychological, emotional, and spiritual characteristics related to burnout (Pines & Aronson, 1988). Levels of stress, depression, moral distress, grief, and anxiety have been positively correlated to nurses' level of burnout (Adwan, 2014; Austin et al., 2017; Hegney et al., 2014; Rushton et al., 2015). Various researchers have also found that burnout may be predicted by nurses' social dysfunction (Khamisa et al., 2015). However, burnout has been negatively related

to awareness, self-evaluation practices, ability to cope with death, higher perceptions of ability to provide end-of-life care, meditation as a coping strategy, greater reported spirituality and spiritual well-being, optimism, emotional intelligence, compassion satisfaction, and engagement in self-care (Chang & Chan, 2015; Craigie et al., 2016; Hinderer et al., 2014; Kaur et al., 2013; Koh et al., 2015; Neville & Cole, 2013; Peng et al., 2016; Rushton et al., 2015; Sansó et al., 2015; Todaro-Franceschi, 2013). According to research by Koh et al. (2015), decreased levels of burnout were found in nurses who practiced coping mechanisms such as engaging in meditation and reflection, recalling memories of patients, maintaining work-related passion, and developing realistic expectations about patient care. However, Ntantana et al. (2017) found that various aspects of spirituality, including spiritual reflection, were not significantly related to aspects of burnout among Greek intensive care nurses. Similar to compassion fatigue, burnout has been associated with a number of physical, psychosocial, psychological, emotional, and spiritual factors.

Results of burnout. Burnout, as defined by Pines and Aronson (1988), may have various physical, psychological, and emotional effects on caregivers themselves. For example, Kaur et al. (2013) found that nurses' caring behavior was negatively affected by burnout, potentially affecting their practice with patients. In another study, nurses who developed higher levels of burnout during nursing school were more likely than other novice nurses to not apply research to practice, to plan to leave their current position, and to be less proficient in nursing skills (Rudman & Gustavsson, 2012). Also, burnout may

predict nurses' intention to leave their current work position (Sawatzky et al., 2015; Van Bogaert et al., 2014). Nurses' practice may be negatively influenced by burnout.

Burnout may affect patients as well as nurses. Anglade (2014) found that an increase in central-line associated bloodstream infections could be predicted by nurses' levels of burnout. In addition, higher levels of burnout have been positively related to surgical site infections and urinary tract infections, even while controlling for hospital characteristics, nurse characteristics, and patient severity (Cimiotti et al., 2012). In a study of nurses in 94 Thai hospitals, patient falls, infections, medication errors, and poor to fair nurse-rated quality of care were positively related to burnout levels (Nantsupawat, Nantsupawat, Kunaviktikul, Turale, & Poghosyan, 2016). Johnson et al. (2017) found that burnout is a full mediating factor between healthcare workers' and nurses' perceptions of patient safety and their levels of depression. Not only may high levels of burnout potentially influence patients' physical well-being, but they may also lead to decreased patient satisfaction (Aiken et al., 2012). In a multilevel analysis, Van Bogaert et al. (2014) found that family and patient complaints increased when nurses experienced higher aspects of burnout such as emotional exhaustion. In summary, burnout may result in decreased care quality and patient satisfaction.

Interventions for burnout. Interventions to reduce burnout may include strategies to increase self-care among nurses. Effective research-based interventions to decrease burnout have included self-care-based mindfulness interventions, mindfulness-based stress reduction programs, and a technology-assisted meditation program (Bazarko, Cate, Azocar, & Kreitzer, 2013; Duarte & Pinto-Gouveia, 2016; Goodman & Schorling, 2012;

Heeter et al., 2017). Resiliency-based interventions to educate emergency department nurses about burnout and resiliency strategies such as self-care have also been effective to reduce burnout, although a pilot resiliency program by Potter et al. (2013) failed to achieve a significant decrease in burnout among oncology nurses (Flarity et al., 2013). In another example of self-care interventions, burnout levels decreased in oncology nurses after a 4-week pilot study of meditation exercises (Hevezi, 2016). In summary, psychological and emotional strategies for self-care have been the basis for several interventions for burnout.

Practice environment and skill interventions are another strategy to decrease nurses' burnout. A notable example of a practice environment intervention is given in a study by Kutney-Lee et al. (2015). Kutney-Lee et al. found that burnout levels in nurses decreased after hospitals obtained Magnet certification status. A study by Wilson, Gettel, Walsh, and Esquenazi (2016) described a unique intervention in which training nurses in massage techniques for nursing practice decreased burnout among hospital nurses. Although researchers have documented effective burnout interventions, further research is needed to develop and provide a foundation for various psychological, physical, emotional, spiritual, and psychosocial interventions to reduce the incidence of burnout among nursing professionals.

Summary and Conclusions

Major Themes in the Literature

Many researchers have documented the concepts of reflection, compassion fatigue, secondary traumatic stress, and work-related burnout among nurses. Scholars

have also developed theoretical models to further understand the concepts and relationships among them. Two relevant models are Hentz and Lauterbach's (2005) model for reflective practice and Kearney et al.'s (2009) self-awareness-based model of self-care. According to a synthesis of the two research-validated models, reflection may lead to self-awareness, and, subsequently, compassion fatigue (Hentz & Lauterbach, 2005; Kearney et al., 2009; Sansó et al., 2015; Williams et al., 2009). Work-related burnout occurs as a result of compassion fatigue, which conceptually has been considered synonymous with secondary traumatic stress (Kearney et al., 2009). A synthesis of Hentz and Lauterbach's model for reflective practice and Kearney et al.'s self-awareness-based model of self-care was used as the theoretical foundation for the study.

Reflection is a mental process that helps nurses understand their experiences in patient care (Asselin et al., 2013; Bulman et al., 2012; Tashiro et al., 2013). Researchers have developed several scales to operationalize the concept of reflection, including the Groningen Reflective Ability Scale (GRAS) and the Critical Reflective Inquiry (CRI) Assessment Tool (Asselin & Fain, 2016; Aukes et al., 2007; Grant et al., 2002). Nurses and nursing students engage in reflection within a variety of nursing environments in response to many types of patient care or work-related situations (Asselin et al., 2013; Asselin & Schwartz-Barcott, 2015; Bulman et al., 2012; Rees, 2013). Reflection may have many positive or negative psychological and emotional effects on nurses, nursing students, and other healthcare professionals (Asselin & Schwartz-Barcott, 2015; Braun et al., 2013; Burman et al., 2014; Hsu & Wang, 2012; Germain et al., 2016; Rees, 2013).

Overall, reflection is an important psychological quality that has significant effects on nurses and other caregivers.

Another concept that I examined in the study is compassion fatigue or secondary traumatic stress. Compassion fatigue, the physical, social, intellectual, and spiritual changes that occur with exposure to stress and patient situations, has been documented in a variety of populations using instruments such as the Professional Quality of Life (ProQOL) scale, the Compassion Fatigue—Short Scale (CF-Short Scale), and the Secondary Traumatic Stress Scale (STSS) (Adams et al., 2006; Bride et al., 2004; Coetzee & Klopper, 2010; Kelly et al., 2015; Smart et al., 2014; Stamm, 2010). Many physical, psychosocial, psychological, emotional, and spiritual factors have been associated with compassion fatigue or its related phenomenon of secondary traumatic stress (Drury et al., 2014; Hegney et al., 2014; Hunsaker et al., 2015; Neville & Cole, 2013; Sacco et al., 2015; Smart et al., 2014; Yi et al., 2016). Because of the related factors and harmful results of compassion fatigue and secondary traumatic stress on nurses and patients, researchers have developed many physical and self-care interventions to reduce compassion fatigue and secondary traumatic stress (Anglade, 2014; Duffy et al., 2015; Flarity et al., 2013; Potter et al., 2013). Compassion fatigue and secondary traumatic stress are two concepts that have been defined and established by researchers in the published literature.

A final variable that was included in the study is the concept of work burnout. A result of compassion fatigue, burnout has been described theoretically and conceptually as low personal accomplishment, depersonalization, and emotional exhaustion in

response to stress and emotional situations (Kearney et al., 2009; Maslach & Jackson, 1981; Pines & Aronson, 1988). In addition, burnout and the more specific concept of work burnout have been operationalized by instruments such as the Maslach Burnout Inventory (MBI), the Burnout Measure, and subscales of compassion fatigue instruments (Maslach & Jackson, 1981; Pines & Aronson, 1988). Nurses in many work settings experience burnout and physical, psychosocial, psychological, emotional, and spiritual factors that are related to burnout (Aiken et al., 2012; Hegney et al., 2014; Hinderer et al., 2014; Hunsaker et al., 2015; Koh et al., 2015; Li et al., 2014; Smart et al., 2014). Since work burnout negatively affects nurses and their patients, researchers have developed various interventions to reduce burnout (Anglade, 2014; Duarte & Pinto-Gouveia, 2016; Kaur et al., 2013; Potter et al., 2013). In addition to reflection, compassion fatigue, and secondary traumatic stress, work burnout is a concept that was included as a key variable in the study.

Literature Gaps and Research Recommendations

Existing literature covers many aspects of reflection, compassion fatigue, secondary traumatic stress, and burnout. However, few researchers have examined how reflection may be related to various conditions such as compassion fatigue and work burnout among nurses in the United States. According to studies on hospice workers and psychology students, reflection is a specific aspect of self-care that may contribute to psychological well-being and reduce compassion fatigue (Alkema et al., 2008; Stein & Grant, 2014). Although debriefing, reflection, and refocusing have been identified by nurses and nursing students qualitatively as important coping methods, nurses' preferred

coping methods necessitate quantitative evaluation about their true effectiveness because reflection may cause painful memories to resurface, may fail to resolve situations emotionally, or may lead to overinvolvement in patients' suffering or emotional detachment (Asselin & Schwartz-Barcott, 2015; Drury et al., 2014; Rees, 2013). For example, Chan et al. (2016) found that courses that included self-reflective exercises had no significant impact on the compassion fatigue scores of obstetrical nurses and healthcare workers. Among palliative care and hospice nurses in Singapore, reflection and remembering patients have been found to protect nurses against burnout (Koh et al., 2015). Another study by Măirean (2016) found that secondary traumatic stress is negatively related to cognitive reappraisal, which could be considered a type of reflection. The research findings from existing studies need to be expanded to examine both reflection and its relationship with the broader concept of compassion fatigue, especially among acute care nurses in the United States.

Gaps also exist in the literature about reflection as an intervention strategy for compassion fatigue and work burnout. Authors as far back as 1992 have recommended reflection to mitigate compassion fatigue among nurses without providing substantive research to support the claims (Joinson, 1992; Romano et al., 2013; Sheppard, 2016). Students may have existing burnout and compassion fatigue even before becoming nurses (Michalec et al., 2013). Nursing leaders, scholars, and educators need research clarifying the relationship between reflection and compassion fatigue, secondary traumatic stress, and work burnout in order to target compassion fatigue, secondary traumatic stress, and work burnout. Also, nursing leaders and educators need information to support the

appropriate integration of reflection into nursing practice and education. Understanding the relationship between the concept of reflection and the concepts of compassion fatigue and work burnout may help to guide intervention development for compassion fatigue, secondary traumatic stress, and work burnout.

In recognition of gaps in the literature, several researchers have recommended further research examining reflection and factors related to compassion fatigue and work burnout. For example, Asselin et al. (2013) recommended studying the role of emotions in the reflective process of different nursing populations. In addition, several scholars have highlighted the need for additional studies related to preventing nurses' compassion fatigue, such as through self-care strategies, coping strategies, and mindfulness (Cocker & Joss, 2016; Drury et al., 2014; Mason et al., 2014; van Mol et al., 2015). The study helped to meet scholars' suggestions and fill the gap in the literature about the relationship between the concept of reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout.

Conclusion

Theoretically, reflection may affect the development of compassion fatigue and work burnout among nurses and other healthcare professionals (Hentz & Lauterbach, 2005; Kearney et al., 2009). Because compassion fatigue, work burnout, and the process of reflection may have negative physical and psychological effects on nurses and their patients, researchers need to understand how reflection, compassion fatigue, secondary traumatic stress, and work burnout interact among nurses, especially among nursing professionals in the United States. Therefore, the goal of the study was to establish

whether a relationship exists between the concept of reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout among nurses practicing in hospital-based acute care settings in the United States.

