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Exploring Concepts of Compassion Fatigue Among Baccalaureate Nursing Students

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By

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Exploring Concepts of Compassion Fatigue Among Baccalaureate Nursing Students

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ABSTRACT

The purpose of this study was to examine the experience of compassion fatigue among undergraduate nursing students in a four-year baccalaureate nursing program in Windsor, Ontario. Major sub-concepts of compassion fatigue (compassion satisfaction, burnout, secondary traumatic stress and empathy) were examined and guided by Figley's model of Compassion Stress and Fatigue (2001). To date, little quantitative research has been conducted on this population, specifically within a setting that includes clinical experiences across all four years of the program. This study employed an online non-experimental, cross-sectional survey composed of four pre-validated measures (Professional Quality of Life scale (ProQOL), Maslach Burnout Inventory, Empathy Questionnaire and Silencing response scale) administered in the Winter 2019 semester. In this study, 244 undergraduate students completed the survey. Examining the findings of this study suggests that these students are at risk for the development of compassion fatigue. Results revealed above average high compassion satisfaction levels within first year students only, high empathy levels across the four years, varied intensity of burnout across the program, and high percentages of above average secondary traumatic stress across the four years of the program. High burnout and secondary traumatic stress with low compassion satisfaction highlight the risk of compassion fatigue amongst this population. Self-care protective factors were also examined and revealed that students who engaged in aerobic exercise had significantly lower burnout and secondary traumatic stress levels and students who practiced mindfulness based meditation had significantly higher empathy and compassion satisfaction scores. This study provides further insight into the experience of compassion fatigue within the nursing student population as well as recommendations of possible interventions that may support and foster resiliency among nursing students' professional careers.

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LIST OF ABBREVIATIONS

CF- Compassion fatigue

CNA- Canadian Nurses Association

CS- Compassion satisfaction

LPN- Licensed practical nurse

MBI- Maslach Burnout Inventory

ProQOL- Professional quality of life

PTSD- Post-traumatic stress disorder

REB- Research Ethics Board

RN- Registered Nurse

RNAO- Registered Nurses Association of Ontario

SRS- Silencing response scale

STS- Secondary traumatic stress

Introduction

The concept of Compassion Fatigue (CF) has evolved to a widely accepted and recognized phenomenon that affects individuals in caregiving professions. CF is a special form of burnout that was first identified by Joinson in 1992. CF can be defined as a "state of exhaustion and dysfunction- biologically, psychological and socially - as a result of prolonged exposure to compassion stress and all that it evokes" (Figley, 1995, p. 253). Due to its potential implications on clinical practice and staff well-being (Sorenson, Bolick, Wright, & Hamilton, 2017), it has captured the interest of experts in mental health, nursing, and medicine. CF has been studied across many settings, and within various designations of healthcare professionals. These studies consistently demonstrate the profound negative impact this phenomenon can have on quality patient care, staff well-being, and retention (Yang & Kim, 2016). In order to maintain quality patient care, staff well-being and retention, it is essential to highlight and examine the concept of CF resiliency and the need to nurture it amongst nursing professionals. Within the context of CF, resiliency can be defined as the ability for an individual to maintain stable levels of physical and psychological functioning over time as well as be able to continuously experience positive emotions despite being exposed to trauma and loss (Bonanno, 2008; Burnett & Wahl, 2015).

According to the Canadian Nurses Association, it is estimated that each year approximately 20% of hospital nurses leave their jobs for various reasons, with one central reason being compromised mental health (Canadian Nurses Association (CNA), 2009). The CNA estimates that the loss of one nurse will cost the institution approximately $25,000 and thus, further propagate limited staffing, low job satisfaction among nurses, and high incidence of medical errors (CNA, 2009). Moreover, these negative working conditions create a cycle of

turnover whereby nurses who are dissatisfied with their jobs are more likely to leave their workplace. After leaving, the emotional response associated with the reason for leaving is intensified.

Retention of nursing students in nursing programs is becoming an international challenge (Harris, Rosenberg, & O'Rourke, 2013). The incidences of mental health issues are rising, with mental health concerns being a factor in student dropout rates (Harris et al., 2013). Little is known about the emotional experiences of undergraduate nursing students within the context of their clinical exposure to caregiver stress. Among the few studies that have been conducted, there is disagreement about whether nursing students experience CF, and in those where CF was identified, poor understanding of the contributing factors. In light of these concerns, it is of the utmost importance to retain nurses within healthcare organizations, as well as to have an adequate number of competent and resilient registered nurse candidates graduate from nursing programs. Gaining a better understanding of the prevalence of CF within this particular population will help nurse educators make future curricular changes that may be warranted as well as create support services that contribute to student success. It is important that nursing students and educational programs recognize the risks, signs, symptoms and consequences of CF in order to be able to generate strategies to promote CF resiliency among students. This may ultimately have implications for new graduate nurse retention in the nursing workforce.

Background

The inability of many institutions to retain nurses amid a growing aging population generates great concern for the future of healthcare stability and a large problem for healthcare institutions. Sanner-Stiehr and Ward-Smith (2017) emphasize the significance of retaining nurses in order to maintain adequate staffing ratios, minimize overworking nurses, and in turn, increase

job and organizational satisfaction. These authors estimate that the loss of one nurse will cost approximately double the salary to recruit and train a replacement.

In a report released in 2017 by the Canadian Institute for Health Information (CIHI) it was reported that Ontario has a 19.5% lower registered nurse (RN) to population ratio compared to the rest of the country. They also reported that RNs are showing the lowest annual rate of growth compared to all other regulated nurses: 0.7% annually as compared to 1.6% and 2.8% for registered practical nurses (RPN) and licensed practical nurses (LPNs) respectively (CIHI, 2017). Patient outcomes and patient satisfaction rates improve significantly when there are higher numbers of RNs on staff (Persolja, 2018), and Yang and Kim (2016) reported that job satisfaction was the most significant contributor when predicting turnover intention in clinical nurses. They also reported that high CF levels negatively impacted job satisfaction and as such, influenced the turnover intention of clinical nurses (Yang & Kim, 2016).

The issues of nurse attrition and turnover rates, combined with the reported nursing shortage, creates a need for educational institutions to graduate competent, prepared, and resilient registered nursing candidates. Though this seems like an attainable goal, retaining nursing students in undergraduate programs is challenging, with nursing student attrition rates in some educational institutions as high as 50% (Harris et al., 2013). There is a need to understand the personal, organizational and circumstantial risk-factors that increase a nursing student's intention, or actual decision, to drop-out of their program (Merkley, 2016). The following factors all seem to play a role in undergraduate nursing student retention: (a) lack of social support, peer support and faculty mentorship, (b) financial strain requiring students being employed greater than 16 hours per week: (c) lack of time management and preparation skills, and (d) mental health concerns (Harris et al., 2013; Merkley, 2016; Pitt, Powis, Levett-Jones, & Hunter, 2012).

Despite the high number of applicants to nursing programs and steadily increasing academic requirements for admission, there has been a 3.2% decrease in the number of RN graduates who have obtained a license to practice in Canada since 2013 (CIHI, 2017). Although this decline could reflect a growing trend of Canadian educated nurses pursuing employment in other countries (e.g., United States), it is posited that some new graduates lack adequate emotional preparation for a profession that carries heavy emotional responsibility and exposure to traumatizing experiences (Missouridou, 2017). Research indicates that CF is prevalent among nurses working within critical care units, emergency departments, oncology and hospice settings, pediatrics, as well as in mental health settings (Missouridou, 2017). Although these practice settings have been the focus of the majority of CF research, it cannot be assumed that nursing student populations are immune from experiencing CF.

Beck (2011) asserts that CF research should be undertaken with other populations of nurses, and some scholars suggest that the traumatic events that precede the experience of CF are not isolated to those holding professional designations (Beaumont, 2016), such as students. If a nursing student experiences a traumatizing event, it is therefore possible that the student could develop the negative manifestations and experiences associated with CF (Beaumont, 2016). Although CF has been studied among students in midwifery, medicine, counsellors, and cognitive behavioural therapists, little is known about the phenomenon among nursing students. While exploring literature surrounding this topic and undergraduate nursing students, three scholarly articles emerged, and the findings are disparate (Jack, 2017; Michalec, Diefenbeck, & Mahoney, 2013; Sheppard, 2011). Only one quantitative study, conducted with nursing students who only had clinical experience in the last year of their nursing program, was available that provides limited insight into the development the CF, its prevalence across the program, and

contributing factors. Despite the limited research surrounding CF within the nursing student population, related concepts such as trauma and burnout have been explored in the literature within the nursing student population. Burnout is a concept that is closely related to CF, often argued to be a concept of CF, and burnout is a common concern within the nursing student population (Sheppard, 2011). Since the literature reveals that students are experiencing the closely related concepts of CF such as burnout and trauma, it is reasonable to speculate that they may also be experiencing CF itself (Sheppard, 2011). The purpose of this study is to explore the concepts of CF among students in a baccalaureate nursing program in Ontario, Canada.

Literature Review

CF is a complex concept and it is imperative to understand the concept and its related terms. These terms will be conceptually defined in this section. The state of the literature related to CF will be further explored, providing the necessary background for this study. The review focuses on clarifying the concept of CF, followed by a summary of literature that is relevant to the experience of students in health care programs. A summary table of the existing body of literature surrounding this topic can be found in the literature table attached in (Appendix A).

Evolution of the Concept

As previously reported, the term, "compassion fatigue" or CF was initially defined by Joinson (1992) in her study of burnout among emergency department nurses. At this time, Figley was also examining a similar phenomenon under the term "secondary traumatic stress (STS)" (Lanier & Brunt, 2017). The similarity between the terms is an obstacle within the literature with some scholars arguing that the terms are redundant (i.e., describe the same experience), lacking divergent validity evidence, while others argue they have subtle, yet significant differentiating factors (Figley, 2017; Sorenson, Bolick, Wright, & Hamilton, 2016). Further development of the

tools used to measure these concepts resulted in additional definitions and conceptualizations of the characteristics of both CF, STS and burnout. For example, Stamm (2010) holds that CF is in fact composed of two discrete subcategories - burnout and STS. Sorenson et al. (2016) state that although CF, STS, and other related concepts may describe the same experience, STS holds a more clinical and diagnostic connotation whereas CF serves as a more "user-friendly" term for the experience, as it is less abrasive for those experiencing it to self-describe. Scholars tend to agree that the terms CF and STS can be used interchangeably, and that the choice of term may be based on what is contextually appropriate (Watts & Robertson, 2015).