Chapter 3: Research Method

Based on gaps in the literature, research is needed to clarify the relationship between registered nurses' reflection and their compassion fatigue, secondary traumatic stress, and work burnout. The purpose of the study was to determine the relationship between hospital-based acute care registered nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. Therefore, I used a descriptive, correlational, cross-sectional quantitative research design. In Chapter 3, I describe the research design, including the research variables, restraints of the design, and rationale for the design. In addition, the chapter contains information regarding the study methodology, specifically the population, sampling, recruitment procedures, participation procedures, data collection, instrumentation and operationalization of constructs, and data analysis plan. Finally, I address threats to validity as well as ethical procedures for the study.

Research Design and Rationale

The study was based on quantitative research methodology. In selecting a specific research design, I considered the research problem, the questions and hypotheses generated from the problem, and the study variables. In this section on research design, I discuss the study variables, research design, design-related constraints, and rationale for the quantitative research design selected.

Variables

To describe the relationship between registered nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout, I used

reflection, compassion fatigue, secondary traumatic stress, and work burnout as the variables for the study. The variable of reflection was measured using the 23-item Likert scale-based Groningen Reflective Ability Scale (GRAS; Aukes et al., 2007). The variables of compassion fatigue, secondary traumatic stress, and work burnout were measured using the 13-item Likert scale-based Compassion Fatigue—Short Scale (CF-Short Scale) and its subscales for secondary traumatic stress and work burnout (Adams et al., 2006). The levels of each variable were measured among a sample of registered nurses practicing in hospital-based acute care settings in the southeastern United States.

Because none of the study variables were manipulated in the selected population, none of the variables (i.e., reflection, compassion fatigue, secondary traumatic stress, and work burnout) were true independent or dependent variables. Theoretically, based on a synthesis of the model for reflective practice and the self-awareness-based model of self-care, the independent variable of reflection may influence the development of the dependent variables of compassion fatigue, secondary traumatic stress, and work-related burnout (Hentz & Lauterbach, 2005; Kearney et al., 2009). Therefore, based on the theoretical relationships among the variables, I considered reflection to be a predictor (independent) variable and compassion fatigue, secondary traumatic stress, and work burnout to be the outcome (dependent) variables for the purposes of data analysis.

Because the theoretical relationships between reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout have not been validated among hospital-based acute care nurses in the United States, I focused the study on determining the relationships between reflection and compassion fatigue, secondary

traumatic stress, and work burnout. Future quasi-experimental and experimental research could develop the hypothetical causal relationships explored using correlational research methods (Curtis et al., 2016). However, I referred to reflection as an independent variable and compassion fatigue, secondary traumatic stress, and work burnout as dependent variables to analyze the potential relationships among the variables.

Research Design and Research Questions

The study had a descriptive, cross-sectional, correlational quantitative research design. Quantitative data on the variables of reflection, compassion fatigue, secondary traumatic stress, and work burnout were collected using Internet-based surveys administered to registered nurses practicing in hospital-based acute care settings within one time period. I then analyzed the relationship between nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. Determining the relationships among variables provided results to answer the following research question: What is the relationship between registered nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout? Researchers have traditionally used correlational research designs in studies to determine how two or more variables are related without variable manipulation (Brink & Wood, 1998; Frankfort-Nachmias, Nachmias, & DeWaard, 2015; Polit & Beck, 2008). Therefore, a descriptive, cross-sectional, correlational quantitative research design was appropriate to address the research question.

Design-Related Constraints

The descriptive, cross-sectional, correlational quantitative research design had several design-related constraints. First, because the study was completed at one point in time, I was unable to assess changes in the study variables over time. According to Brink and Wood (1998) and Frankfort-Nachmias et al. (2015), cross-sectional methods are often used by researchers performing correlational studies. Because the primary objective of the study was to examine the relationships among variables and not changes in variables over time, time-related constraints did not detract from the effectiveness of the study.

Second, using a descriptive, correlational quantitative design placed constraints on the scope of data collected. A correlational design was adequate to provide data to answer the research question regarding relationships among variables, but it also limited data to that explored by the selected instruments and demographic items. Predictive relationships cannot be determined with correlational methods designed for describing relationships (Polit & Beck, 2008). In the future, researchers could examine causal or predictive relationships among reflection, compassion fatigue, secondary traumatic stress, and work burnout as well as other contributing variables or covariates (Curtis et al., 2016). Although the scope of the study methods was limited, I examined the findings for relationships that researchers can explore in later studies.

Finally, using a descriptive, correlational quantitative design had resource-based constraints. Overall, the speed and low expense of correlational and cross-sectional studies decrease their resource-based constraints (Curtis et al., 2016; Polit & Beck, 2008).

However, I had to provide funds for fees for hosting and distributing the Internet-based survey. In addition, collecting data from a relatively large population of nurses across a state generated data that took time to clean and analyze. I planned for method-related constraints, even though the study constraints were lower than those potentially encountered with certain other research designs.

Research Design Choice Rationale

A quantitative research design was the most appropriate research design for the study. The research problem and questions established the need to clarify quantitative relationships between levels of the study variables among nurses. Examining variable relationships is a key function of quantitative research (Creswell, 2014). Levels of reflection, compassion fatigue, secondary traumatic stress, and work burnout were each measured quantitatively.

A correlational design was an effective quantitative design for the study. It was important to understand the relationships among reflection, compassion fatigue, secondary traumatic stress, and work burnout before manipulating the variables in experimental or intervention research. For example, manipulating variables that could contribute to greater compassion fatigue and burnout may lead to detrimental effects among nurses as well as their patients (Anglade, 2014; Cimiotti et al., 2012; Kaur et al., 2013; Van Bogaert et al., 2014). To avoid manipulating the quantitative variables while exploring the relationships among them, a correlational research design was appropriate (Curtis et al., 2016). Among other quantitative methods, a correlational design was used.

In addition, using a cross-sectional design was appropriate for the study. Simple descriptive relationships can often be adequately examined using cross-sectional instead of longitudinal designs (Polit & Beck, 2008). Other researchers have measured conceptual correlations related to compassion fatigue with cross-sectional questionnaires (Sansó et al., 2015; Slocum-Gori et al., 2013). I examined relationships between variables as they existed in a population of hospital-based acute care nurses at one time. Therefore, I used a descriptive, cross-sectional, correlational design in the study.

Finally, using a quantitative design also partially minimized the effects of personal bias and preconceptions that I brought to the study as the primary researcher. Since I have been employed as a registered nurse, I have experienced many stressful patient and workplace situations that may have contributed to the development of work burnout and compassion fatigue within my own practice. Therefore, I would have had significant personal bias to consider if I had used direct interpersonal interaction to explore reflection, compassion fatigue, and work burnout among fellow registered nurses. Quantitative methods may involve researcher bias during subject selection, data collection, and data analysis; however, selected study methods may decrease the effects of personal bias (Polit & Beck, 2008). Overall, a quantitative research design, especially a cross-sectional, correlational design without direct researcher-subject interaction, was the most appropriate research design to fulfil the purpose of the study.

Methodology

The methodology that I used was a correlational quantitative design with a survey-based methodology. The surveys were distributed to a sample of registered nurses

working in hospital-based acute care settings in a state of the southeastern United States. In this section on methodology, I describe the study methodology, population, sample and sampling procedures, procedures for subject recruitment and participation, data collection procedures, instrumentation, and data analysis plan. Finally, I discuss threats to study validity as well as ethical issues related to the study.

Population

Target population. The target population of the study was registered nurses practicing in hospital-based acute care settings of a state in the southeastern United States. I further defined the target population as any nurses who were registered with active nursing licenses in the selected state, who had publicly available email addresses, who were over 18 years of age, and who practiced nursing in any hospital-based acute care settings at the time of data collection. The population included registered nurses without limitations on gender, age if older than 18 years of age, ethnicity, highest earned academic degree, number of years of nursing experience, shift worked, or hours worked per week. However, I excluded nurses who did not have an email address registered with the selected state's department of health (Florida Department of Health, 2017). Registered nurses with any restrictions on their licenses, such as probationary or conditional status, were not included in the population. Also, I excluded advanced practice nurses, licensed practical nurses, and registered nurses who worked in any setting other than hospital-based acute care settings during the study.

For the purposes of the study, I defined a *hospital-based acute care setting* as any facility that cares for acutely ill patients at any stage of the lifespan. According to an

article published by the World Health Organization (WHO), treatment of acute illnesses or injury is the objective of acute care settings (Hirshon et al., 2013). Not only are critical care and other hospital settings included in the WHO definition by Hirshon et al. (2013), but outpatient urgent care, emergency care, and short-term stabilization are also considered acute care settings. Although the WHO definition covers a broad variety of healthcare settings, I limited the target population to nurses employed in hospital-based acute care settings, such as inpatient units, procedural areas, observation units, and emergency departments.

Target population size. The size of the population of registered nurses practicing in hospital-based acute care settings of the selected state could not be exactly determined due to nurse turnover and changes in the nursing workforce. The total reported number of registered nurses in the state as of February 2017 was 279,376, although only 189,685 of the registered nurses had publicly available email addresses and were listed as currently practicing in the state with an unencumbered license (Florida Department of Health, 2017). However, it has been calculated that 65% of the state's registered nurses were employed in 2015 and that 63.5% of the employed nurses in the state worked in hospital settings (Florida Center for Nursing, 2016). If the 2015 statistics about nursing employment were applied to the February 2017 number of nurses who had published email addresses, approximately 78,292 nurses could potentially have been employed in hospital-based acute care settings within the state at the time of the study. Some of the nurses employed in hospital-based acute care settings could have been employed in

indirect patient care positions, such as managerial or educational positions, making it difficult to calculate the exact size of the target population based on available data.

Sampling and Sampling Procedures

Sampling strategy. The study sample was drawn from a population of registered nurses who were employed in direct patient care, who were employed in hospital-based acute care settings within one state, and who had publicly available email addresses at the time of the study. Most of the nurses in the state had publicly accessible contact information available through the state department of health (Florida Department of Health, 2017). I used probability survey sampling to draw a random sample of registered nurses from the available target population.

A probability survey sample was the most appropriate method to obtain a representative sample of the target population. Using a probability sample allowed me to obtain a representative sample and increased the generalizability of the findings to the entire target population, unlike nonprobability samples (Frankfort-Nachmias et al., 2015). I used a survey sampling method to obtain a probability sample. The Internet-based surveys that I used to collect data were distributed to the random probability sample selected for the study. In the following sections, I discuss the procedures that I used to draw a random probability sample.

Procedure for drawing the sample. Because the selected state updated its list of nurses' contact information weekly, I downloaded the most recently updated list for registered nurses during the week before I drew the sample (Florida Department of Health, 2015). Before I drew a sample, I screened the spreadsheet file of the registered

nurses in the state to remove all nurses who did not have public email addresses, who were listed as not practicing as registered nurses, or who were listed as not practicing within the selected state. I also removed my professional and personal contact information as well as that of any dissertation committee members who were licensed in the selected state. Finally, I used spreadsheet software functions to select a random sample from the filtered list of potential subjects. The selected subjects who made up the sample were sent the study recruitment emails.

Sampling frame. In drawing a sample, I used specific inclusion and exclusion criteria. The publicly available contact information about nurses in the selected state included nurses' home and practice addresses, telephone numbers, and email addresses (Florida Department of Health, 2017). The list of contact information for registered nurses within the state was the sampling frame for the study. I excluded nurses who were listed as not practicing as registered nurses, as practicing outside the selected state, as having probationary or temporary license status, or as not having an email address registered with the selected state's department of health. Based on the available contact information, I was unable to filter nurses by practice setting. Therefore, I specifically outlined the study inclusion criteria during the subject recruitment process. Also, I placed a question at the beginning of the data collection survey asking subjects whether they were over 18 years of age and currently practicing as registered nurses in hospital-based acute care settings. Subjects who responded that they did not practice in a hospital-based acute care inpatient unit, emergency department, procedural area, or observation setting were redirected to a page thanking them for their time in attempting the survey.

Sample size. To compute sample size, I used the GPower software developed by Faul, Erdfelder, Buchner, and Lang (2009). The primary statistical test that I planned to use was a two-way multivariate analysis of variance (MANOVA) with three dependent variables. Using Faul et al.'s (2009) GPower software, I performed an a priori power analysis for MANOVA with global effects. The conventional alpha (level of significance) value for the study was .05 (Frankfort-Nachmias et al., 2015). The power was set at .80, a standard power used in nursing research (Grove et al. 2013). Specifying an alpha of .05, a power of .80, a medium effect (f^2) of .0625, two groups, and three response variables, the predicted sample size was 180.