Burnout is another related concept. Figley (2017) offers a tangible example of how the difference between CF and burnout may be understood: "burnout is when you are sick of your job, CF is where you like your job, but can't quite manage the emotionality of it" (Figley, 2017, p. 194). Although burnout and CF share some overlapping risk factors and contextual contributors, they are indeed distinct experiences. Burnout arises from the environmental and work factors that contribute to the frustrations that professional nurses may experience in their employment.

Despite the numerous ways in which the relationship between these concepts can be theorized, the literature review focuses primarily on CF and STS. The literature was examined as reflecting one unified concept, as there is an adequate level of scholastic support to operate under the assumption that these concepts may very likely describe the same experience. To ensure conceptual clarity the following definitions will be applied in this study. *CF* is a state of exhaustion and dysfunction- biologically, psychologically and socially- as a result of prolonged exposure to compassion stress and all that it evokes. CF commonly results in a deep physical and emotional exhaustion, change in ability to feel empathy, increased cynicism, loss of enjoyment at

work, depression, isolation, low job satisfaction, and sleep disturbances (Figley, 1995). *STS* refers to emotions experienced as a result of exposure to another's trauma (Hinderer et al., 2014). *Burnout* is a psychological syndrome involving emotional exhaustion, depersonalization and a diminished sense of personal accomplishment (Maslach & Jackson, 1981). *Trauma* is a psychological, emotional response to an event or an experience that is deeply distressing or disturbing (Center for Treatment of Anxiety and Mood Disorders, 2017).

Concept Analyses of CF

When developing a study, it is essential to understand the antecedents, attributes, and consequences of a concept to help develop variables and focus the area of study. To develop conceptual clarity in CF in the literature, and to organize the literature review, several concept analyses were analyzed to gain a better understanding of its associated antecedents, attributes, and consequences (Coetzee & Klopper, 2010; Lynch & Lobo, 2012; Sorenson et al., 2017).

Antecedents of CF

According to Walker and Avant (2005), antecedents are events that must occur prior to the manifestation of concept. Coetzee and Klopper (2010) view antecedents to be synonymous with risk factors, therefore they are particularly important to understand from a clinical and research perspective. Of the concept analyses reviewed, all unanimously agree upon one common antecedent: to develop CF, a person must be working in some capacity as a healthcare provider (Coetzee & Klopper, 2010; Lynch & Lobo, 2012; Sorenson et al., 2017). Secondly, scholars agree that an individual must be exposed to a patient or clinical situation that may evoke an emotional response prior to the possibility of developing CF (Coetzee & Klopper, 2010; Lynch & Lobo, 2012; Sorenson et al., 2017).

There are some variations in interpretation of what CF specifically entails, however numerous authors agree that empathy is a central antecedent to developing CF (Beaumont, 2016; Figley, 2017; Lynch & Lobo, 2012; Sorenson et al., 2017). This antecedent is particularly interesting, as Lynch and Lobo (2012) state that possessing empathy is a point of differentiation between CF and STS. They report that empathy is more often cited in the literature as a requirement for developing CF, and less often associated with the development of STS (Lynch & Lobo, 2012). Interestingly, in a study examining STS in medical students, Kinker, Arken, and Morreale (2018) proposed that individuals who enter the medical profession for non-altruistic reasons may in fact be protected from the negative effects of STS due to a fundamental lack of empathy. There is debate about whether or not exposure to an emotionally evocative experience must be prolonged in order to develop STS (Coetzee & Klopper, 2010; Lynch & Lobo, 2012; Sorenson et al., 2017). Coetzee and Klopper state that the individual must have "prolonged, continuous and intense interactions with [their] patients" (2010, p. 239). Some authors hold that prolonged exposure is more of a characteristic for developing burnout, whereas CF can have a far more rapid onset and can bloom after one profoundly traumatic experience (Sorenson et al., 2016). Coetzee and Klopper (2010) further view CF antecedents as synonymous with risk factors for any type of ailment. As such, they state that exposing one's self to stress, and the use of self in all interactions with clients are risk factors for the development of CF, and should be classified as antecedents (Coetzee & Klopper, 2010). Figley (2017) also highlights that in order for an individual to develop CF, one must be willing to interact with those who are suffering. The individual must be willing to not only interact with their patients simply by carrying out their daily duties and professional tasks, but must be willing to interact in a meaningful and emotional manner with patients (Figley, 2017). If a care provider remains disconnected from patients and

does not delve into their experiences, it is likely that they will remain unaffected by the secondary impact of the suffering and thus, the development of CF (Figley, 2017). Jack (2017) offers an individual-difference perspective on understanding the risk factors for developing CF. If an individual is known or prone to possessing self-sacrificing behaviours, the person will be at higher risk for the development of CF (Jack, 2017). Finally, Beaumont, Durkin, Martin, and Carson (2015) assert that a mismatch in individual beliefs about nursing practice, professionalism, and quality standard for providing care, and the actual care environment can be a risk factor for CF.

After analysis, three central antecedents are proposed, based on a comprehensive review of multiple concept analyses and definitions of CF in the literature. They are: empathy, exposure to traumatic or emotionally charged patient interactions, and working in some capacity as a healthcare provider.

Attributes of CF

As antecedents of CF can be viewed as risk factors that make an individual more likely to develop or experience CF, attributes can be viewed as the clinical manifestations typically seen within the individuals who experience CF (Walker & Avant, 2005). CF can be experienced in a variety of ways, and as such can manifest differently depending on the individual characteristics of the sufferer. Figley (1995) reports common manifestations of an individual suffering from CF as irritability, headaches, anger, changes in sleep patterns, helplessness or hopelessness, and intrusive thinking. Other reported symptoms include sadness, anxiety, and hyper-arousal (Beaumont et al., 2015; Jack, 2017), and self-sacrificing behaviours, such as staying for longer shifts (Lanier & Brunt, 2017). According to Duarte and Pinto-Gouveia (2017), CF can produce signs and symptoms that are very similar, if not identical, to post-traumatic stress disorder

(PTSD). Although some of these attributes are similar to symptoms of burnout, Figley (2017) states that CF fundamentally differs from burnout because CF sufferers tend to enjoy their job and the fulfillment it provides, but they are unable to deal with emotionality of the work.

Consequences of CF

The current body of literature reports several professional consequences that can have negative impacts on care provision within an organization. They include clinical avoidance, detachment, and loss of empathy (Beaumont et al., 2015; Jack, 2017). The detachment that may ensue following the development of CF can manifest as a silencing response. The silencing response occurs in emotionally charged or distressing experiences where the caregiver "actively avoids or redirections conversations away from the distressing material" (Pfaff, Freeman-Gibb, Patrick, DiBiase, & Moretti, 2017, p. 514). When self-sacrificing behaviour is combined with empathy and exposure to an individual's suffering, the person in the caring position may stay for longer shifts, violate professional boundaries out of the perception that this is further helping patients, and ultimately practice from a fundamental "state of depletion" (Lanier & Brunt, 2017, p.22). If CF sufferers remain in their work environment they are likely to be repeatedly exposed to traumatic events and thus, chronically experience the consequences of CF, if not adequately supported.

CF Literature Related to the Student Experience

In a study examining student midwives, it was found that 40% of the sample (n = 103) had average or greater than average CF scores, and those reporting the highest scores of CF also had high levels of self-judgement (Beaumont et al., 2015). CF was further explored by the same authors in a study that examined student counsellors and cognitive behavioural therapists. The authors reported that higher self-compassion scores were associated with reductions in CF and

burnout (Beaumont, Durkin, Martin, & Carson, 2016). These findings seem to unfold together quite logically due to the opposition between self-judgement and self-compassion.

Kinker et al. (2018) conducted a study examining third year medical students to assess the presence of STS symptoms following a two-month long clerkship. It was found that medical students rarely reported experiencing any symptoms of STS, but occasionally encountered emotional numbing (Kinker et al., 2018). Emotional numbing is a response that can be experienced following exposure to trauma and "encompasses difficulties with experiencing and expressing emotions, including limited expression of positive affect and lack of interest in activities" (Presseau, Contractor, Reddy, & Shea, 2018, p. 412). The authors speculate that this could be due to a multitude of reasons, and that a variety of protective factors such as mentorship, supervision, and limited responsibility may shield the students from experiencing the negative effects of STS (Kinker et al., 2018; Presseau et al., 2018). These results should be interpreted with caution, as students in this study were surveyed after spending a very limited amount of time in patient contact and limited to students who did not experience previous trauma in their life. Previous exposure to trauma has been cited as a contributing factor for the development of STS and CF (Abendroth & Flannery, 2006).

In a qualitative study, Jack (2017) found that nursing students may indeed experience CF. The study used student-authored poems as the main source of data within an interpretive phenomenological study to examine the experience of compassion and therefore, CF and its related manifestations among nursing students in the United Kingdom. The author found that all poems submitted by the students conveyed feelings of sadness and psychological distress, or a sense of struggling when describing the experience of clinical nursing (Jack, 2017). Some of this distress was related to the academic student experience within their program, however, other

statements embedded within the poems suggested some dissatisfaction or sadness related to the clinical environment in which the students were placed (Jack, 2017). The author discussed that all the poems analyzed revealed, to some extent, key triggers for the development of CF, including personal characteristics of the students, as well as psychological distress (Jack, 2017). In addition to the presence of psychological distress, the author expressed concern that the students did not have the skills, education, or ability to properly cope or manage the feelings they were experiencing (Jack, 2017). In analyzing the poems, it appeared that students experienced inner conflict when navigating the clinical environment and stated that their expectations of the nursing profession were challenged by the reality of the vocation. They had to actively be aware of their professionalism as opposed to being themselves, and their lack of experience caused them additional stress and frustration (Jack, 2017). Although the author interpreted the challenging aspects of caring described in the poems as indicative of CF, she acknowledged that they could be reflective of another psychological manifestation (Jack, 2017).