To obtain an adequate sample size, I used the sampling frame to recruit a sample of 2,000 subjects. The sampling goal was to obtain a sample of 200 nurses with a response rate of 10%, which would have been above the calculated sample size of 180 to obtain a power of .80. According to Rea and Parker (2014), a response rate less than 50% potentially decreases the generalizability of research findings. In previous cross-sectional, electronic-based survey studies examining compassion fatigue, secondary traumatic stress, and work-related burnout among nurses employed at specific facilities, Kelly et al. (2015), Sacco et al. (2015), Branch and Klinkenberg (2015), and Mason et al. (2014) documented response rates of 35%, 38%, 60%, and 77%, respectively. International researchers that distributed surveys related to compassion fatigue and burnout to samples from multiple facilities documented response rates ranging from 24 to 33.07% (Sawatzky et al., 2015; Sansó et al., 2015). Therefore, response rates across a geographical region could potentially be higher than those from a facility-based sample but may not

necessarily meet the 50% response rate recommended by Rea and Parker. I selected a sample of the population that was significantly larger than the required sample size to assist in the recruitment of an adequate sample size even with a low response rate.

Procedures for Recruitment, Participation, and Data Collection

Data on the study variables were collected from participating registered nurses employed in hospital-based acute care settings in a state of the southeastern United States. I obtained data using Internet-based surveys that contained items to measure subject demographics as well as the variables of reflection, compassion fatigue, secondary traumatic stress, and work burnout. In the following subsections, I discuss subject recruitment and demographics, informed consent procedures, data collection procedures, and subject exit procedures.

Subject recruitment and demographics. I recruited subjects using emails distributed to the selected sample of registered nurses. The emails were sent to the subjects' publicly available emails associated with their registered nurse records. The body of the email message contained information identifying the researcher, introducing subjects to the study, describing the subject requirements for the study, and inviting eligible subjects to participate in the study. A hyperlink to the online survey was included to facilitate access to the study survey. A copy of the study invitation email is located in Appendix A.

Informed consent. Although the study invitation email included a brief introduction to the study, informed consent was obtained once subjects accessed the online survey using the hyperlink. Subjects were then redirected to an informed consent

page explaining the full risks and benefits of the study. By selecting the *yes* radio button, subjects gave consent to participate in the study and to be redirected to the study questions. Subjects who chose not to participate in the study at the point of informed consent were redirected to a page thanking them for their time.

Data collection. I used Internet-based surveys as the primary method for data collection. Internet-based surveys were an appropriate method to gather data because of their convenience and their potential to increase subjects' responsiveness about potentially sensitive topics such as compassion fatigue (Frankfort-Nachmias et al., 2015; Sheppard, 2015). Also, using Internet-based surveys reduced the time needed for distribution and return compared with paper survey methods (Frankfort-Nachmias et al., 2015; Weigold et al., 2013). In addition, I developed the surveys so that they were compatible with multiple software devices and platforms, facilitating nurses' responses from a variety of settings. Several other studies related to compassion fatigue, secondary traumatic stress, and work-related burnout have retrieved adequate data and recruited adequate, representative samples using Internet-based survey methods (Kelly et al., 2015; Sacco et al., 2015; Sansó et al., 2015). Internet-based surveys composed of the GRAS, CF-Short Scale, and demographic items measured the concepts of reflection, compassion fatigue, secondary traumatic stress, and work burnout for correlational analysis.

I developed the Internet-based surveys using the SurveyMonkey® (2017) software platform. The surveys consisted of items in the following order: informed consent page, GRAS items, CF-Short Scale items, and demographic items. Because subjects had the option to leave the study at will, I programmed the survey software so that responses to

all survey questions were required to complete the survey. Only one response was allowed per question. In addition, I adjusted the survey settings so that the survey results were not linked to subjects' names or other identifying information.

I distributed the surveys through study invitation emails sent to each of the 2,000 nurses in the study sample. Each email contained a link to the survey as well as an opt-out link so that subjects could unsubscribe from the email. Subjects who accessed the link were redirected to the survey, beginning with the informed consent page. A positive response on the informed consent automatically redirected subjects to the first question in the survey. Subjects were able to progress through items using radio buttons at the bottom of the survey pages and were able to view their progress on the progress bar at the bottom of each survey page. I set the survey settings so that subjects could access the survey for 28 days from the date that the original recruitment emails were sent. After 14 days, because I had not received at least 200 responses to the survey, I sent subjects reminder emails about the study. A copy of the reminder email text is in Appendix B. Subjects were only allowed to complete to the survey once. Because the surveys were hosted on the SurveyMonkey® platform, I could access the electronic results throughout and after the 28 days that the survey was open to subjects.

Subject exit procedure. Subjects who completed the online survey were redirected to a page thanking them for their participation in the study. Both subjects who completed the study as well as those who declined to participate in the study based on the consent or eligibility item were directed to an end page thanking them for their

participation in the study. The end page also contained a link to an informational article by Boyle (2011) about compassion fatigue and work burnout among nurses.

Instrumentation and Operationalization of Constructs

The primary study variables of reflection, compassion fatigue, secondary traumatic stress, and work burnout were operationalized using the Groningen Reflective Ability Scale (GRAS) and the Compassion Fatigue—Short Scale (CF-Short Scale) (Adams et al., 2006; Aukes et al., 2007). In addition, I included demographic items to analyze the sample of survey subjects. The following sections contain a discussion of the study instrumentation and operationalization of the study variables.

Groningen Reflective Ability Scale (GRAS). In the study, I operationalized the variable of reflection as nurses' total scores on the Groningen Reflective Ability Scale (GRAS), a 23-item instrument (Aukes et al., 2007). The GRAS was scored using a 5-point Likert scale ranked from 1 (totally disagree) to 5 (totally agree), with items 3, 4, 8, 12, 17, and 21 being negatively scored (Aukes et al., 2007). According to Aukes et al. (2007), subjects' total scores on the GRAS may be considered to represent higher or lower levels of reflection. Based on the GRAS's initial validation, the GRAS takes approximately 10 minutes for completion (Aukes et al., 2007). Aukes et al. (2007) originally developed the GRAS to measure personal experience-related reflection among medical students. Since its development, researchers have validated the GRAS in English, Dutch, and Danish versions (Andersen et al., 2014; Aukes et al., 2007; Aukes et al., 2008; Morse, 2012). I used the English version in the current study. I obtained

permission to use the GRAS from Dr. Slaets, one of the original instrument developers. A copy of the permission to use the GRAS for the study is in Appendix C.

Aukes et al. (2007) used several effective techniques to test the validity and reliability of the GRAS. To ensure content validity, the authors used two separate expert reviews for face validity and developed questions to represent different types of reflection for sampling validity (Aukes et al., 2007). Construct validity was tested by comparing the items from the literature to the Five Factor personality theory (Aukes et al., 2007). The initial validation of the GRAS had a Cronbach's alpha ranging from .74 to .83 during tests with medical students (Aukes et al., 2007).

Since the initial development of the GRAS, researchers have further examined the reliability of the GRAS. Grosseman et al. (2014) found that the English version of the GRAS had a Cronbach alpha of .80 among a population of medical students, similar to the .83 and .74 found in the original study (Aukes et al., 2007). In addition, Morse (2012) found several Cronbach alphas for the English version of the GRAS of .85, .86, .84, and .78 on four posttests in a study of nurse practitioner students. Therefore, the GRAS appeared to be a reliable, valid tool by which to measure reflection in the study.

Compassion Fatigue—Short Scale (CF-Short Scale). The variables of compassion fatigue, secondary traumatic stress, and work burnout were operationalized using the Compassion Fatigue—Short Scale (CF-Short Scale). The CF-Short Scale is a 13-item instrument containing eight-item and five-item subscales for job burnout and secondary traumatic stress, respectively (Adams et al., 2006). Each item on the CF-Short Scale is scored on a 10-point Likert scale (Adams et al., 2006). The entire scale item

scores can be combined to give total scores for compassion fatigue, and the subscale scores can be totaled separately to give subjects' scores for work burnout and secondary traumatic stress (Adams et al., 2006). However, the estimated completion time was not reported by Adams et al. (2006). I obtained permission to use the CF-Short Scale from Dr. Boscarino, one of the primary developers of the CF-Short Scale. Appendix D has a copy of the permission. A copy of the CF-Short Scale items is in Appendix E.

Adams et al. (2006) found that the CF-Short Scale had strong factor, predictive, and concurrent validity among social workers in New York. Construct validity was also determined through a comparison of concepts to Figley's (1995) concept definitions (Adams et al., 2006). Overall, the instrument had a Cronbach's alpha of .90 and a high correlation to other scales measuring related variables (Adams et al., 2006). The secondary traumatic stress subscale had a Cronbach's alpha of .80, and the job burnout subscale had a Cronbach's alpha of .90 (Adams et al., 2006). Original testing of the CF-Short Scale strongly supported the scale's reliability and validity.

Compared to other scales for compassion fatigue, the CF-Short Scale has relatively high reliability and validity (Bride et al., 2007). Although the CF-Short Scale does not appear to have been formally validated among nursing professionals, the instrument or its subscales have been validated among emergency workers in Pakistan and China, firefighters, and Israeli creative arts therapists and students (Ahmad et al., 2015; Orkibi, 2016; Sun et al., 2016). The study findings contributed to understanding the reliability of the CF-Short Scale among hospital-based acute care nurses.

Demographic items. The final items in the survey were questions to determine various demographics of the study sample. The multiple-choice demographic items were used to assess subjects' practice setting and size of practice setting, highest completed degree in nursing, number of years working as a registered nurse, weekly hours worked in nursing, employment in single or multiple nursing positions, gender, age, marital status, and ethnicity. A list of the demographic items is located in Appendix F.

Study instrumentation development. Prior to data collection, I combined the demographic items, GRAS, and CF-Short Scale into an online survey format using the Survey Monkey® software platform (2017). The first item in the study instrumentation was the informed consent page. After the informed consent was a subject eligibility screening item verifying that respondents were currently employed as registered nurses in a hospital-based acute care environment during the study. A copy of the subject eligibility screening item is in Appendix F. Following the consent and eligibility items, I placed the GRAS items in the same order and with the same wording as in the original instrument, followed by the CF-Short Scale items, which were also placed in the same order and with the same wording as in the original instrument. For the CF-Short Scale, the only significant item modification that I made is that I excluded the label *somewhat*, which is located over the center of the 1 to 10 Likert scale for the item responses. I omitted the label because the formatting within the SurveyMonkey® software made the label leading toward either the *5* or the *6* responses on the scale. The instructions for each instrument were placed at the beginning of each relevant section of items. To enhance readability and compatibility with mobile electronic devices, I placed several survey items on each

page of the survey. I placed the demographic items last to encourage subjects to complete the questions pertinent to the primary study variables. The link to the finalized online survey was included in the subject recruitment emails.

Data Analysis Plan

Variable operationalization. Using the Internet-based surveys, I operationalized each of the study variables for data analysis. First, I operationally defined the variable of reflection as nurses' composite scores on the GRAS instrument developed by Aukes et al. (2007). According to Aukes et al. (2007), there is no established standard for high or low scores for reflection based on GRAS scores. Therefore, based on comments by Aukes et al. (2008), I considered the nurses' total GRAS scores as indicative of relatively higher or lower levels of reflection. For example, a nurse with a composite score of 46 on the GRAS scale would have a relatively lower level of reflection, given that the GRAS scores could range from a lowest possible score of 23 to a highest possible score of 115.

Second, I operationalized the variables of compassion fatigue, secondary traumatic stress, and work burnout as nurses' composite scores on the CF-Short Scale and its respective secondary traumatic stress and job burnout subscales. I considered nurses' composite scores for the entire CF-Short Scale, the eight-item job burnout subscale, and the five-item secondary traumatic stress subscale to be their levels of compassion fatigue, work burnout, and secondary traumatic stress, respectively. The CF-Short Scale and its subscales did not have specific categories or cut off points for high or low scores; therefore, I considered each score to represent relatively higher or lower levels of each variable compared with the entire range of possible scores for each corresponding

variable (Adams et al., 2006). For example, the CF-Short Scale scores for compassion fatigue could range from 13 to 130. A nurse who scored a 120 on the overall CF-Short Scale would be considered to have a relatively higher level of compassion fatigue. During data analysis, I used nurses' composite scores for each of the variables of compassion fatigue, secondary traumatic stress, and work burnout.

Data analysis software and storage. After the SurveyMonkey® platform provided me with subjects' de-identified survey results, I exported the study data to IBM SPSS Statistics for Windows, version 23, for analysis. I stored the study data as a file within the SPSS program on a password- and antivirus-protected personal computer. A copy of the data as a spreadsheet software file was also stored on a secure external drive. After saving the data, I analyzed it using various SPSS software functions.

Data cleaning and screening procedures. I cleaned and screened the study data carefully prior to statistical analysis. De-identified data from the Internet-based surveys was obtained from the SurveyMonkey® server after the four-week survey distribution time period. First, I examined the data to detect any obvious errors, such as results inconsistent with the potential range of responses on the scales. In addition, I ensured that results from all instrument items were included in the survey and converted the reverse-scaled items in the GRAS to positive scores.

Second, I analyzed the total time stamps for each survey. According to Huang, Curran, Keeney, Poposki, and DeShon (2012), two seconds is the minimum estimated potential time for valid subject response times on survey items. Based on Huang et al.'s (2012) estimate of two seconds per item, the study survey should have taken a minimum

of 96 seconds to complete including the informed consent and survey eligibility question. However, because many of the survey items are relatively short and could be completed quickly, I gave subjects an estimated minimum of 60 seconds to complete the survey, or an average of 1.25 seconds to complete each item for study eligibility. I screened and removed subjects who took 60 seconds or less to complete the entire survey.

Third, I screened the data for outliers. After graphing the distributions for composite scores on each of the four major variables, I examined the data for any obvious outliers and screened those subjects from the data. Additionally, I calculated the Mahalanobis *D* statistic for the total scores from the GRAS and CF-Short Scale, using listwise deletion to exclude missing data for the purposes of the Mahalanobis *D* test. Subjects who were in the upper 5% of the D^2 value chi-square distribution were screened from the study dataset as outliers if they also were obvious outliers on the distributions for composite scores. DeSimone, Harms, and DeSimone (2015) found that screening data using the Mahalanobis *D* statistic was useful in identifying subjects with extreme or unusually random response patterns.

Finally, I cleaned and screened the data based on missing responses. Because I analyzed composite scores on all items for each individual variable, I had to screen responses on a variable if one of the variable items was missing. For example, if a subject did not respond on one of the GRAS items, I had to remove all the GRAS data for that subject. Subjects with missing data on all variables were cleaned from the data. For subjects with complete data on at least one variable but missing data on other variables, I removed data on variables with missing data. However, I did not exclude subjects based

on missing or incomplete demographic data. I analyzed demographic data based on the available responses.

Research question and hypotheses. The analysis of the data was based on the research question and hypotheses. The research question was the following: What is the relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout? Based on the research question, the null hypothesis was as follows: H0: There is no relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. The alternative hypothesis was H1: There is a significant relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. I analyzed the study data using several statistical methods to determine whether I would accept or reject the null hypothesis.

Analysis plan.

Statistical tests. Traditionally, researchers have used parametric methods, such as Pearson correlations, analysis of variance, and regression analyses, to analyze the results from Likert-based scales measuring compassion fatigue and variables related to reflection (Hegney et al., 2014; Kelly et al., 2015; Slocum-Gori et al., 2013; Yom & Kim, 2012). Other researchers have analyzed the relationship of demographics, personal factors, and other characteristics to compassion fatigue, secondary traumatic stress, and work-related burnout using parametric tests such as simple, hierarchical, and multiple regression, MANOVA, and multivariate analysis of covariance (MANCOVA) (Branch &

Klinkenberg, 2015; Craigie et al., 2016; Hunsaker et al., 2015; Yu, Jiang, & Shen, 2016; Zeidner et al., 2013). Based on an analysis of Likert scale use, Norman (2010) suggested that Likert-scaled data, even when not normally distributed, often may be accurately analyzed with parametric statistics. Therefore, I used several parametric statistical tests to analyze the study data.

MANOVA analysis. The primary statistical test that I planned to perform was a two-way MANOVA. The MANOVA model would be constructed using the dependent variables of compassion fatigue, secondary traumatic stress, and work burnout. For the purposes of the MANOVA, I planned to separate the independent variable of reflection into relatively low and relatively high categories.

First, I calculated subjects' total scores on the GRAS, CF-Short Scale, and job burnout and secondary traumatic stress subscales of the CF-Short Scale. Second, I planned to separate the subjects' scores on the GRAS into relatively low and relatively high scores based on their total scores. Because the GRAS has no cut scores for low or high reflection, I created low and high cut scores based on Aukes et al.'s (2008) suggestion that the scores range from very low reflection to very high reflection. Scores on the GRAS were calculated based on a five-item Likert scale. Therefore, total scores on the GRAS could range from 23 to 115. For the purposes of the study, scores from 23 to 69 represented relatively low reflection, and scores from 70 to 115 represented relatively high reflection. Finally, I decided to run a two-way MANOVA with relatively low and relatively high levels of reflection as independent variables and each of the composite CF-Short Scale scores for compassion fatigue, secondary traumatic stress, and work

burnout as dependent variables. I would then analyze the output from the MANOVA to determine how nurses' levels of compassion fatigue, secondary traumatic stress, and work burnout vary based on low or high levels of reflection.

Simple regression analyses. In addition to performing a two-way MANOVA, I decided to run simple regression analyses to determine the relationships between nurses' reflection scores on the GRAS and their compassion fatigue, secondary traumatic stress, and work burnout scores, respectively, on the CF-Short Scale. The regression analyses included the entire range of GRAS scores for reflection instead of separating scores into relatively low and relatively high scores as was done with the MANOVA analysis. First, I converted subjects' composite scores on the GRAS, CF-Short Scale, and the job burnout and secondary traumatic stress subscales of the CF-Short scale to *z* scores. Because the GRAS and the CF-Short Scale have five-item and 10-item Likert scales, respectively, using *z* scores enabled me to analyze and compare distributions of each variable. Second, I ran binary simple regression analyses between nurses' *z* scores for the GRAS and nurses' *z* scores for compassion fatigue, secondary traumatic stress, and work burnout, respectively. Finally, I examined the results of each individual regression analysis for relationships between reflection and each of the variables of compassion fatigue, secondary traumatic stress, and work burnout.

Demographic item analysis. After performing the MANOVA and regression analyses, I analyzed the subjects' demographic data. For each of the demographic items, I ran descriptive statistics, including means, medians, standard deviations, and frequency distributions. The demographic items were used primarily to describe the study sample.

Nonparametric tests. To compare the parametric data analysis to nonparametric methods, I ran Spearman's rho correlations to determine whether significant relationships existed between nurses' composite scores on reflection from the GRAS and their composite scores on compassion fatigue, secondary traumatic stress, and work burnout, respectively, from the CF-Short Scale. If the initial survey results were not normally distributed, I planned to use the results from the Spearman's rho correlation coefficient to accept or reject the null hypothesis. In addition, I compared the results of the nonparametric data analysis with the parametric data analysis to further establish statistical conclusion validity for the study.

Additional data analysis. During the data analysis process, I ran the same statistical tests on sets of the uncleaned and unscreened data when possible to analyze differences in results. Including both unscreened and screened data may assist in identifying how screening affected the study results (DeSimone et al., 2015). However, I still screened the data to remove individual results for variables with missing responses due to the effect of the missing responses on total scores. Throughout the data analysis process, I generated graphs and charts to examine and compare data distributions and statistical results. Also, I calculated Cronbach's alphas for the CF-Short Scale and the GRAS to determine and compare the reliability of each scale.

Result interpretation. Based on the statistical analysis, I was able to make a decision whether to accept or reject the null hypothesis that there is no significant relationship between nurse' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. By accepting the alternative hypothesis, I

would have also determined whether the relationships detected were significantly positive or negative based on the correlation values corresponding with each statistical test. Also, I examined the results of the data analysis in relation to the theoretical framework and the results of previous studies. Finally, I compiled the results of the sample demographics and compared the results to those of previous studies. The study results are discussed in detail in Chapter 4.

Threats to Validity

Threats to External Validity

The study had limitations that threatened its external validity. Because I limited the study population to hospital-based acute care registered nurses practicing in one state in the southeastern United States, I was unable to generalize the results to all populations of nurses within the state as well as populations of nurses outside the state. Having a limited generalizability was a threat to the external validity of the study (Campbell & Stanley, 1963). The primary objective of the study was to determine whether a relationship exists between variables instead of the distributions of the variables within the study population. However, I did collect data on subject demographics to facilitate result comparison to related studies and the broader nursing population in the state.

Another threat to the external validity of the study was how well the sample represented all registered nurses employed in hospital-based acute care settings within the state. I attempted to decrease the threat to external validity by selecting a random sample of nurses. However, the randomness of the sample was decreased slightly by the fact that not all of the registered nurses in the state may have had updated information in the state

database or may not have had an active email address on file with the state department of health. In addition, I was unable to accurately determine how well the survey respondents represented the entire population due to the limited available data on the population. Future studies may be needed to address the external validity of the study findings in a variety of populations of nurses both within and outside of the state.

Threats to Internal Validity

In addition to threats to external validity, the study had several factors that threatened its internal validity. Many of the threats to internal validity traditionally related to experimental or quasi-experimental designs did not apply to the study because it did not involve variable manipulation, determination of causal relationships, or manipulation of variables over time (Campbell & Stanley, 1963). Therefore, the study had low internal validity due to the study design. However, selection bias could have affected the internal validity of the study results. To decrease selection bias, I selected a random sample from all subjects who met eligibility requirements of having an unencumbered, active nursing license in the state, having an email address on record with the state department of health, and having a practice location within the state. Because of the study design, few interventions were necessary to increase internal validity.

Threats to Construct and Statistical Conclusion Validity

Finally, the study had several threats to construct and statistical conclusion validity. First, I attempted to decrease threats to construct validity in the study. The researchers who developed the GRAS, which I used to operationalize the concept of reflection, carefully compared the items from the literature to the Five Factor personality

theory after establishing the instrument's face and content validity as a measurement of personal reflection (Aukes et al., 2007). In addition, Adams et al. (2006) analyzed the construct validity of the CF-Short Scale in relation to Figley's (1995) concept development of compassion fatigue, secondary traumatic stress, and job burnout. Because each of the study variables has been operationalized in relation to existing theory, the study had relatively strong construct validity.

Second, I attempted to decrease threats to statistical conclusion validity in the study. Threats to statistical conclusion validity in the study occurred primarily as a result of the statistical data analysis (García-Pérez, 2012). I attempted to decrease type I and type II error in the study by obtaining a sample size that would an adequate power of .80. Another threat to statistical conclusion validity was the instrument reliability. I calculated reliability statistics for both the GRAS and the CF-Short Scale to assess their reliability in operationalizing each of the study variables of reflection, compassion fatigue, secondary traumatic stress, and work burnout.

A final method that I used to improve statistical conclusion validity was meeting the selected analysis method's assumptions. Using parametric data analysis, I had to assume that the data had a normal distribution. For data that did not appear to follow a normal distribution, I planned to use a nonparametric method such as Spearman rank-order correlation to determine relationships between variables. Also, I randomly selected a sample from the population. Because I had limited data on the exact demographics and employment in the population, the sample may not have represented an entirely random

sample of the population. Therefore, meeting the statistical method assumptions was the greatest threat to statistical conclusion validity.

Ethical Procedures

Access to Subjects

I recruited the study subjects through emails sent to nurses registered in a state in the southeastern United States. The email addresses included in the sampling frame were available for public download through the state's department of health. If desired, registered nurses in the selected state had the option to not provide an email address or hide their contact information. Therefore, because the sampling frame was public information that was voluntarily released by nurses in the state at the time of the study, I incurred no foreseeable risk in using the email addresses to access the subjects.

Treatment of Human Subjects

Institutional Review Board review. Prior to data collection, I obtained approval for the study design and procedures from the Walden University Institutional Review Board. Because the registered nurses in the study sample were recruited using public data, the department of health in the selected state did not need to approve the study prior to data collection. The Walden University Institutional Review Board approval number for the study is 05-12-17-0577286.