The only other research study of nursing students ($N = 436$) sought to quantitatively discover the levels of CF experienced by all undergraduate nursing students in a four-year program. (Michalec et al., 2013). The authors administered a questionnaire composed of two existing validated measures for CF and burnout: The Professional Quality of Life Scale (ProQOL; Stamm, 2009) and the Maslach Burnout Inventory (Maslach, Jackson, & Leiter, 1996). All students reported moderate to average levels of emotional exhaustion, personal accomplishment and burnout, low levels of STS, and high levels of compassion satisfaction (CS) (Michalec et al., 2013). Students in the upper two years of the program did not report any greater experience of negative encounters or feelings that those in lower levels of the program. In fact, they reported significantly higher levels of accomplishment than their junior counterparts

(Michalec et al., 2013). The fourth-year students in this study did not report significantly higher levels of burnout or CF compared to the individuals in lower years which led the authors to conclude that CF is not prevalent among this population, and that CF does not manifest as product of clinical experience (Michalec et al., 2013). There are some key details that significantly limit the generalizability of this study. This particular nursing program has a unique layout in that all clinical placements occur solely in the fourth year of the program, after all in-class education has been completed in the first three years. Therefore, one of the highly cited antecedents of CF- clinical exposure and patient care- could not be adequately explored across the sample. It is therefore not surprising that the first, second, and third-year students reported low CF scores as they had not cared for a suffering individual, an antecedent to CF (Beaumont et al., 2015; Coetzee & Klopper, 2010; Figley, 2017; Hinderer et al., 2014; Jack, 2017; Lynch & Lobo, 2012; Sorenson et al., 2017).

CF is a very complex concept to study as an array of factors can contribute to the phenomenon. There is little that is known about the experience of CF among nursing students. In fact, only two known studies have been conducted, and their generalizability is very limited. Conducting a study examining the experience of CF within an undergraduate program that involves clinical experiences throughout all four years of the program will provide more valuable insight into the evolution of CF and its related concepts over time. The findings may offer significant implications for nursing programs and potential employers of these graduates. Educational institutions must be cognizant of the psychological needs of their students in order to graduate a resilient and mentally prepared workforce.

Purpose

The purpose of this research was to explore the concept of CF among undergraduate nursing students in a four-year baccalaureate nursing program.

Theoretical Framework

Given the novel and exploratory nature of this study, the seminal theoretical framework, "*Model of Compassion Stress and Fatigue*" (Appendix B) created by Figley (2001) was selected to guide this study. Figley's *Model of Compassion Stress and Fatigue* (2001) involves a linear approach to understanding the development of CF, and it highlights several key factors that contribute to the development of CF, and stages wherein intervention may be targeted for preventative purposes. The framework has three key factors that have been previously identified in the literature review section as antecedents to the development of CF – (a) exposure to suffering, (b) worker's empathetic ability, and (c) worker's concern – which cumulatively cause an individualized response (Figley, 2001). These elements are key components in the initial stage of the CF cascade. Figley (2001) proposed a framework that guided much of this contemporary research on the aforementioned antecedents and their relationship in the process to developing CF. Widespread empirical research has followed on basis of the concepts and relationships outlined in Figley's (2001) theoretical framework.

According to Figley (2001) the prolonged and frequent exposure to traumatic events is how the foundation for CF is set. The empathetic engagement of the care provider is then the mechanism by which the experience of trauma transfers from the primary victim to the secondary person involved in their life or personal care (Figley, 2001). Throughout the remaining process, Figley (2001) illustrates that there is an underlying compassion stress that is felt by the individual, and if the exposure to suffering is prolonged, and the worker experiences

traumatic memories regarding their experience with suffering, they may develop CF (Figley, 2001). In addition, Figley adds that life demands outside of work also come into play when developing CF and may impact the magnitude by which it is felt or experienced by the individual (Figley, 2001). This model quite simply illustrates the key components that must be involved when considering the process that individuals advance through to develop CF. Although this model was developed in 2001, it remains relevant today; containing key fundamental concepts embedded within it that are actively and heavily reflected in the literature, as well as in newer frameworks that have emerged exploring the development of CF.

An example of a more complex framework that has since emerged is the *Compassion Fatigue Model* (Appendix C) developed by Coetzee and Laschinger (2017). The *Compassion Fatigue Model* follows a similar linear progression through stages of a response to trauma that predict the potential for the individual to experience either CS or CF (Coetzee & Laschinger, 2017). The complexity of this modern framework comes from the inclusion of the sub-processes that may be involved when moving from one stage of the process to the next. It is therefore suited for hypothesis testing among populations where the CF has been studied in great depth. Nevertheless, it has been evaluated for the inclusion of a few variables that were explored in this study. Examples include: personal resources and degree of self-reflection.

Research Questions

Drawing on the current state of the literature and acknowledging the current gap in knowledge regarding this CF and associated concepts within the context of undergraduate nursing students, the following research questions are presented:

1. To what degree do undergraduate nursing students in a four-year baccalaureate nursing program (with full clinical integration) experience compassion fatigue?

2. What factors influence the experience of compassion fatigue among undergraduate nursing students?
3. What protective factors might mitigate compassion fatigue amongst undergraduate nursing students?

Methods

Design

This study employed a non-experimental online cross-sectional survey of nursing students enrolled in the University of Windsor's baccalaureate nursing program in Ontario, Canada. The nursing program currently has approximately 900 students enrolled across the four years of the undergraduate baccalaureate program and has clinical components integrated within all four years. This allowed the researcher to study the phenomenon among participants across the four-year program and since the program has full clinical integration (clinical embedded in each year of the program) the phenomenon could be observed within students placed in various clinical settings.

Participants

Participants included baccalaureate nursing students in years one through four at the University of Windsor. The inclusion criteria were: full-time students, 18 years of age or older, enrolled in a clinical course at the time of survey completion.

Sampling and Recruitment

Recruitment occurred during the winter semester of the 2019 school year. A single stage convenience sampling procedure was utilized within this study. With the approval of the Dean, the study information was sent out through the Faculty of Nursing's automated address book by the undergraduate secretary. All full-time undergraduate nursing students were sent an e-mail

that included a recruitment message, a letter of information for consent to participate, and a link to the online survey. This preliminary step was to ensure that students were aware of the study, and to mitigate any student and investigator dual roles. As this was a novel study the goal of this strategy was to recruit as many participants from the target population as possible. To maximize the responses, permissions were sought from course instructors to verbally explain the study in one theory class at each level of the program. The primary researcher visited one theory class from each year of the program and provided an in-person explanation of purpose of the study and instructions for participation. To increase the response rate, reminder e-mails were sent from the undergraduate secretary at one-week and two-week intervals following the launch of the survey.

Ethical Considerations

Recruitment did not begin until ethical clearance was obtained from the University of Windsor Research Ethics Board (REB). In compliance with American Psychological Association's *Code of Ethics* (2017), specifically pertaining to Standard 8 which pertains to the use of human subjects for research (e.g., informed consent, confidentiality, protection from deception), students had the opportunity to choose whether they wished to participate in this study and were able to close the link at any time throughout the survey if they decided they did not wish to proceed. Participants were encouraged to complete the survey in a private setting. All participant data were treated as anonymous and confidential. Survey data collected using Qualtrics® are stored in Canada.

Data Collection

Data were collected in the winter semester of 2019, spanning the weeks of February 18th 2019 through March 8th, 2019. The rationale behind collecting data in the winter semester was to capture the student experience of these phenomena while all students are involved in a clinical

placement. Data were also collected after midterms exams were completed and prior to final exams. After logging into the Qualtrics® study site, participants were directed to the Letter of Information for Consent. After reading the consent, they were asked to confirm their consent to participate by checking a box. This action allowed them to enter the survey. Those who did not indicate consent were unable to advance to the survey. The survey consisted of four pre-existing validated tools that measure concepts of CF. Additional items were included at the discretion of the researcher based on their conceptual relevance within CF literature (witnessed a traumatic event, mental health history, use of psychological counselling resources) and basic demographic questions were included (age, gender, year in program, living arrangements, clinical placement setting).

The survey was piloted by the researcher to the undergraduate nursing students at the University of Windsor, and should not have taken participants more than 20 minutes to complete. Offering incentives has been shown to increase response rate by increasing participant satisfaction and ultimately increase the likelihood of individuals participating (Dillman, 1991). Upon completion of the survey, participants were informed that they could choose to provide their email address to receive a five-dollar online gift-card as a thank you for their time and participation. These identifiers were not linked to participant survey responses.

Instrumentation

Instruments included the Professional Quality of Life (ProQOL) scale (Stamm, 2009), Maslach's Burnout Inventory (MBI) (Maslach et al., 1996), The Silencing Response Scale (Baranowsky, 2011) and the Empathy Questionnaire (Gaumer-Erickson, Soukup, Noon, & McGurn, 2015). The details of the scales and their published psychometric properties (i.e., reliability and validity values) are discussed below.

Professional Quality of Life (ProQOL) Scale (see Appendix D). The ProQOL scale is the most commonly used tool to examine both the positive and negative impacts of caring for other individuals (Stamm, 2009). The current version, the ProQOL 5 has been used as a measurement tool in approximately 200 published papers and is cited in over 100,000 online articles, demonstrating widespread acceptance of its construct validity (Stamm, 2010).

The ProQOL is available in the public domain for use in CF research and encouraged to be used as long as appropriate credit is given. ProQOL scoring requires three distinct steps: the first is to reverse select items of the scale, the second the sum the items by each individual subscale, and the third is convert the raw scores into t-scores (Stamm, 2010). The concise ProQOL manual outlines the specific instructions for coding the subscales using SPSS (Stamm, 2010). Interpretation of the scores is done based on cut scores that are outlined for at the 25th and 75th percentile for each individual subscale which ultimately will reveal relative risks for each of the research participants (Stamm, 2010). Stamm (2010) highlights that the cut scores are intentionally overly inclusive, tending to type I error, as this is ultimately a screening tool and it is more acceptable to include an individual who may be at lower risk than miss an individual who may be at higher risk for developing CF. The scale examines the balance between the two domains: the positives outcomes of caring, or, CS and the negative aspects of caring, being CF consisting of both sub concepts of burnout and STS (Stamm, 2010). The ProQOL is a 30-item, 5-point Likert-type scale with possible responses that range from 1 (Never) to 5 (Very Often). The developers of the scale report the psychometric properties with Cronbach alpha values ranging from 0.84-0.90 (Stamm, 2010) on the three individual subscales. Internal consistency reliability values were found to reach as high as 0.96 in some studies for the total scale including all three subscales (Hunsaker, Chen, Maughan, & Heaston, 2015). Reliability item analysis were

conducted using the data collected in this study and revealed the following alpha values for the STS, Burnout and CS subscales of the ProQOL, respectively; $\alpha = .87$, $\alpha = .74$ and $\alpha = .84$. Overall the reliability of the items is sufficient as all exceeded the threshold deemed acceptable for psychological assessment (i.e., $\alpha > .70$; Nunnally, 1978).

Maslach Burnout Inventory (see Appendix G). The Maslach Burnout Inventory (MBI) (Maslach et al., 1996) is an extremely well known, widely used, and validated tool that examines burnout levels through a self-report tool. The MBI includes three distinct subscales: emotional exhaustion, personal accomplishment and depersonalization (Maslach et al., 1996). The tool consists of 22 self-report statements where the participants rate their experience of these statements on a 7-point Likert scale, ranging from Never (0) to Always (6). It has been shown to have good internal consistency, with a Cronbach alpha of .90 for the emotional exhaustion subscale, .79 for the depersonalization subscale and .71 for the personal accomplishment subscale. Reliability statistics for this study revealed alphas of .90, .85 and .81 for exhaustion, cynicism and professional efficacy subscales respectively, demonstrating acceptable reliability (Nunnally, 1978). The MBI is only available for use if purchased from the author. Permission was sought and rights to distribute were obtained for one year by purchase.

Silencing Response Scale (see Appendix E). This scale was developed by Baranowsky (2002) and measures the silencing response, which is commonly associated with the experience of CF or seen at times as a sub-component of CF (Pfaff et al., 2017). Figley (1995) suggested that CF may be the "umbrella" under which the silencing response rests (Figley, 1995, p.162). The silencing response is typically seen when the caregiver is observed to redirect, shut down, minimize or neglect the disturbing information brought to them by the individual under their care (Baranowsky, 2002).

The silencing response scale is a 10-point Likert-type scale that uses a range of 1 (Rarely/Never) to 10 (Always). Developers have reported the internal reliability alpha coefficient to be .69 and split-half reliability of .63 (Baranowsky, 2002). In tests of convergent validity, statistically significant positive correlations were found between the silencing response and CF. Although reliability is minimally acceptable, there are no other published instruments that measure this concept. For the current study, reliability statistics revealed α=.90 (α > .70, Nunnally, 1978), demonstrating acceptable reliability for the current study. Although the reliability for this scale within this study is acceptable, the low reliability reported by the scale creators suggest that the scale may require further development. The silencing response scale is available for research use in the public domain. Scoring of the silencing response scale is based on a total sum of scores which reflect relative risk of the use of silencing response. The risks are outlined as follows in terms of the total sum of scores: high risk = 95-150, moderate risk= 41-94, some risk = 21-40 and minimal risk = 0-20 (Baranowsky, 2002).

Empathy Questionnaire (see Appendix F). The Empathy Questionnaire was developed by Gaumer-Erickson and colleagues in 2015. This scale is a 15 item, 5-point Likert questionnaire that assesses how individuals respond to situations and understand the feelings, contexts and experiences of others (Gaumer-Erickson et al., 2015). Participants rate how well statements relate to them on a range of 1 (Not very like me) to 5 (Very like me). Gaumer-Erickson et al. report good internal consistency of the overall scale with a Cronbach alpha of .80, and the subscales of understanding others (8-items) and communicating understanding (7-items) having alphas of .70 and .67 respectively. The scale was specifically developed for use with student populations. Reliability statistics for the data of this study revealed acceptable alphas of .79 (overall scale) and .73 (understanding others domain). In this study, the Cronbach alpha for the

'*understanding others'* and .60 for '*communicating understanding*' subscale was less than acceptable at .60.

Demographic and other variables. Demographic information included: age, gender, year of study, current clinical placement (setting, focus), previous clinical placements, and living arrangements. To account for alternative explanations of CF, STS, and burnout levels, additional information was collected: exposure to a traumatic event (personal and professional contexts), being in a family or volunteer caregiver role (at home or volunteer), having a mental health history, using mental health support services, and self-care practices.

Data Analysis

Data screening. Two hundred and eighty participants entered the survey and 258 provided consent and completed the survey. After screening the data for completion and patterns of missingness, it was found that nine cases had missingness > 20% and they were therefore removed listwise from the database (El-Masri & Fox-Wasylyshyn, 2005). Five participants reported being enrolled as part-time students; these cases were removed as they did not meet inclusion criteria. The final sample size was $n = 244$ (response rate = 31%). Appropriate impution techniques (group mean substitution, winsorized mean substitution and case mean substitution; El-Masri & Fox-Wasylyshyn, 2005) were used for the remaining missing data. Sample mean/median substitution was used for missing continuous variables and case mean substitution was utilized and for the Likert/numeric response questions of the survey (El-Masri & Fox-Wasylyshyn, 2005).

For continuous variables, tests of normality were conducted to assess whether computed scale scores did not violate the assumption of normal distribution. This included evaluating histograms, box plots, and stem and leaf plots. All variables with the exception of the SRS and

STS scores were normally distributed. These negatively skewed variables were successfully transformed prior to data analysis. Univariate outliers were identified by running frequency analysis on the standardized scores. The winsorized mean method was used to impute the next most extreme value in the place of the outlier. Standardized estimates of skewness and kurtosis were calculated for each variable by dividing the values of the skew and kurtosis statistics by the standard errors of skewness and kurtosis, respectively. Because the sample size was large enough ($N > 200$), the alpha level .001 ($Z_{crit} = \pm 3.29$) was used to assess the significance of these standardized skewness and kurtosis values. Scoring procedures were followed for each of the instruments, including appropriate reversal of items and calculation of sub-scores. The ProQOL required specific coding and recoding techniques that allowed the scores to be converted into scores that could be interpreted as cut scores.

Analysis. All analyses were conducted by the primary researcher and supervisor using SPSS 25 programming. The statistical tests are summarized by research question.

Research question 1: *To what degree do undergraduate nursing students in a four-year baccalaureate nursing program (with full clinical integration) experience compassion fatigue?*

To answer this question, the three subscale components of the ProQOL scale were analysed using the data analysis procedures outlined by Stamm (2009). Cut-score ranges were calculated for each of the ProQOL subscales and in each year of study (years one through four). When this is done, the relative risks or protective factors against CF can be approximated (Stamm, 2009). It should be noted that since the cut scores are set at the 25th and 75th percentile, they may potentially be over-inclusive and tend to type I error (Stamm, 2009). However, the logic behind this lies in the rationale that it would be less harmful to include an individual who may not be experiencing any of these symptoms/experiences than to miss one who is at risk. The

ProQOL was developed to be used as a screening and risk assessment tool, and not as a diagnostic algorithm (Stamm, 2009). The cut scores represent normal population scores and are set with the average being at 50%. According to Stamm (2009), it is expected that 25% of individuals will fall below the lower cut score and 25% will fall above the upper cut score. One-way ANOVAs were conducted to compare differences in mean student scores on each of the CF outcomes (as measured by the ProQOL, MBI, Silencing Response and Empathy Scale) across the four years of the program.

Research questions 2 and 3: *What factors influence the experience of compassion fatigue among undergraduate nursing students?*; *What protective factors mitigate compassion fatigue amongst undergraduate nursing students*?

Due to the exploratory nature of this study, only bivariate testing was completed. In particular, Pearson correlations and independent sample t-tests were run to explore potential associations between a number of independent variables (empathy, the silencing response, exposure to a traumatic event, being in a family or volunteer caregiver role, having a mental health history, using mental health support services, self-care practices, demographic information) and the ProQOL (Stamm, 2009).

Results

Demographic Characteristics

Table 1 shows a detailed description of the sample characteristics. Participant age ranged from age 18 to 51, where 82% (n = 199) of the participants were between the ages of 18-22. The participants reported being currently enrolled in a variety of different clinical settings, with the majority being placed in general surgical (n = 24; 9.8%), medical (n = 44; 18.0%), combined medical-surgical (n = 22; 9.1%), obstetric (n = 35; 14.3%) or pediatric units (n = 25; 10.2%) or

community placements (n = 27; 11.1%). The majority of the participants (n = 148; 61%) lived off campus with their family, and 30% (n = 73) lived off campus with other students. Over one-third of the participants (n = 86; 35.8%) reported caring for an individual within the community in either a paid or unpaid work position, and 25% (n = 61) cared for an individual living within their home (i.e. spouse, child, grandparent). Thirty-three percent of students reported experiencing trauma within the clinical setting (n = 88), and 62% of participants indicated they experienced trauma in their personal lives (n = 150). Over one quarter of students (n = 63; 26%) reported experiencing compounded trauma (both clinical and personal trauma). With regard to mental health, over half of students (n = 125; 51.2%) of the participants reported that they have or had a mental health concern and only 38.5% (n = 94) of the participants reported having accessed mental health supports either at present or in the past.

Research Question 1

To what degree do undergraduate nursing students in a four-year baccalaureate nursing program (with full clinical integration) experience compassion fatigue?