Ethical concerns related to recruitment. During the study recruitment process, I took several steps to protect the study subjects. One ethical concern was the voluntary provision of contact information by study subjects. I sent the study recruitment emails to a sampling frame of publicly available, voluntarily provided email addresses. A second

concern was nurses' ability to choose whether they would participate in the study. To meet the concern of voluntary study participation, I clearly explained the study in the recruitment email and gave subjects the opportunity to opt out of future follow-up emails regarding the study. I listed my contact information with the email to give subjects the opportunity to raise concerns or ask questions about the study. Using voluntary email addresses, giving clear study expectations, and allowing subjects to opt out of the study were measures to decrease ethical concerns related to study recruitment.

Ethical concerns related to data collection. During the data collection process, I addressed several ethical concerns. First, the data were obtained voluntarily. Therefore, I obtained informed consent from subjects prior to data collection. The informed consent page was placed as the first item for subjects to complete once they accessed the data collection survey. I thoroughly described the risks and benefits of the study, data management, and study procedures in the informed consent page to allow subjects to make an informed decision about taking the survey. Subjects acknowledged their decisions to participate in the study by selecting the *yes* or *no* radio buttons at the end of the informed consent page. While taking the survey, subjects could exit the study at will.

A second ethical concern related to data collection was the adequate protection of subjects' confidentiality and anonymity. When sending the subject recruitment emails and survey links, I selected the option in the Survey Monkey® platform that separated the results from subjects' names, Internet protocol addresses, email addresses, and other confidential information. Although I knew the study recruitment email recipients' names and email addresses as well as whether subjects had responded to the survey, subjects'

responses were not linked to their email addresses or status as having responded to the survey. I sent follow-up emails only to subjects who were marked as having not responded or partially responded to the survey. Therefore, subject responses were anonymous for the purposes of the study, and I only knew whether subjects responded to the study invitation.

A third ethical issue related to data collection was the potentially harmful influences of the survey items on the study subjects. The survey items operationalized sensitive topics related to personal attitudes and feelings. Reflecting on patient situations could contribute to anxiety and self-questioning as painful memories continue to resurface (Asselin & Schwartz-Barcott, 2015; Asselin et al., 2013; Sheppard, 2015). The stigmatizing nature of compassion fatigue may be a factor in how nurses react to their own compassion fatigue (Sheppard, 2015). To attempt to mitigate the potential psychological or emotional harm caused by raising sensitive topics, I included a link to the free access article "Countering Compassion Fatigue: A Requisite Nursing Agenda" by Boyle (2011) on the end page of the survey. In the free article, Boyle discussed compassion fatigue and burnout among nurses. In addition to the article, I provided my contact information with the study recruitment email so that subjects could contact me if they desired additional information about the survey items or topics. Walden University contact information was included with the informed consent page so that subjects could contact the university if they desired more information about the study. Acknowledging sensitive topics during data collection was an important aspect of ethical study procedures.

Data Treatment

Data confidentiality. I took steps to protect the confidentiality of the study data. To increase subjects' confidentiality, I did not link subjects' email addresses, Internet protocol addresses, name, and other personally identifiable information to their survey responses. During data analysis and study dissemination, I have not released the identities of registered nurses who were sent the study recruitment email regardless of their response to the study invitation.

Data protection. During and after the study, I protected the study data. The Survey Monkey® software platform, which I used to develop, distribute, and collect the survey responses, had privacy and security measures in place to secure study data during the data collection process. Also, I stored all study data that I retrieved through the Survey Monkey® platform on password-protected electronic devices that were secured in a private office. I plan to keep study data for up to ten years after the study completion date. Finally, I did not release raw study data to additional individuals unless they were directly involved in the study.

Other Ethical Issues

Other ethical issues were also relevant to the study. Because the study was distributed to nurses across a state in which I have resided and been employed, it could have potentially been sent to nurses whom I had previously known, supervised, or taught. I was not employed in a supervisory position over registered nurses within the state selected for data collection at the time of the study; therefore, my potential coercion of subjects would have been minimal.

Summary

A quantitative, descriptive, cross-sectional, correlational study design was used to determine the relationship between hospital-based acute care registered nurses' reflection as operationalized by the GRAS and their compassion fatigue, secondary traumatic stress, and work burnout as operationalized by the CF-Short Scale. I used a survey-based methodology to administer Internet-based surveys containing the GRAS, CF-Short Scale and demographic items. The surveys were sent to a randomly selected sample of 2,000 nurses registered in a state of the southeastern United States. I planned to perform several statistical analyses on the data, including two-way MANOVA, descriptive statistics, and simple regression analyses. In addition, I addressed threats to external, internal, construct, and statistical conclusion validity by using methods such as selecting a random sample, acknowledging the generalizability of the study, and selecting appropriate statistical analyses that did not significantly violate statistical assumptions. Throughout the study, I maintained procedures for ethically treating human subjects and study data, avoiding coercion, and mitigating the effects of sensitive survey items with educational resources. In conclusion, I implemented the research methods and design to ethically obtain and analyze study data.

Chapter 4: Results

The purpose of the cross-sectional, correlational, quantitative study was to determine the relationship, if any, between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. The research question guiding the study was the following: What is the relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout? To provide an answer to the research question, Internet-based surveys containing the GRAS, CF-Short Scale, and demographic items were administered to a sample of 2,000 registered nurses in a state in the southeastern United States. The results of the surveys were analyzed to determine whether to accept or reject the null hypothesis that there is no significant relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. The alternative hypothesis was that there is a significant relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. In Chapter 4, I discuss the results of the data collection process, including the time frame for data collection, subject recruitment and response rates, discrepancies from the study plan, and a description of the sample. The remaining sections of Chapter 4 contain the results of the study data analysis, including the variable-related sample statistics and statistical analysis findings.

Data Collection

Time Frame

The data collection for the study took place over a period of 28 days from the date that I sent out the initial study recruitment emails in May 2017. Because the initial response rate was low, I sent out study reminder emails during the second, third, and fourth weeks of data collection. I sent the initial recruitment and reminder emails on different weekdays. At the end of the 28-day period, I closed the online survey collector.

Recruitment and Response Rate

According to the initial plan, I sent out the initial recruitment emails to a random sample of 2,000 nurses in a state in the southeastern United States. I selected the sample using random probability sampling from a filtered sampling frame of 199,200 nurses' contact information. The sampling frame was obtained from publicly available records from the department of health in the selected state. Of the 2,000 initial recruitment emails, three emails failed to reach subjects' email accounts due to an invalid email address or a subject's previous decision to opt out of survey invitations from the SurveyMonkey® site. By the end of the data collection, the SurveyMonkey® software had marked 20 email addresses as being invalid and 55 subjects as opting out of study inclusion. In addition, 13 subjects emailed me to state their ineligibility for the study or desire not to participate in the study. However, 95.6% of subjects received the recruitment emails, did not opt out of the study, and did not indicate their ineligibility for the study to me directly.

Despite the high recruitment rate, the overall response rate for the survey email invitations was 3.8%, or 76 subjects. Fourteen of these subjects declined to give consent to participate after beginning the survey, indicated that they did not meet the eligibility requirements stated in the subject eligibility item, or did not respond to any survey items other than the consent and eligibility item. Only 62 subjects, or 3.1% of the total sample, responded to the data collection items of the surveys. An additional three subjects were excluded because they did not give any demographic information or completely respond to any of the scales or subscales. Therefore, the final sample size was 59 subjects, or 2.95% of the total sample.

Discrepancies From Study Plan in Data Collection

I followed the study plan as described in Chapter 3, with one exception. Instead of sending out recruitment emails after 14 days, I sent out initial reminder emails after 13 days of data collection. I sent the initial reminder emails a day early to avoid sending the reminder emails immediately before a holiday weekend.

Sample

Characteristics. Because I knew very little about the nurses in the sample prior to their participation in the study, I assessed several demographic characteristics as part of the study survey. Fifty-eight subjects provided information for the demographic items. The subjects' demographic characteristics can be categorized into professional characteristics and personal characteristics. In the following sections, I have summarized the findings about the professional and personal characteristics of the study sample.

Professional characteristics. In the demographic survey items, I measured seven professional characteristics. The professional characteristics of the sample can be divided into workplace characteristics and professional development and experience. Workplace characteristics assessed included the hospital area of nursing practice, size of the hospital of employment, hours per week worked as a nurse, and number of employers. Table 1 lists the workplace characteristics of the sample.

Table 1

Professional Characteristics of Sample—Workplace Characteristics

Characteristic		*f*	Percent of sample (*N* = 58)
Primary area of practice			
	Critical care	11	19.0
	Emergency department	7	12.1
	Maternity/OB-GYN	4	6.9
	Medical-surgical unit	11	19.0
	Neonatal unit	2	3.4
	Oncology	1	1.7
	Pediatrics	3	5.2
	Procedural area	6	10.3
	Progressive care/stepdown unit	3	5.2
	Telemetry	1	1.7
	Other	9	15.5
Hospital size in beds			
	0-99	3	5.2
	100-199	6	10.3
	200-299	18	31.0
	300-399	5	15.5
	400-499	9	15.5
	500 and up	17	29.3
Hours per week employed in nursing			
	10 or less	2	3.4
	11-20	2	3.4
	21-40	38	65.5
	41 or more	16	27.6
Employment status			
	Single employer	50	86.2
	Multiple employers	8	13.8

The professional development and experience characteristics measured were highest completed degree in nursing and years worked as a registered nurse. Subjects' professional development and experience characteristics are listed in Table 2.

Table 2

Professional Characteristics of Sample—Professional Development and Experience

Characteristic		*f*	Percent of sample (*N* = 58)
Highest completed nursing degree			
	Associate	20	34.5
	Diploma	2	3.4
	Bachelor	26	44.8
	Master	9	15.5
	Doctoral	1	1.7
Years worked as a registered nurse			
	0-2	12	20.7
	3-5	7	12.1
	6-10	5	8.6
	11-20	7	12.1
	21-30	14	24.1
	31 and up	13	22.4

Personal characteristics. The demographic survey items included four items to determine subjects' personal characteristics of gender, age, marital status, and primary ethnicity. The personal characteristics of the sample are summarized in Table 3.

Table 3

Personal Characteristics of Sample

Characteristic		*f*	Percent of sample (*N* = 58)
Gender			
	Female	49	84.5
	Male	9	15.5
Age			
	18-30	8	13.8
	31-40	11	19.0
	41-50	7	12.1
	51-60	20	34.5
	61-70	11	19.0
	71 and up	1	1.7
Marital status			
	Married	25	43.1
	Single	33	56.9
Ethnicity			
	African American	4	6.9
	Asian American	4	6.9
	Caucasian	45	77.6
	Latino	3	5.2
	Native American	0	0
	Other	2	3.4

Sample representativeness. Because the exact demographic characteristics of the target population of hospital-based registered nurses in the selected state are unknown, I was unable to determine how representative the sample was in relation to the target population. Of the 199,200 nurses in the sampling frame, I was also unable to determine the accuracy of the nurses' self-reported contact information as well as how many of the nurses met the eligibility requirements of practicing in a hospital-based acute care environment. Although I assessed nurses' eligibility based on age, practice setting, and licensure status as part of the data collection process, the relatively low sample size and response rate decreased the potential representativeness of the sample.

Despite its potentially limited representativeness, the sample seemed to represent a diverse group of hospital-based acute care registered nurses based on several demographic characteristics, but it lacked diversity in other areas. For example, nurses from a variety of practice settings, educational backgrounds, and levels of experience responded to the surveys. However, most of the nurses in the sample identified themselves as female (84.5%) or Caucasian (77.6%). Of the nurses in the sample, 55.2% identified themselves as being over 51 years of age. These demographic statistics could be representative of the target population, but the sample's limited diversity in age and ethnicity requires future research validation to determine representativeness.

Although I was unable to compare the sample's demographic information to the demographic characteristics of the target population of hospital-based acute care nurses in the selected state, I compared the results to previously obtained information for all registered nurses in the state. A survey of registered nurses from 2014 to 2015 within the selected state revealed statewide statistics regarding highest earned nursing degree, employment status, ethnicity, gender, and age (Florida Center for Nursing, 2016). A comparison of demographic data from the current study and the 2014 to 2015 survey data is in Table 4.