No statistically significant differences were detected on the ProQOL (Stamm, 2009), the MBI (Maslach et al., 1996), and the Empathy Questionnaire. (Gaumer-Erickson et al., 2015) across the four years of the nursing program. Nevertheless, there are interesting trends in the ProQOL cut-scores that are discussed in the following section. The overall findings are presented first, followed by the results by year.

The overall CS scores reflect population level scores. That is, 25.4% (n = 62) of the participants overall had CS scores below the lower cut score, and 24.59% (n = 60) had scores that exceeded the upper limit for CS. With regard to burnout, 29.9 (n = 73) of the participants overall had scores below the lower cut score and 29.92% (n = 73) exceeded the upper cut score

value. The STS subscale scores were close to population level scores with 21.3% (n = 52) below the lower cut score, and 25.8% (n = 63) above the upper cut score for STS.

Year one. In the first year of the nursing program, 33.33% (n = 12) of participant responses fell above the upper cut score on the CS scale and 19.44% (n = 7) of participants fell below the lower cut score of 44. In terms of burnout in the first year of the program, 30.6% (n = 11) of participants exceeded the upper cut score of 56 and 36.11% (n = 13) fell below the lower cut score of 43. Interestingly only 33.3% (n = 12) of year one student data fell within the average range; on the STS subscale, 30.6% (n = 11) exceeded the upper cut score of 56; and 44.4% (n = 16) of responses were in the average (50%) population health score.

Year two. In the second year of the program, less than 25% of participants (n = 15; 21.1%) exceeded the upper cut score for CS and 21.1% (n = 15) fell below the lower cut score. With regard to the burnout subscale, 29.6% (n = 21) fell below the lower cut score for burnout, 46.5% (n = 33) were in the average range, and 23.9% (n = 17) exceeded the upper cut score. Finally, for the STS subscale, 25.4% (n = 18) of second year participants had scores below the lower cut score, 57.8% (n = 41) were within average ranges and 16.90 (n = 12) exceeded the upper cut score value.

Year three. CS scores for participants in the third year of the nursing program revealed that 33.3% (n = 31) of participants fell below the lower cut score for CS, 41.9% (n = 39) were within average ranges, and 24.7% (n = 23) exceeded the upper cut score for CS. In terms of burnout, 31.2% (n = 29) of third year participants fell below the lower cut score on the burnout scale, 36.6% (n = 34) of students showed average range burnout scores and 32.3% (n = 30) exceeded the upper cut score on the burnout scale. Finally, 19.4% (n = 18) of third year students

fell below the lower cut score on the STS scale, 52.7% (n = 49) fell on average and 27.9% (n = 26) exceeded the upper cut score on the STS subscale.

Year four. Participants in the fourth year of the nursing program, 20.5% (n = 9) of the participants fell below the lower cut score for CS, 56.8% (n = 25) were within the average range and 22.7% (n = 10) exceeded the upper limit cut score for the CS subscale. Less than 25% (22.7%; n = 10) of the fourth year participants fell below the lower cut score for the burnout subscale 43.18% (n = 19) fell within the average range, and 34.09% (n = 15) exceeded the upper cut score limit for the burnout subscale. For the STS subscale, the fourth-year participants had 15.91% (n = 7) fall beneath the lower cut score, 52.27% (n = 23) within the average range, and 31.82% (n = 14) exceed the upper cut score limit.

Research Question 2

What factors influence the experience of compassion fatigue among undergraduate nursing students?

Only statistically significant correlation results are reported in this thesis and they are provided in Table 3. The data analyses suggest several statistically significant univariate relationships. Use of the silencing response (r = -.244, p < .001), STS (r = -.160, p =.012) and burnout (r =-.496, p < .001) have negative relationships with CS. Self-reported empathy scores had a positive significant relationship with CS (r = .429, p < .001). STS had a statistically significant positive association with use of the silencing response scale (r = .472, p < .001), as well burnout (r = .642, p < .001). STS also had a statistically significant negative relationship with overall empathy scores (r = -.163, p = .011). Burnout scores had a statistically significant with the silencing response scale (r = .507, p < .001), and a negative association with empathy (r = -.252, p < .001) and self-care activities (r = -.152, p = .018). Finally, overall empathy scores

were significantly negatively correlated with use of silencing response scale (r = -.306, p < .001).

Statistically significantly higher mean STS scores were observed among participants who had experienced or witnessed trauma within their clinical experiences [*M(SD)* = 2.54 (.60), t = -3.373, p = .001] versus those who had not [*M(SD)* = 2.27 (.61), t = -3.373, p = .001], and among participants who experienced compounded trauma (trauma in both clinical setting and personal life), *M(SD)* = 2.56 (.58); t = -3.195, p = .002, compared to those without compounded trauma, *M(SD)* = 2.29 (.62); t = -3.195, p = .002.

Research Question 3

What protective factors mitigate compassion fatigue amongst undergraduate nursing students?

Self-care. Significant mean differences in CS were observed between those who engaged in mindfulness-based meditation and those who did not (t = -2.813, p = .005) as well as those who reported having or having had mental health concerns (t = -2.466, p = .014). Those who engaged in mindfulness-based meditation had statistically significantly higher mean CS scores [*M(SD)* = 4.21(.52)] than those who did not [*M(SD)* = 3.97(.45)]. They also had significantly higher overall mean empathy scores [*M(SD)* = 4.23(.43)] than individuals who did not participate in mindfulness-based meditation [*M(SD)* = 4.04(.43)], t = -2.471, p = .014]. The data suggests that participants who engaged in regular aerobic exercise had significantly significant lower mean STS scores [*M(SD)* = 2.23 (.58)] than those who did not engage in regular aerobic activities as a means of self-care [*M(SD)* = 2.45 (.63)], t = 2.614, p = .010. Mean burnout scores were also found to be significantly lower in individuals who reported engaging in regular aerobic exercise as a self-care practice [*M(SD)* = 2.27 (.42)] compared to those who did not engage in aerobic exercise [*M(SD)* = 2.39 (.51)], t = 1.904, p = .050.

Mental health. Participants who reported having a current or previous concern with mental health had a statistically significantly higher mean CS score [*M(SD)* = 4.07 (.46)] than those who reported never having had a mental health concern [*M(SD)* = 3.93(.47)], *t* = -2.466, *p* = .014. Participants who reported having or having had a mental health concern were found to have significantly lower mean STS scores [*M(SD)* = 1.91 (.30)] than those who did not [*M(SD)* = 2.83 (.50)], *t* = 17.861, *p* < *.001*. They also had statistically significantly lower use of silencing response [*M(SD)* = 3.03 (1.18)] than those without mental health concerns [*M(SD)* = 3.90(1.27)], *t* = 5.643, *p* < *.001*. Interestingly, individuals who reported having or having had a mental health concern reported significantly higher mean empathy scores [*M(SD)* = 4.12(.43)] compared to those who did not have a mental health concern [*M(SD)* = 4.00(.44)], *t* = -2.177, *p* = .030 and significantly lower burnout scores [*M(SD)* = 2.11 (.39)] than those who did not report mental health concerns [*M(SD)* = 2.58 (.44)], *t* = 8.753, *p* < *.001*. Perhaps more interesting is that individuals who reported current or previous use of mental health supports had significantly higher mean burnout scores [*M(SD)* = 2.43 (.48)] than those who did not [*M(SD)* = 2.28 (.47)], *t* = -2.492, *p* = .013.

Exposure to trauma. Individuals who reported they had experienced trauma in the clinical setting had significantly higher mean empathy scores [*M(SD)* = 4.16 (.42)] compared to those who did not [*M(SD)* = 4.02 (.44)], *t* = -2.585, *p* = .010. Individuals who reported compounded trauma also had higher mean empathy scores [*M(SD)* = 4.19(.42)] than those who did not [*M(SD)* = 4.02(.44)], *t* = -2.602, *p* = .010.

Discussion

This is the first known quantitative study that explores concepts of CF across a baccalaureate nursing program where clinical practice is integrated across all four years of the

program. The findings of this study suggest that undergraduate nursing students are at risk for the development of CF. These findings differ slightly from those of the existing quantitative research conducted on nursing students (Michalec et al., 2013) but help to quantify the concerns of risk proposed by other scholars. Jack (2017) warned that nursing students are at risk of developing CF due to a variety of factors, some of which will be explored further in this discussion. In addition, Sheppard (2011) warned that CF is indeed a concern amongst nursing students. This was further supported by Beaumont (2016) who emphasized the relationship between high levels of STS in the development of CF, which is clearly one of the significant relationships discovered amongst the students within this study. It should be noted that there is limited existing research that quantifies the experience of CF amongst nursing students. Of the known studies surrounding CF and the nursing student experience, Jack (2017) alludes to the risk of students developing CF qualitatively by the exploration of student feelings through self-authored poems. As previously mentioned, Michalec et al. (2013) is the only existing quantitative study surrounding CF in nursing students that exists to draw comparisons with this current study; however, their study was conducted at a university where students were mainly exposed to clinical placements in the final year of their program. This is a significant limitation in regards to generalizing their results and comparing them to the current study. Clinical exposure is cited as an antecedent for the development of CF, and as such, examining students with minimal clinical exposure would limit, if not completely prevent, the authors potential to examine their experience of CF and associated factors (Figley, 2001). This limitation is in fact highlighted by Michalec et al. (2013), who suggest further research be done on nursing students by following them into their professional roles or by focusing on students who undergo fully integrated clinical to gain a better

understanding of their experience of CF. This is the avenue that the current study set out to explore.

This discussion is designed to highlight and explore the significant relationships that exist amongst the major concepts associated with CF and thus illustrate the overall CF experience of undergraduate nursing students. For the purpose of clarity, the discussion is separated into individual sections for each major sub concept of CF. As previously outlined, CF is composed of three major sub concepts: CS, Burnout and STS. The experience and relative risk of CF is ascertained by examining these three concepts in conjunction with each other. This is due to the fact that there is no direct measure of CF but rather it is estimated based on the scores and experiences of each sub concept. As such, this discussion will explore the significant findings within this population for each sub concept of CF individually and their relationships between each other. Additional concepts including trauma and empathy will also be explored as contributors to the propagation or protection of CF. To begin, the concepts will be explored within the context of the guiding framework of this study: Figley's model of compassion stress and fatigue (Figley, 2001).