Table 4

Comparison of Sample Characteristics With 2014-2015 State Nursing Workforce Data

Characteristic		Current study %	2014-2015 data %
Highest completed nursing degree			
	Associate/Diploma	37.9	45.7
	Bachelor	44.8	37.7
	Master	15.5	5.2
	Doctoral	1.7	0.3
Hours worked per week			
	20 or less	6.8	6.6
	21-40	65.5	72.6
	41 or more	27.6	20.8
Employment status			
	Single employer	86.2	88.5
	Multiple employers	13.8	11.5
Ethnicity			
	African American	6.9	13.6
	Asian American	6.9	7.2
	Caucasian	77.6	64.7
	Latino	5.2	11.5
	Native American	0	0.2
	Other	3.4	2.8
Gender			
	Female	84.5	88.9
	Male	15.5	11.1
Age			
	18/21-30*	13.8	10.7
	31-40	19.0	20.6
	41-50	12.1	24.8
	51-60	34.5	27.3
	61 and up	20.7	16.5

Note. All 2014 to 2015 data are from published nursing workforce data from the Florida Center for Nursing (2016).

*The age range for the current study was 18 to 30, whereas the age range for the 2014-2015 data was 21 to 30.

In the current study, nurses tended to have a slightly higher education level and hours worked per week compared to the 2014 to 2015 data, although the number of employers was relatively equivalent (Florida Center for Nursing, 2016). The members of the study sample also tended to be slightly older and less ethnically diverse than the 2014 to 2015 data (Florida Center for Nursing, 2016). Finally, the percentage of males in the study was slightly higher than the percentage of male nurses in the 2014 to 2015 data (Florida Center for Nursing, 2016). Overall, there were slight differences between the study sample characteristics and the published characteristics of the registered nurse population in the selected state from 2014 to 2015. However, it is difficult to determine whether this similarity indicates representativeness of the study sample because the previous statistics were several years older and involved a much broader range of nurses than the current study.

Results

Descriptive Statistics of Sample Variables

Using Internet-based surveys, I measured the independent variable of reflection and the dependent variables of compassion fatigue, secondary traumatic stress, and work burnout in the sample. The four study variables were operationalized using the GRAS and CF-Short Scale. In this section, I present descriptive statistics relevant to the measurement of each of the four study variables among the sample.

Reflection. The independent variable of reflection was operationalized in the sample using the 23-item Likert scale-based GRAS (Aukes et al., 2007). The GRAS had adequate reliability with a Cronbach's $\alpha = .76$, a measurement relatively equivalent to the

initial validation of the GRAS, which had a Cronbach's alpha ranging from .74 to .83 (Aukes et al., 2007). Subjects' scores on the GRAS were at or above 59.8% of the highest possible GRAS score, indicating relatively moderate to high levels of reflection according to Aukes et al. (2008). Table 5 contains a summary of the major descriptive statistics for the GRAS results in the sample.

Compassion fatigue, secondary traumatic stress, and work burnout. The dependent variables of compassion fatigue, secondary traumatic stress, and work burnout were operationalized using the 13-item Likert scale-based CF-Short Scale and its subscales (Adams et al., 2006). The overall CF-Short Scale had a high reliability, Cronbach's $\alpha = .87$. The secondary traumatic stress and burnout subscales of the CF-Short Scale had Cronbach's alphas of .78 and .87, respectively. The reliability values are slightly lower than the reliability statistics for the original validation by Adams et al. (2006), which had Cronbach's $\alpha = .90$, .80, and .90 for the overall scale, secondary traumatic stress subscale, and burnout subscale, respectively. Subjects had a wide range of scores on each of the compassion fatigue, secondary traumatic stress, and work burnout variables, although scores varied from the lower 1% to at least 75% of possible scores, as summarized in the descriptive statistics listed in Table 5. Therefore, subjects tended to have relatively low to moderately high levels of compassion fatigue, secondary traumatic stress, and work burnout relative to the possible range of CF-Short Scale scores.

Table 5

Descriptive Statistics for Variable Operationalization

Variable	Scale	*N*	Items	Range of total scores		*M*	*SD*	α
				Potential	Observed			
Reflection	GRAS	59	23	23-115	78-114	97.97	7.45	.757
Compassion fatigue	CF-Short Scale	58	13	13-130	14-104	45.64	21.74	.873
Secondary traumatic stress	CF-Short Scale (Secondary traumatic stress subscale)	58	5	5-50	5-39	14.41	8.59	.784
Work burnout	CF-Short Scale (Job burnout subscale)	58	8	8-80	9-68	31.22	16.30	.866

Note. GRAS = Groningen Reflective Ability Scale, CF-Short Scale = Compassion Fatigue—Short Scale.

Statistical Analysis

Data cleaning and screening. As I cleaned the data, I screened it for obvious outliers using frequency distributions as well as Mahalanobis *D* statistic calculations for the composite scores on each variable. Based on Mahalanobis *D* statistic calculations, frequency distributions, and plots of the data, one subject's data were removed from the reflection scores. In addition, one subject's data were removed from each of the compassion fatigue, secondary traumatic stress, and work burnout scores; and an additional four subjects' data were removed from the secondary traumatic stress scores.

While screening the survey responses based on completion times, I adjusted the calculated minimum completion time from 60 seconds to the times based on 1.25 seconds

per item. None of the subjects were disqualified due to the minimum time requirement, although I was unable to determine the completion time for one of the subjects who partially completed the survey and finished it several weeks later. I kept this subject's survey responses for analysis during the rest of the screening process because the results did not appear inconsistent with the remaining results.

Rationale and revised plan for data analysis. The assumption of normal data distributions was violated for the dependent variables of compassion fatigue, secondary traumatic stress, and work burnout both with and without outliers. Therefore, I performed Spearman correlation analyses between the independent variable of reflection and each of the dependent variables of compassion fatigue, secondary traumatic stress, and work burnout as the primary method of hypothesis testing. I also performed bootstrapped binary regression analyses or Pearson correlations between the independent variable of reflection and each of the dependent variables of compassion fatigue, secondary traumatic stress, and work burnout. I did not analyze the data with a two-way MANOVA as originally planned due to violations of the assumptions of multivariate normality, linearity, and homoscedasticity.

Nonparametric data analysis. First, I performed a Spearman's correlation analysis to determine the relationship between nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. I bootstrapped the analysis to obtain robust confidence intervals. Also, I performed the analysis on the data for all subjects with complete scores, including outliers, because of the use of ranked data with the Spearman's correlation analysis. I dropped one subject's score on reflection

because it had no corresponding dependent variable scores. None of the Spearman's correlations were significant between reflection and the variables of compassion fatigue, secondary traumatic stress, and work burnout because each bias-corrected accelerated 95% confidence interval crossed zero, as illustrated in Table 6. However, the variables of compassion fatigue, secondary traumatic stress, and work burnout were each highly correlated with one another. To further validate the results, bootstrapped Spearman's correlations were run on the data with outliers removed ($N = 53$), although the analyses validated the results of the Spearman's correlations run on the entire data set. Therefore, based on the results of the Spearman's correlation analyses, the null hypothesis was accepted that there is no significant relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout.

Table 6

Spearman's Rho Bivariate Correlation Matrix With Confidence Intervals

Variable	Reflection	Compassion fatigue	Secondary traumatic stress	Work burnout
Reflection	1			
Compassion fatigue	-.20 [-0.44, 0.09]	1		
Secondary traumatic stress	-.01 [-0.25, 0.27]	.70** [0.47, 0.86]	1	
Work burnout	-.26* [-0.50, 0.03]	.96** [0.95, 0.97]	.52** [0.25, 0.72]	1

Note. The analysis is based on $N = 58$. Bias-corrected accelerated 95% confidence intervals are in brackets. Bootstrap results are based on 1,000 bootstrap samples. Empty cells represent duplicate data.
* $p < .05$, ** $p < .01$ (two-tailed).

Parametric data analyses. Although the results of the Spearman's correlation analyses were adequate to accept the null hypothesis, I performed regression analyses and Pearson correlations with bootstrapping to validate the findings of the nonparametric analysis. As I had done with the nonparametric analysis, I performed the parametric analyses between the independent variable of reflection and the individual dependent variables of compassion fatigue, secondary traumatic stress, and work burnout. The total scores for each variable were converted to standardized *z* scores before each analysis.

Regression analysis. First, I ran binary linear regression analyses using the independent variable of reflection and the dependent variables of compassion fatigue and secondary traumatic stress, respectively. For the binary linear regression models with reflection and compassion fatigue as well as reflection and secondary traumatic stress, the data also met the assumptions of homoscedasticity, independence of errors, and linearity;

however, the residuals were not normally distributed. Therefore, I ran bootstrapping on the confidence intervals and standard errors for each model. For each model, the relationships between nurses' levels of reflection and levels of compassion fatigue and secondary traumatic stress, respectively, were not significant. The results of the binary linear regression analyses are summarized in Table 7.

Table 7

Summary of Binary Linear Regression Analyses Between Scores on Reflection and Scores on Compassion Fatigue and Secondary Traumatic Stress With Univariate Outliers Removed

Variable	*N*	*B*	*SE B*	β	*t*	*p*	R^2	*F*
Compassion fatigue	57	-0.03 [0.58, 1.31]	0.13	-.19	-1.46	.15	.04	2.13
Secondary traumatic stress	53	0.05 [-0.15, 0.24]	0.10	.07	0.51	.61	.01	0.26

Note. Bootstrapped confidence intervals and standard errors are based on 1,000 bootstrap samples. Bias-corrected and accelerated bootstrapped 95% confidence intervals are presented in brackets. *p* is two-tailed.

Also, for comparison, I reran the binary linear regression analyses between the *z* scores for reflection and the *z* scores for compassion fatigue and secondary traumatic stress including the outliers that were excluded in the initial regression analyses. I still excluded data from one subject who only had a score for reflection without corresponding scores for the dependent variables. Although the regression analyses including outliers also revealed nonsignificant relationships between reflection and the respective variables of compassion fatigue and secondary traumatic stress, the *p* values were slightly lower than those for the regression analyses with outliers removed, as described in Table 8.

Table 8

Summary of Binary Linear Regression Analyses Between Scores on Reflection and Scores on Compassion Fatigue and Secondary Traumatic Stress Including Univariate Outliers

Variable	*N*	*B*	*SE B*	β	*t*	*p*	R^2	*F*
Compassion fatigue	58	-0.25 [-0.54, 0.04]	0.13	-.24	-1.81	.07	.06	3.27
Secondary traumatic stress	58	-0.12 [-0.47, 0.18]	0.15	-.11	-0.84	.45	.01	0.71

Note. Bootstrapped confidence intervals and standard errors are based on 1,000 bootstrap samples. Bias-corrected and accelerated bootstrapped 95% confidence intervals are presented in brackets. *p* is two-tailed.

When I attempted to fit a linear regression model with the variables of reflection and work burnout, I found that the assumptions of homoscedasticity and independence of errors were met, but the assumptions of linearity and normality of residuals were violated. Even with transforming the variables or including outliers, a nonlinear relationship with reflection was evident. Because there are limited existing data to estimate the values of the parameters to construct a nonlinear regression model between the reflection and work burnout variables, I did not do a regression analysis between the reflection and work burnout variables. Instead, I ran a separate bootstrapped Pearson correlation analysis, as described in the following section.

Pearson correlations. Pearson correlation analyses were run between total *z* scores for reflection and total *z* scores for compassion fatigue, secondary traumatic stress, and work burnout, respectively. Because the assumptions of normality and homoscedasticity were not met, I bootstrapped the confidence intervals. Outliers were removed before analysis, and I dropped one subject's score on reflection because it had

no corresponding dependent variable scores. The results of the Pearson correlation analyses are presented in a matrix format in Table 9. Reflection was not significantly correlated with compassion fatigue, secondary traumatic stress, and work burnout; therefore, the results supported acceptance of the null hypothesis. However, as in the Spearman correlation analysis, compassion fatigue, secondary traumatic stress, and work burnout were significantly correlated with one another.

Table 9

Pearson Bivariate Correlation Matrix With Univariate Outliers Removed

Variable	Reflection	Compassion fatigue	Secondary traumatic stress	Work burnout
Reflection	1			
Compassion fatigue	-.16 [-0.44, 0.13]	1		
Secondary traumatic stress	.07 [-0.23, 0.35]	.57** [0.33, 0.77]	1	
Work burnout	-.21 [-0.48, 0.07]	.96** [0.94, 0.98]	.31* [0.04, 0.60]	1

Note. The analysis is based on $N = 53$. Bias-corrected accelerated 95% confidence intervals are in brackets. Bootstrap results are based on 1,000 bootstrap samples. Empty cells represent duplicate data.
* $p < .05$, ** $p < .01$ (two-tailed).

In addition, I ran corresponding Pearson correlation analyses without removing outliers. I still removed one subject's results because there were only scores for reflection without corresponding scores for the dependent variables. The results corresponded with the results from the original Pearson correlation analyses that there was no significant relationship between scores for reflection and scores for compassion fatigue and secondary traumatic stress, respectively. The confidence interval for the Pearson

correlation between scores for reflection and scores for work burnout including outliers did not cross zero; however, the upper limit of the confidence interval was so close to zero that the significance of this relationship is questionable in consideration of the other Pearson and Spearman correlation analyses. As summarized in Table 10, the confidence intervals were slightly lower for the Pearson correlations with outliers than with the Pearson correlations without outliers except for the relationships between secondary traumatic stress and the respective variables of compassion fatigue and work burnout, which had slightly higher ranges of confidence intervals. Also, the relationship between secondary traumatic stress and work burnout was significant at the $p < .01$ level instead of the $p < .05$ level at which it was significant for the Pearson correlation analysis without outliers. Table 10 contains a matrix summary for the Pearson correlations with outliers.

Table 10

Pearson Bivariate Correlation Matrix With Univariate Outliers

Variable	Reflection	Compassion fatigue	Secondary traumatic stress	Work burnout
Reflection	1			
Compassion fatigue	-.24 [-0.45, 0.02]	1		
Secondary traumatic stress	-.11 [-0.36, 0.19]	.75** [0.55, 0.88]	1	
Work burnout	-.25 [-0.49, -0.01]	.94** [0.90, 0.97]	.48** [0.19, 0.72]	1

Note. The analysis is based on $N = 58$. Bias-corrected accelerated 95% confidence intervals are in brackets. Bootstrap results are based on 1,000 bootstrap samples. Empty cells represent duplicate data.
** $p < .01$ (two-tailed).

Summary

In summary, the results of the statistical analyses of the study data were adequate to answer the research question about the relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. Based on the results of Spearman correlations, Pearson correlations, and binary regression analyses, I accepted the null hypothesis that there is no significant relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. Although I found no significant relationship between the variable of reflection and the variables of compassion fatigue, secondary traumatic stress, and work burnout, the findings of this study could have important implications for various aspects of nursing research, education, theory, and practice. In Chapter 5, I further describe the implications of the study findings in the context of existing literature.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this cross-sectional, correlational, descriptive quantitative study was to determine the relationship, if any, between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout. Based on the results of Spearman correlation, Pearson correlation, and linear regression analyses, I concluded that there was no significant relationship between levels of reflection and levels of compassion fatigue, secondary traumatic stress, and work burnout among a sample of nurses practicing in a variety of hospital-based acute care settings throughout a state in the southeastern United States. In this final chapter, I interpret the study findings based on existing literature and theory, describe the limitations of the study, present recommendations based on the study findings, and describe implications of the study findings.

Interpretation of the Findings

Study Findings and Current Literature

Main study findings. The main study findings that there is no significant relationship between hospital-based acute care nurses' levels of reflection and their levels of compassion fatigue, secondary traumatic stress, and work burnout can be interpreted based on the existing literature. Few researchers have addressed the potential relationship or lack of relationship between reflection and the phenomena of compassion fatigue, secondary traumatic stress, and work burnout. However, several studies have had related findings in populations other than that examined in the current study.

Very little existing research provides validation for the primary study findings. Chan et al. (2016) found that self-reflective exercises as part of a professional development program had no significant impact on the compassion fatigue scores of obstetrical nurses and healthcare workers. Although the Chan et al. study involved reflection as part of a multifaceted program, its findings correlate with the current study findings that there is no significant relationship between reflection and compassion fatigue.

The study findings that reflection is not significantly related to compassion fatigue, secondary traumatic stress, and work burnout conflict with the findings from several previous studies. According to Koh et al. (2015), reflection and remembering patients protected palliative care and hospice nurses in Singapore against burnout. In addition, Măirean (2016) found that secondary traumatic stress was negatively related to cognitive reappraisal, a concept similar to reflection, among Romanian physicians and nurses. Self-care strategies that include self-reflection have also been negatively correlated with compassion fatigue and burnout among hospice professionals (Alkema et al., 2008). The studies by Koh et al., Măirean, and Alkema et al. (2008) had conflicting results in relation to the current study in suggesting that reflection and related factors are significantly related to compassion fatigue, secondary traumatic stress, and burnout. However, it is difficult to generalize these studies to the current study because they were not performed specifically among hospital-based acute care nurses in the southeastern United States.

Additional research will be needed to clarify how reflection or different aspects of reflection are related to compassion fatigue, secondary traumatic stress, and work burnout among various nursing populations in the United States. The sample size in the study was lower than that predicted to obtain a power of at least .80; therefore, it is difficult to predict the accuracy of the results or generalize them to a broader population of hospital-based acute care nurses. Further research may clarify the study results as well as some of the conflicting findings present in the research literature.

Incidental study findings. The study results revealed that the nurses in the sample had relatively high levels of reflection overall. All of the nurses who completed the GRAS scored at or above 59.8% of the highest possible score, indicating relatively high levels of reflection according to Aukes et al. (2008). The high levels of reflection measured quantitatively in the study validate the qualitative findings by Asselin et al. (2013) that reflection is a key aspect of nurses' critical thinking processes and practice decisions. Further, researchers have determined that reflection is associated with both negative and positive psychological effects (Asselin et al., 2013; Sheppard, 2015). For example, reflection, debriefing, and refocusing are coping methods used by nurses, although reflection may also lead to recall of painful memories, failure to resolve emotionally involved situations, overinvolvement in patients' suffering, and emotional detachment (Asselin & Schwartz-Barcott, 2015; Drury et al., 2014; Rees, 2013). The combination of positive and negative effects associated with reflection could possibly explain the lack of a significant relationship between reflection and negative

psychological phenomena such as compassion fatigue, secondary traumatic stress, and work burnout.

In addition, I found that there were varying levels of compassion fatigue, secondary traumatic stress, and work burnout within the sample. The nurses' scores on the CF-Short Scale and its secondary traumatic stress and work burnout scales varied from the lower 1% to 75% or higher of the possible range of scores. I was unable to determine the exact prevalence of each variable because the CF-Short Scale and its secondary traumatic stress and job burnout subscales do not have specific cut scores or categories for levels of compassion fatigue, secondary traumatic stress, and work burnout (Adams et al., 2006). However, the wide range of scores for each variable possibly indicates a range of relatively low to moderately high levels of compassion fatigue, secondary traumatic stress, and work burnout among the subjects. Numerous previous studies have also had significantly varying results about the prevalence or levels of compassion fatigue, secondary traumatic stress, and burnout among nurses in a variety of work environments (Aiken et al., 2012; Hinderer et al., 2014; Hunsaker et al., 2015; Mason et al., 2014; Sacco et al., 2015; van Mol et al., 2015). The different work environments within hospital-based acute care settings as well as variations in workplace policies and culture may account for some of the range in nurses' scores for compassion fatigue, secondary traumatic stress, and work environment. However, the sample size was not large enough to accurately analyze variations in the concepts based on work environment characteristics.

Finally, the study incidentally found significant positive correlations among compassion fatigue, secondary traumatic stress, and work burnout. These findings validate the significant relationships among compassion fatigue, secondary traumatic stress, and burnout documented during several previous studies (Austin et al., 2017; Hegney et al., 2014; Sansó et al., 2015; Slocum-Gori et al., 2013). The finding that compassion fatigue, secondary traumatic stress, and work burnout are significantly related is not unique but aligns well with the current literature.

Study Findings and Theoretical Framework

The study findings must also be interpreted in the context of the theoretical framework for the study, which was based on a synthesis of Hentz and Lauterbach's (2005) model for reflective practice and Kearney et al.'s (2009) self-awareness-based model of self-care. Theoretically, low levels of reflection as an aspect of self-awareness could contribute to compassion fatigue, secondary traumatic stress, and work burnout in nurses who interact directly with patient suffering within a work environment (Hentz & Lauterbach, 2005; Kearney et al., 2009). Therefore, lower levels of reflection should be associated with higher levels of compassion fatigue, secondary traumatic stress, and work burnout; however, I found in the study that there was no significant relationship between reflection and the phenomena of compassion fatigue, secondary traumatic stress, and work burnout.

In addition, the study found significant positive correlations among compassion fatigue, secondary traumatic stress, and work burnout. The positive correlations among compassion fatigue, secondary traumatic stress, and work burnout validate the close

relationships among burnout, compassion fatigue, and compassion fatigue's specific manifestation in secondary traumatic stress that were expressed by Kearney et al.'s (2009) self-awareness-based model of self-care. Although the primary objective of the study was to determine the relationship between reflection and compassion fatigue, secondary traumatic stress, and work burnout, it incidentally provided partial validation of several theoretical relationships.

Limitations of the Study

Throughout the study, there were many limitations in addition to the design, instrument validity, survey methodology, and generalizability limitations discussed in Chapter 1. First, the actual sample size for the study ($N = 59$) was lower than the predicted sample size to obtain a power of .80. The original predicted sample size of 180 was calculated based on a MANOVA analysis. However, using GPower software (Faul et al., 2009), I performed an a priori power analysis for a bivariate correlation normal model with an alpha of .05, a power of .80, a correlation ρ H1 of .30, and a correlation ρ H0 of 0. The predicted sample size to obtain a power of .80 for a bivariate correlation analysis was 84, which was higher than the actual sample size for the study. Therefore, a major limitation of the study was low statistical conclusion validity resulting from the low power of the study to accurately predict relationships among the variables.

Second, the sample characteristics and size limited the generalizability of the findings. The small sample size made it difficult to generalize findings to the target population. Although the acquired sample was relatively diverse in practice setting, educational background, and level of experience, the gender and ethnicity of the sample

were relatively homogenous. The demographic characteristics could possibly be representative of the target population, but it is difficult to determine representativeness without knowing the exact demographic characteristics of the target population. The limited generalizability of the study findings is a significant study limitation.

Third, the selected survey content and methodology limited the validity and generalizability of the study results. The wording, content, and distribution of the Internet-based surveys could have influenced subjects' decisions to participate in the study. Having more specific study topic descriptions in the email as well as pilot-study-based estimated completion times could have improved the study invitation response rate. For example, in the study invitation emails, I stated that the estimated survey completion time was 15 to 20 minutes, although of the subjects with exactly known completion times, only one subject took longer than 15 minutes to complete the survey. The timing of the study invitation and reminder email distributions could also have influenced the type and quantity of survey responses. In addition, I had to rely on subjects' accuracy and honesty in providing answers to potentially sensitive questions. The survey methods and materials that I applied in the study may have limited the validity of the study results.

Finally, the correlational, cross-sectional design of the study limited the scope of the findings. I was unable to predict causation between variables based on a one-time measurement and correlational analysis of the study variables. However, the study findings did provide adequate information to accept the null hypotheses about the correlational relationships between the variable of reflection and the variables of compassion fatigue, secondary traumatic stress, and work burnout. Overall, the study

findings can only be considered in the context of the study limitations, especially those related to the study design and methodology.

Recommendations

Several recommendations may be made based on the study findings. Due to the limitations in the study sample size and methodology, further studies will be needed to validate the study findings that there is no significant relationship between reflection and compassion fatigue, secondary traumatic stress, and work burnout among hospital-based acute care nurses. Additional research could also examine the relationship between reflection and compassion fatigue, secondary traumatic stress, and work burnout among a variety of hospital-based acute care and other nursing populations to determine the generalizability of the results to those populations.

Longitudinal studies are also needed to determine whether reflection has a relationship with compassion fatigue, secondary traumatic stress, and work burnout over time. Scholars have recommended reflection to mitigate compassion fatigue; however, additional research is still needed to determine the effectiveness of their recommendations (Romano et al., 2013; Sheppard, 2016). Additionally, longitudinal validation of the study findings could be useful for comparison to studies that have found varying effects of reflection or reflective activities on compassion fatigue and burnout outside of the United States (Chan et al., 2016; Koh et al., 2015). Therefore, I would recommend additional longitudinal research studies to determine the validity of the study findings over time.