Theoretical Relationships among the Concepts

Expected relationships were revealed between the major concepts of CF. Figley's model (2001) was beneficial for understanding an individual's development of CF and the basic relationships among its concepts. Consistent with Figley's framework (Figley, 2001), CS was negatively related to both burnout and STS, confirming the assumed relationship of CS as a protective factor to the overall CF experience. CS was also positively related to overall empathy levels which, as discussed above, suggest that cultivating empathy and monitoring the empathy levels of individuals can serve as a protective factor against the development of CF over time.

Empathy was also shown to have a significant negative relationships with STS, silencing response, and burnout; congruent with the existing understanding in the literature (Figley, 1995; Wagaman, Geiger, Shockley, & Segal, 2015). As burnout and STS levels increase, an individual begins to distance themselves from emotionally distressing or evocative situations, increasing their use of silencing response and ultimately, compromising the individual's empathetic ability (Baranowsky, 2002; Figley, 1995).

Compassion Satisfaction (CS)

In this study, nursing students reported average to above average overall levels of CS. This is an encouraging finding as CS is known to be a protective factor in the development of CF (Coetzee & Laschinger, 2017), and it is positively related to empathy levels in individuals (Wagaman et al., 2015). First year student participants reported above average levels of high CS and below average levels of low CS. This finding could be a result of multiple contributing factors. CS embodies the experience of the positive emotions that result from caring for another individual (Figley, 2001). It could be argued that the nursing profession recruits highly empathetic individuals who will take great satisfaction from their clinical interactions specifically at the beginning of their journey, focusing mainly on the positives aspects of caring. Within their initial caring experiences, students may feel an increased sense of satisfaction due to the simple fact that they are able to provide care to patients, meeting the goal that they set to achieve by deciding to become nurses. In addition, nursing students within this educational institution are placed in lower acuity placements within their first year of the program where they are able to intimately build the therapeutic nurse client relationship and the probability of witnessing highly traumatic events may be lower compared to students in later years of the

program, thus allowing feelings of CS to be higher than the negative costs of caring (i.e. STS and burnout).

Above average levels of high CS within the first year students should be protected and cultivated throughout the remainder of the nursing student educational journey. Promoting CS has been outlined as a priority within high acuity nursing settings such as oncology and intensive care (Blackmore & Williams, 2019). At the core of promoting CS lies the act of self-care and self-reflection (Blackmore & Williams, 2019). In order for leaders to successfully promote and sustain CS within their nurses, activities surrounding self-care practices and self-reflection should be encouraged. Examples that should be provided include mindfulness based meditation, journaling, massage, and yoga (Blackmore & Williams, 2019). Blackmore and Williams (2019) not only highlight examples of how to nurture and sustain CS but also stress the importance of leaders encouraging nurses to integrate these self-reflection and self-care for these practices to be embedded.

Burnout

The findings suggest that students experience burnout at various intensities. In this study, there was a bimodal presentation whereby the two largest proportions of students reported either below average burnout scores or above average burnout scores. Furthermore, lower than expected scores fell within the 50% population level range. First and third-year students reported unexpectedly high burnout levels both below and above the average burnout levels identified by Stamm (2009). Second year students experienced below average burnout and fourth year students reported above average burnout. It is unclear exactly why these variations were reported in this sample. Possibly, the students who are experiencing high levels of burnout within this institution are in a state of transition. Students within their first year of the program are

transitioning from high school expectations to a high intensity university program. Similarly, some students within third year are transitioning from a collaborative site to the main campus site and are faced with this transitional experience as well as the need to undergo some of the programs more difficult courses in an unfamiliar environment with a new set of professors. Transition from high school to university and similarly from one campus to another can be a challenge. When students are not provided with adequate support, they feel a sense of vulnerability, role insufficiency and stress (Meleis, 2010). When students are not made aware of the challenges of making a transition, they often refuse the opportunity to grow, cling to previous routine, and avoid new knowledge-building experiences (Meleis, 2010). As such, healthy transitions in this setting must be facilitated in order to avoid additional stress that may be contributing to student experience of burnout. Despite this theory, this study did not collect data regarding campus of origin in terms of the collaborative program due to ethical considerations; however, it may serve as an interesting question for future research to see whether the impact of transitioning from an outside campus is a significant contributor to the higher burnout levels in third year students.

Regardless, these findings are not unexpected as burnout is experienced based on a variety of organizational and environmental elements that are not always linked to emotional components associated with CF (Figley, 1995). Although burnout is a sub-concept of CF, it is more commonly brought on by the organizational factors within a workplace, or in the case of students, an educational program (Valero-Chilleron et al., 2019). This can include hours of work spent/required on clinical shifts, assignments, the demands of high performance and expectations, as well as a sense of a lack of professional efficacy (Sanches et al., 2017). This study was conducted with student participants from the University of Windsor, where the

academic workload is demanding. Students within this program from their first through fourth year are enrolled in full-time courses with five to six courses per semester, typically spending between three to six hours per course in lecture time alone. In addition to this, students spend at least one full day in the clinical setting for an eight-hour shift in years one through three, not including preparation time before attending their clinical placements and assignment workload thereafter. Fourth-year students have a full time course workload in addition to being placed in a full-time clinical nursing position for a 6-week period where autonomy and efficiency is an expectation. Nursing students also undertake weekly scheduled laboratory time and are expected to spend additional practice time within the skills lab to work on physical assessments and clinical skills. These demands do not include the time needed to prepare for lectures, complete assignments, and study for exams. It becomes apparent that there is minimal time left over for self-care and reflection when these demands along with family, financial, and social demands are taken into consideration. Not surprisingly, as noted in the literature, nursing students have shown high burnout levels due to these increasingly stressful and demanding expectations of nursing programs (Valero-Chilleron et al., 2019). With this in mind, student coping within the context of burnout may possibly be dependent on their experience of the educational program itself and less about their experience of caring for patients as a nursing student.

Primary and Secondary Trauma

A significant and surprising finding of this study is the high frequency of reported trauma and STS among nursing students. Levels of STS were reported as high in the first year of the nursing program and across students into their fourth and final year of the program. These findings contrast with those of Michalec et al. (2013) who reported low levels of STS and trauma

among nursing students in their study. The authors extrapolated that the trauma experienced within the clinical experience may not be linked to an experience of CF (Michalec et al., 2013).

High levels of STS serve as an alert for risk of CF (Figley, 2001). The findings of this study suggest that students are not only experiencing trauma within the clinical setting but are entering the program having already experienced trauma. This is not surprising as currently it is estimated that nearly 70% of Canadians have experienced at least one traumatic event in their lifetime (Staniloiu & Feinstein, 2017). Exposure to distressing clinical experiences is inevitable in nursing. The exposure will increase as the frequency of clinical placements and complexity of patient scenarios increase. This study also revealed a significant relationship between empathy and trauma. Those who experienced or witnessed trauma within the clinical setting and those who had both clinical and personal history of trauma (compounded trauma) had significantly higher mean empathy scores than those who had never experienced either clinical or personal trauma. According to Figley (1995) this is a common finding. Firstly, highly empathetic individuals are often drawn to the healthcare field (Figley 1995). When these empathetic carers are exposed to trauma and/or put into a position where it is necessary for them to support an individual who has experienced trauma, they feel parallel feelings of trauma (Butler, Carello, & Maguin, 2017).

Re-traumatization is discussed in the literature with both positive and negative implications when it occurs in the clinical training of healthcare professions (Butler et al., 2017). Butler and colleagues (2017) argue that professionals in training should be exposed to traumatic material despite the risks of traumatization as it provides opportunities to teach coping mechanisms, receive support when processing the events, and develop the tools necessary to cope with their experience (Butler et al., 2017). Butler et al. (2017) stress the importance of

recognizing the risk of teaching trauma-based coping in educational settings. That is, if the trauma-based education is not adequately introduced or organized, and appropriate debriefing is not present following the traumatic event, there is more risk to this education than benefit. There is a balance in the benefits and risks that must be explored. Although clinical training in trauma can put students at risk for STS, students who are not trained in trauma will "lack the framework necessary to understand their own reactions to their work with traumatized clients" (Butler et al., 2017, p. 417).

Empathy and CF

The high overall and cross-program empathy scores are encouraging findings. Empathy is a desired characteristic of nurses and a moral imperative of programs to prepare caring and compassionate nurses (Bas-Sarmiento, Fernandez-Gutierrez, & Diaz-Rodriguez, 2019; Manchester, 2013). Within the context of CF, high empathy is a protective factor as it is associated with the ability to effectively navigate interpersonal relationships, facilitate necessary services, and maintain relationships between clients and co-workers (Wagaman et al., 2015). Empathy enhances an individual's level of CS, allowing one to more easily benefit from their caring role and ultimately protect a carer from the negative components of caring (Wagaman et al., 2015).

Despite the positive implications of high empathy levels, empathy plays a complex role in the pathology of CF as it is both a risk factor and a protective factor (Figley, 1995). Intrinsic empathy is what draws individuals to the caring profession of nursing and therefore puts them at risk for CF, STS, as well as vicarious traumatization (Figley, 1995; Jenner, 2016). Attempting to understand and gain perspective on the experience of patients can result in caregiver suffering (Lewis & King, 2019). It is not the intention of this discussion to discourage empathetic caring,

but rather to provide awareness and education regarding the risk factors associated with developing CF. According to Wagaman and colleagues (2015), it is the duty of educational institutions to nurture empathetic responses and provide students with the tools to deal with emotionally taxing situations. This can produce a greater sense of empowerment, energy and exhilaration, increasing a sense of CS, and thus protecting against CF (Wagaman et al., 2015).