Implications

Implications for Positive Social Change

The study findings may be used to help effect positive social change within the nursing profession. First, the study findings of no significant relationship between levels of reflection and levels of compassion fatigue, secondary traumatic stress, and work burnout could inform scholars and educators who are developing interventions to decrease the incidence of compassion fatigue, secondary traumatic stress, and work burnout among acute care nurses. Although I did not examine the effect of reflection on compassion fatigue, secondary traumatic stress, and work burnout over a period of time, scholars and educators could use the study findings to inform their decisions whether to promote reflection-based interventions for these harmful phenomena. Compassion fatigue, secondary traumatic stress, and work burnout have been related to many negative effects on nurses as well as on the quality of nursing care that they provide (Anglade, 2014; Cimiotti et al., 2012; Kaur et al., 2013; Luquette, 2016; Sheppard, 2015; Van Bogaert et al., 2014). Informing research to increase the effectiveness of educational and practice interventions for compassion fatigue, secondary traumatic stress, and work burnout may ultimately effect positive social change in the healthcare environment by improving the well-being of nurses and their patients.

Second, the study revealed varying levels of compassion fatigue, secondary traumatic stress, and work burnout among hospital-based acute care nurses in a state in the southeastern United States. Although many of the subjects had relatively low levels of compassion fatigue, secondary traumatic stress, and work burnout, several subjects had

moderately high levels of these phenomena. According to other studies of nurses in a variety of settings across the United States, over 25% of nurses have been found to have moderate to high levels of compassion fatigue, and over 30% of nurses may have work burnout (Aiken et al., 2012, Branch & Klinkenberg, 2015; Hinderer et al., 2014; Hunsaker et al., 2015; Mason et al., 2014). The findings of elevated compassion fatigue, secondary traumatic stress, and work burnout provide justification for educational, system, policy, and social changes that will minimize nurses' existing levels of and development of compassion fatigue, secondary traumatic stress, and work burnout.

Additional Implications

Theoretical implications. Although the study findings did not validate the relationship between the concept of reflection and the concepts of compassion fatigue, secondary traumatic stress, and work burnout, the findings do not entirely invalidate the theoretical foundation for the study. The study had a relatively small sample size; therefore, the results may not hold true for a theoretical application in a larger sample of nurses or in a sample of nurses from different practice settings. In addition, the results may indicate a need for further study of Hentz and Lauterbach's (2005) model for reflective practice and Kearney et al.'s (2009) self-awareness-based model of self-care to test the validity of each individual model among hospital-based acute care nurses. Nursing researchers and scholars should integrate the two models with caution until there is further validation of the models and the potential relationships between them.

Additional implications. In addition to having implications for positive social change and theory, the findings from the study helped to show the reliability of the

GRAS and CF-Short Scale among hospital-based acute care nurses. The reliability statistics for both instruments closely mirrored the original reliability statistics for both instruments, although the GRAS was originally validated among medical students and the CF-Short Scale was originally validated among social workers (Adams et al., 2006; Aukes et al., 2007). Therefore, researchers may be able to reliably operationalize reflection, compassion fatigue, secondary traumatic stress, and work burnout among nurses using the GRAS and CF-Short Scale.

Recommendations for Practice

The research findings were not entirely conclusive based on the limitations in sample size; however, nurses can use the study findings in nursing practice. Nurses in practice need to be aware that being highly reflective in practice may not necessarily protect against compassion fatigue, secondary traumatic stress, and work burnout. Also, nurses who believe that they have compassion fatigue, secondary traumatic stress, or work burnout should consider multi-faceted, evidence-based interventions to decrease these harmful phenomena. Based on the study results, reflection alone may not be an effective intervention for compassion fatigue, secondary traumatic stress, and work burnout. Further scholarly research and practice-based initiatives based on the current study may help to provide an appropriate evidence base for reflective nursing practice.

Conclusion

This cross-sectional, correlational quantitative study found that there is no significant relationship between reflection and compassion fatigue, secondary traumatic stress, and work burnout among hospital-based acute care nurses in a state in the

southeastern United States. The findings from the study help to clarify the psychological factors related to the physically, psychologically, and practically harmful phenomena of compassion fatigue, secondary traumatic stress, and work burnout (Coetzee & Klopper, 2010). Further, the study helped to provide quantitative evidence of the relatively high levels of reflection previously identified as part of nurses' critical thinking (Asselin et al., 2013). The study results will need additional validation due to limitations in sample size; however, the existing results may be used to raise awareness of reflective practice, compassion fatigue, secondary traumatic stress, and work burnout among hospital-based acute care nurses.

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Appendix A: Subject Recruitment Email

Subject line: Nursing Practice Research Study

Would you be interested in participating in research that could benefit nursing practice? Do you directly care for patients as a registered nurse at a hospital in Florida?

My name is Sarah Urban, and I am performing a study as part of my PhD in Nursing degree at Walden University. This email has been sent to you because you are a registered nurse in Florida with a public email available through the Florida Board of Nursing. The study will examine nurses' reactions to practice and their work environments. The study consists of a 15 to 20 minute survey and is open to registered nurses who care for patients in a hospital inpatient unit, observation unit, procedural area or emergency department. Your responses are greatly appreciated. If you would like to participate in the study, please click on the Begin Survey link below.

Thank you again for your time,

Sarah Urban, MSN, RN, CNE
sarah.urban@waldenu.edu

Appendix B: Study Reminder Email

Subject line: Nursing Practice Research Study-Reminder

Recently you were sent an invitation to participate in a study examining nurses' reactions to practice and their work environments. If you have already completed the study survey, please disregard this email. However, if you have not completed the survey and wish to do so, please consider participating in the study.

My name is Sarah Urban, and I am performing a study as part of my PhD in Nursing degree at Walden University. This email has been sent to you because you are a registered nurse in Florida with a public email available through the Florida Board of Nursing. The study survey will take approximately 15 to 20 minutes to complete and is open to registered nurses who care for patients in a hospital inpatient unit, observation unit, procedural area, or emergency department. Your responses are greatly appreciated. If you would like to participate in the survey, please click on the Begin Survey link below.

Thank you again for your time,

Sarah Urban, MSN, RN, CNE
sarah.urban@waldenu.edu

Appendix C: Permission to Use the Groningen Reflective Ability Scale (GRAS)

Sarah Urban [redacted] 11/8/16

to j.p.j.slaets

Dr. Slaets,

My name is Sarah Urban, and I am working on a PhD in Nursing degree through Walden University, USA. My dissertation research will be a correlational analysis of compassion fatigue and reflective ability among nurses in the United States. I am interested in using the English version of the Groningen Reflective Ability Scale (GRAS) to measure reflective ability in my study, but I have not been able to reach the primary author, Dr. Aukes, to obtain permission to use the tool. As one of the co-authors of the original article, do you know of a way I could get permission to use the GRAS for my research?

Thank you in advance for your time,

Sarah Urban, MSN, RN, CNE
PhD Student, Walden University
Email: [redacted]

Slaets, JPJ [redacted] 11/9/16

to me

Dear Sarah,

Thank you for being interested in reflective ability and in the GRAS. I was the promotor of L. Aukes for his PhD thesis but he is not working any more and therefore not responding.
You have my permission to use the GRAS without any restriction. Succes with your work and it would be nice to reed your work when you have published it.

Kind regards,
prof. dr. Joris Slaets

Sarah Urban [redacted] 11/9/16

to JPJ

Dr. Slaets,

Thank you very much!

Appendix D: Permission to Use the Compassion Fatigue—Short Scale (CF-Short Scale)

Sarah Urban [redacted]
to jaboscarino

11/8/16

Dear Dr. Boscarino,

My name is Sarah Urban, and I am working on a PhD in Nursing Education degree through Walden University. My dissertation research will be a correlational analysis of compassion fatigue and reflective ability among registered nurses. I am interested in using the Compassion Fatigue Short Scale published by you, Dr. Adams, and Dr. Figley as a measure of compassion fatigue in my study. I would appreciate it if you could let me know if there are any actions needed to use this tool in my study.

Thanks in advance for your time,

Sarah Urban, MSN, RN, CNE
PhD Student, Walden University
Email: [redacted]
Phone: [redacted]

Boscarino, Joseph A. [redacted]
to RICHARD, me

11/8/16

Dear Sarah,

Our scales are in the public domain and are, therefore, free to use. We just ask that you provide the proper citations when you do so. Our key research publications are attached.

Thank you for your interest in our CF scales.

Best wishes,

Joseph A. Boscarino, PhD, MPH
Professor
Department of Epidemiology & Health Services Research
Geisinger Clinic
100 N. Academy Avenue, MC 44-00
Danville, PA 17822
[redacted]

From: Sarah Urban [redacted]
Sent: Tuesday, November 8, 2016 3:20 PM
To: Boscarino, Joseph A.
Subject: [External] Request to Use Compassion Fatigue Short Scale

4 Attachments

Sarah Urban [redacted]
to Joseph

11/8/16

Dr. Boscarino,

Thank you very much!

Appendix E: Compassion Fatigue—Short Scale (CF-Short Scale)

Instructions: Consider the following items about your work/life situation. Write the number that best reflects your experiences using the following rating scale, 1 through 10:

Never/Rarely **Sometimes** **Very Often**
1…….2…….3…….4…….5…….6…….7…….8…….9…….10
___ a. I have felt trapped by my work.
___ b. I have thoughts that I am not succeeding in achieving my life goals.
___ c. I have had flashbacks connected to my clients.
___ d. I feel that I am a "failure" in my work.
___ e. I experience troubling dreams similar to those of a client of mine.
___ f. I have felt a sense of hopelessness associated with working with clients/patients.
___ g. I have frequently felt weak, tired or rundown as a result of my work as a caregiver.
___ h. I have experienced intrusive thoughts after working with an especially difficult client/patient.
___ i. I have felt depressed as a result of my work.
___ j. I have suddenly and involuntarily recalled a frightening experience while working with a
client/patient.
___ k. I feel I am unsuccessful at separating work from my personal life.
___ l. I am losing sleep over a client's traumatic experiences.
___ m. I have a sense of worthlessness, disillusionment, or resentment associated with my work.

[Secondary trauma subscale = c, e, h, j, l; Job burnout subscale = a, b, d, f, g. i, k, m]

Source:

Adams, R. E., Boscarino, J. A., & Figley, C. R. (2006). Compassion fatigue and psychological distress among social workers: A validation study. *American Journal of Orthopsychiatry, 76*(1), 103-108. doi:10.1037%2F0002-9432.76.1.103

Appendix F: Survey—Demographic Items and Subject Eligibility Item

1. What type of hospital area is your main area of nursing practice? (If you hold more than one type of position, indicate what you consider to be your primary area of practice.)
    a. Critical care
    b. Emergency department
    c. Maternity/OB-GYN unit
    d. Medical-surgical unit
    e. Neonatal unit
    f. Observation unit
    g. Oncology
    h. Pediatrics
    i. Procedural areas (operating room, endoscopy, interventional radiology, etc.)
    j. Progressive care/stepdown unit
    k. Psychiatric unit
    l. Telemetry
    m. Other

2. What is the size of the hospital where you are employed as a nurse?
    a. 0-99 beds
    b. 100-199 beds
    c. 200-299 beds
    d. 300-399 beds
    e. 400-499 beds
    f. 500 beds and up

3. What is your highest completed degree in nursing?
    a. Associate's degree
    b. Diploma program
    c. Bachelor's degree
    d. Master's degree
    e. Doctoral degree

4. How many years have you worked as a registered nurse?
    a. 0-2
    b. 3-5
    c. 6-10
    d. 11-20
    e. 21-30
    f. 31 and up

5. How many hours per week do you work as a nurse?
    a. 10 or less
    b. 11-20
    c. 21-40
    d. 41 or more

6. Are you employed in any nursing role at a facility other than your primary place of employment?
    a. Yes
    b. No

7. What is your gender?
    a. Female
    b. Male

8. What is your age?
    a. 18-30
    b. 31-40
    c. 41-50
    d. 51-60
    e. 61-70
    f. 71 and up

9. What is your marital status?
    a. Married
    b. Single

10. What is your primary ethnicity?
    a. African-American
    b. Asian-American
    c. Caucasian
    d. Latino
    e. Native American
    f. Other

Subject Eligibility Item: Are you over 18 years of age and a registered nurse who provides nursing care to patients in a hospital (acute care) inpatient unit, observation unit, procedural area, or emergency department?

    a. Yes
    b. No