There is, however, debate within the literature about whether empathy exists solely as an intrinsic property to be nurtured or protected, or whether it can in fact be taught and cultivated where it is lacking (Bas-Sarmiento et al., 2019). There is abundant literature that explores empathy interventions and how to best cultivate, nurture and preserve empathy levels (Bas-Sarmiento et al., 2019; Webster, 2010). The results of a randomized control trial study of nursing students reported that experiential empathy training is effective in increasing empathy (Bas-Sarmiento et al., 2019). The training consisted of exercises focused on empathic responses and communication which ended up showing higher post-intervention empathy levels in the experimental group who received the training compared to the control group who did not (Bas-Sarmiento et al., 2019). The study does note, however, that this intervention measured the ability to act empathetically, but not whether the intrinsic ability or motivation to be empathetic was present (Bas-Sarmiento et al., 2019). This highlights the opportunity for educational institutions to potentially teach empathy and encourage self-awareness in students as empathy may contribute to long-term resilience and formal teaching and awareness may reduce fluctuations of empathy levels amongst students.

Self-Care as a Protective Factor

In this thesis study, mindfulness-based meditation, aerobic exercise, and a number of self-care activities had positive associations with CS. Self-care activities can play important roles

in the processing of stressful situations and can ultimately prevent these stressful situations from escalating into pivotal emotional negative experiences for students (Lewis & King, 2019;). Developing a "natural synergy" (p. 97) between practical field experience and self-care activities can strengthen professional socialization and efficacy (Lewis & King, 2019).

Mindfulness based meditation is described as "a state of mind in which one is highly aware and focused on the reality of the present moment, accepting and acknowledging it, without getting caught up in the thought that are about the situation or emotional reactions to the situation" (Bishop, 2002, p. 71). The practice of mindfulness is an emerging theme in the nursing literature as an intervention that can assist with debriefing, decompressing, and reflective nursing practice (Daya & Hearn, 2018; Van der Riet, Levett-Jones, & Aquino-Russell, 2018.). In a study of undergraduate nursing students, a mindfulness-based meditation intervention was effective in mitigating stress and burnout levels (Van der Riet et al., 2018). Stress reduction, burnout reduction, and increased empathy and well-being were identified as benefits to mindfulness-based meditation among the nursing students (Van der Riet et al., 2018). The benefits of mindfulness have been demonstrated in studies with other disciplines. A systematic review of mindfulness-based meditation intervention among medical students concluded that mindfulness was effective in the prevention and/or reduction of depression, stress, burnout and fatigue. Fifty-seven percent of the studies reported a reduction in stress and 67% found decreases in depression after implementation of a mindfulness-based meditation program (Daya & Hearn, 2018). In a study of genetic counsellors who were determined to be at high risk for CF and burnout, mindfulness was negatively correlated with CF and burnout (Silver, Caleshu, Casson-Parkin, & Ormond, 2018). Mindfulness-based meditation was also reported to increase CS levels and measures of empathy (Silver et al., 2019). An interprofessional cancer program CF resiliency

intervention designed to increase awareness of CF in self and others through mindfulness-based meditation and self-reflection reduced levels of clinical stress among its participants (Pfaff et al., 2017).

This study highlights potential benefits of regular aerobic exercise for managing burnout and STS. Although this study did not explore how aerobic exercise minimizes burnout levels, the literature explores how low exercise levels are associated with and directly contribute to burnout and occupational stress (Mohebbi, Dehkordi, Sharif, & Banitalebi, 2019; Wolf & Rosenstock, 2017). In a study of female nurses, Mohebbi and colleagues (2019) reported that those who participated in an eight-week aerobic exercise program had a significantly lower report of occupational stress. The positive effects of the exercise program were not observed in individuals who did not partake in the program consistently. For those who did, the effects disappeared two months after stopping. Wolf and Rosenstock (2017) assert that regular and consistently practiced aerobic exercise can have positive emotional, physical, and psychosocial benefits for those who have high levels of burnout and occupational stress. In spite of the clear benefits of aerobic exercise on stress and burnout levels, it can be difficult for students with an already heavy workload to incorporate self-care into their regular routine. This highlights a gap and a need for educational institutions to create embedded programming that prioritizes and makes time for some of these crucial self-care activities (Beaumont, 2016).

Implications

Future Research

Secondary data analysis of the data collected in this study would enable exploration of associations that were not explored based on the research questions posed in this study. For example, with rates of mental health concerns among nursing students rising (Pulido-Criollo,

Cueto-Escobedo, & Guillen-Ruiz, 2018), the relationships among mental health, burnout, and CS must be better understood. To control for potential confounders and allow for a more robust understanding of the associations, multivariate analyses are recommended, whereby the three scale scores defining compassion fatigue are modeled as dependent variables. Path analysis could be conducted to understand how the concepts may be predictive of the concept of CF and thus used in future preventative interventions (Kline, 2011). Structural equation modeling could also be utilized to provide insight into how these variables mediate or moderate CF (Kline, 2011). For example, mindfulness may play a significant role in the cascade of CF as a protective factor against CF.

Several demographic variables were collected that were not highlighted in this report but could provide additional insights. Data was not collected regarding the financial situation and work patterns of nursing students which may help to explain burnout. This may significantly contribute to student experiences of burnout as financial stressors account for a large proportion of stress that university students experience (Haney, 2015). The reality of daunting long-term debt and need to finance daily living requires that students spend time working when they are not in school, which in turn may increase their experience of burnout and perceived lack of time for self-care activities (Haney, 2015). This study did not collect data regarding campus of origin in terms of the collaborative program; however, future research should assess the impact of program site transitioning on burnout levels in third-year students.

Education

This research has implications for nursing educators and baccalaureate nursing programs**.** The data suggest that that nursing students are at risk for developing CF, and some may have signs and symptoms of CF. This will impact their resilience throughout the program and may

continue after entering the nursing workforce. Integrated curricular changes that range from small interventions to more innovative programs can better support students, prevent future CF victims and ultimately prepare a more resilient and empathetic workforce.

There are many avenues of support and awareness that need to be highlighted when the students are in their educational journey to assist them with their coping techniques and ability to deal with the negative aspects of caring while allowing the positive aspects of caring to flourish. Beginning in their first year of study, educators must make the risk factors of CF apparent to students, providing them with information regarding risk factors and teaching them to be self-aware of any signs of CF. In doing so, they need to address contributors of nursing student burnout and provide strategies to moderate the impacts of the negative stressors on student well-being. Educators must also provide education and awareness regarding the specific and simple interventions that are necessary to combat CF; relaxation, sleep hygiene, nutrition, self-care and selft-reflection (Dreher, Hughes, Handley, & Tavakoli, 2019). With regards to burnout, students will need to be educated regarding the importance of self-reflection and self-care. A certain degree of the workload associated with a rigorous university program is unavoidable, however, from a faculty standpoint, it may be worthwhile to consider a curriculum review to evaluate what students need to know and potentially redesign the program to reduce any existing redundancies. This may allow for more time to teach and engage in self-care activities as highlighted in the literature in order to nurture and build student well-being, allowing the positive effects of caring to prevail over the negative costs of caring. In terms of awareness, it may also perhaps be advisable for educators and university programs to screen for CF in order to assess whether additional interventions may be required in a case by case basis. Educators must help to nurture empathy levels while making students aware that they need to have healthy boundaries of

empathy throughout their careers, and require appropriate discussion and debriefing following traumatic events (Healy & Tyrrell, 2013).

In order to adequately support undergraduate nursing students, there must be measures in place to support students personally as well as in the classroom and clinical settings. The findings highlight the need to provide students with ample time for clinical debriefing. Debriefing is a common teaching and stress-relieving approach used in both simulation learning and post-clinical discussion (Harrison-Kelly, Henry, & Williams, 2019). The intention of debriefing is to optimize learning experiences and allow a group of students to have the time to discuss learning experiences from their clinical day or session while the educator helps to promote reflection (Harrison-Kelly et al., 2019). Debriefing is often used to reflect on high-intensity situations throughout the day, or if a critical event occurs in order to effectively manage stress levels (Healy & Tyrrell, 2013). There are many approaches and techniques to facilitating an effective debriefing experience that exist in the literature and these can be fairly structured and formal or conversely, informal and dialectic in nature (Harrison-Kelly et al., 2019). Harrison-Kelly et al. (2019) highlight that debriefing also allows the time for a "systematic process to release emotions from [an] experience" (p. 57) which would provide a safe and effective opportunity for students to explore emotions following an emotionally traumatizing or evocative event within the clinical setting. The current standard of post-clinical conference provides a time frame where debriefing could be effectively completed, and in the event debriefing is not required for that particular day or experience, it could theoretically provide a time slot for the instructor to teach and incorporate self-care strategies. It could also act as a time to include education regarding trauma-based learning and incorporate some modules included

within the traumatology institute (Baranowksy, 2002) which provides overviews and intervention-based learning for concepts of trauma and CF.

Self-care needs to be a prioritized because students will inevitably experience trauma, burnout, and heavy workloads (Butler et al., 2017). These initiatives must be embedded within the educational curriculum in order to teach and support students in a positive manner. This study revealed that mindfulness made significant impacts on the mean difference of both CS and empathy levels. There is evidence to support the consideration of mindfulness training within nursing programs where training of individuals who will be doing emotionally difficult work is occurring. Evidence shows that it is not enough to simply encourage the use of self-care techniques, but rather, the students need concrete time frames to engage in these activities, specifically mindfulness and aerobic exercises (Beaumont, 2016; Blackmore & Williams, 2019).

Study Limitations

There are multiple limitations of this study. Participant sizes of each year of the program were uneven, which compromises the power of the statistical tests conducted in the present study and makes it difficult to confidently generalize the conclusions of this study within the context of the experiences of the students in each year of the program. Recruiting a larger sample of students from baccalaureate nursing programs across Canada would allow greater understanding of CF, and increase generalizability to other Canadian nursing programs. Utilizing a cross-sectional study design limits the ability to generalize findings to students across a period of time and may not be representative of the experience as a whole. Using a cross-sectional design may also limit the ability to clearly interpret some of the associations observed in the findings, as measurement error is increased in cross-sectional self-reported research due to common method bias (Podsakoff et al., 2003). In addition, self-selection bias may be present, as students elected

to participate in the study, which may result in only particular students responding to the survey. As with any survey, social response bias may be present, suggesting that participants may have responded to certain items within the survey in a manner which they perceive to be socially acceptable yet ultimately may be an inaccurate representation of their experience. This study was conducted with students with a fully integrated clinical experience, and results may not be applicable to nursing programs with differing clinical models. With regard to instrumentation, the silencing response scale is reported in the literature to have less than adequate reliability. Currently there is no other existing scale that measures silencing response. Although the reliability statistics for the silencing response scale were acceptable in this study, the SRS may require further development.

Conclusion

This study explored concepts of CF among undergraduate nursing students across a four-year clinically integrated nursing program. It is the first quantitative study to explore CF across a sample of undergraduate nursing students with full clinical integration. The findings indicate that nursing students are at risk for CF, and some have clinical manifestations of CF that begin as early as the first year of a nursing program. Being able to identify risk factors and signs of CF is of critical importance to leaders of healthcare organizations and nursing educators. It is imperative that CF is recognized as threat to nursing retention and wellbeing, as well as a nurse's ability to provide quality patient care (Lynch, 2018). Undergraduate nursing students must be made aware of this threat and be adequately prepared to enter and effectively cope with an emotionally taxing and challenging vocation, and ultimately strengthen the nursing workforce (Beaumont, 2016; Sheppard, 2011, Sorenson et al., 2016). This study provides an opportunity and call-to-action for educators to protect the compassion and empathy of these nursing learners.

Support and education surrounding the emotionally challenging components of entering the nursing profession must be prioritized. Educators are encouraged to innovate creative and manageable strategies for students to incorporate self-care into their already heavy schedule. Recognizing that nursing students are at risk for the development of CF is a first step in creating and evaluating supportive interventions that foster resiliency among nursing students along their professional journeys.

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Table 1

Demographic characteristics of sample (N=244)

		N	*%*
Gender	Male	220	90.2
	Female	20	8.1
	Other	4	1.6
Age	18	16	6.5
	19	48	19.9
	20	57	23.2
	21	53	21.5
	22	25	10.6
	23	8	3.3
	24	8	3.3
	25	7	2.8
	26-51	22	8.9
Year of Nursing program	1	36	15.0
	2	71	28.9
	3	93	38.2
	4	44	17.9
Current clinical placement setting	Medical	44	18.0
	Surgical	24	9.8
	Medical-Surgical	22	9.1
	Oncology/Palliative Care	18	7.4
	Emergency/Critical Care	9	3.7
	Obstetrics/Maternal-Child	35	14.3
	Pediatrics	25	10.2
	Long-term care	19	7.8
	Rehabilitation	15	6.1
	Community	27	11.1
	Mental Health	6	2.5
Living Arrangements	Live alone off campus	10	4.1
	Live off campus with family	148	60.6
	Live on campus in residence	13	5.3
	Live off campus with other students	73	30.0
Experienced trauma in clinical	Yes	81	33.3
	No	163	66.7
Experienced trauma in personal life	Yes	150	61.8
	No	94	38.2
Compounded trauma	Yes	63	25.8
	No	181	74.2

Care for individual at home	Yes	61	25.0
	No	183	75.0
Care for individual in community (paid or unpaid)	Yes	86	35.8
	No	158	64.2
Report having or have had past mental health concerns	Yes	125	51.2
	No	119	48.8
Access of mental health supports	Yes	94	38.5
	No	150	61.5

Table 2

Concepts of Compassion Fatigue by Year

	Year One (n=36)		**Year Two (n=71)**		**Year Three (n=93)**		**Year Four (n=44)**		**Overall (n=244)**	
	%	n	%	n	%	n	%	n	%	n
Compassion Satisfaction										
< 44	19.44	7	21.13	15	33.33	31	20.45	9	25.41	62
50	47.22	17	57.75	41	41.94	39	56.82	25	50.00	122
>57	33.33	12	21.13	15	24.73	23	22.73	10	24.59	60
Burnout										
< 43	36.11	13	29.58	21	31.18	29	22.73	10	29.92	73
50	33.33	12	46.48	33	36.56	34	43.18	19	40.16	98
>56	30.56	11	23.94	17	32.26	30	34.09	15	29.92	73
Secondary Traumatic Stress										
< 42	25.00	9	25.35	18	19.35	18	15.91	7	21.31	52
50	44.44	16	57.75	41	52.69	49	52.27	23	52.87	129
> 56	30.56	11	16.90	12	27.96	26	31.82	14	25.82	63
	M ± SD		M ± SD		M ± SD		M ± SD		M ± SD	
Empathy	4.08 ± 0.52		4.09 ± 0.43		4.03 ± 0.45		4.07 ± 0.39		4.06 ± 0.44	
Silencing Response	3.13 ± 1.80		3.43 ± 1.06		3.49 ± 1.31		3.77 ± 1.41		3.47 ± 1.35	

Table 3

*Means, standard deviations and significant correlations (*N=244)

Variable	*M*	*SD*	1	2	3	4	5
1. Compassion satisfaction (CS)	50	10					
2. Burnout	50	10	-.496**				
3. Secondary traumatic stress (STS)	50	10	-.160*	.642**			
4. Overall empathy	60.92	6.64	.429**	-.252**	-.163*		
5. Silencing response	51.79	19.16	-.244**	.507**	.472**	-.306**	
6. Number of self-care activities			.085	-.152*	.021	.091	.021

Note. M and *SD* are used to represent mean and standard deviation, respectively.
*$p < .05$. **$p < .01$.

Table 4

T-test comparisons of variables that may protect/mitigate the experience compassion fatigue

Compassion Fatigue Outcome Variables	Variable		Mean + SD	t	p
Compassion Satisfaction	Self-Care: Mindfulness-based meditation	Yes No	4.21 + .52 3.97 + .45	-2.813	.005
	Had or have had a mental health concern	Yes No	4.07 + .46 3.93 + .47	-2.466	.014
Secondary Traumatic Stress	Experienced/witnessed trauma in clinical setting	Yes No	2.54 + .60 2.27 + .61	-3.373	.001
	Experienced compounded trauma	Yes No	2.56 + .58 2.29 + .62	-3.195	.002
	Self-Care: Regular aerobic exercise	Yes No	2.23 + .58 2.45 + .63	2.614	.010
	Had or have had a mental health concern	Yes No	1.91 + .30 2.83 + .50	17.861	.000
Burnout	Had or have had a mental health concern	Yes No	2.11 + .39 2.58 + .44	8.753	.000
	Use or used mental health supports	Yes No	2.43 + .48 2.28 + .47	-2.492	.013
	Self- Care: Regular aerobic exercise	Yes No	2.27 + .42 2.39 + .51	1.904	.050

Silencing Response	Had or have had a mental health concern	Yes No	3.03 + 1.18 3.90 + 1.27	5.643	.000
Empathy	Experienced/witnessed trauma in clinical setting	Yes No	4.16 + .42 4.02 + .44	-2.585	.010
	Experienced compounded trauma	Yes No	4.19 + .42 4.02 + .44	-2.602	.010
	Self-Care: Mindfulness-based meditation	Yes No	4.23 + .43 4.04 + .43	-2.471	.014
	Had or have had a mental health concern	Yes No	4.12 + .43 4.00 + .44	-2.177	.030

Table 5

Cut scores from ProQOL manual

	Compassion Satisfaction	Burnout	Secondary Traumatic Stress
Bottom Quartile (25th Percentile)	44	43	42
Mean (50th Percentile)	50	50	50
Top Quartile (75th Percentile)	57	56	56

(Stamm, 2009)

Appendix A- Literature Table

Author(s), Year	Title	Study Design and Method	Findings	Limitations
Jack, K. (2017)	The meaning of compassion fatigue to student nurses: an interpretive phenomenological study.	• **Design:** Interpretive phenomenological study. • **Method:** Student authored poems were used as the main source of data to examine their experience. • **Sample:** 42 nursing students in an H. BSc program at a UK university.	• Found that students were suffering from compassion fatigue based on three distinctive themes. • All of the poems contained feelings of sadness and psychological distress or struggle. • Also had feelings that illustrated the individuals had feelings of unhappiness related to the clinical environment and staff members. • The authors highlighted that all of the poems, to some extent, revealed key triggers for compassion fatigue including personal characteristics of the nurse, psychological distress and work environment/attitudes. • The data showed that students were feeling distressed in the clinical environment and that they lack the skill and abilities to cope and manage their feelings. • Showed that certain things aspects of the clinical environment do not make sense to students (due to their lack of experience) which ultimately causes them additional stress and frustration. • Showed a common theme of students differentiating between their "real face" and "professional face" some suggesting that the care they were providing was	• The use of reflective poetry could be highlighting a variety of psychologically stressful phenomenon that the student may be experiencing. This may make it difficult to isolate the concept truly being described by the student. • Author states that upon receipt of the poem, many explored some challenging aspects of caring which she interpreted as reflective of CF- could be another psychological travail. • Data only from one University in the UK. • Small sample of just female, white students • Poems were analyzed individually, not thematically (not sure if this counts as a limitation- sounds like it could be one, or perhaps

			sometimes real, other times solely a professional obligation. • Others showed self-sacrificing behaviours, a common risk factor for CF (i.e. staying longer after shift was over etc.) • Students were frustrated that their expectation of nursing practice (valuing emotional connection and therapeutic relationship building with clients) differs from the reality of practice (task-oriented).	more of a stylistic choice).
Michalec, Diefenbeck, Mahoney. (2013)	The calm before the storm? Burnout and compassion fatigue among undergraduate nursing students.	• **Setting:** University of Delaware School of Nursing • **Sample:** 436 Undergraduate Nursing Students • **Design:** Questionnaire survey composed of multiple measures (Maslach Burnout Inventory, ProQOL) followed by in-depth semi-structured interviews for 3rd and 4th year students only.	• **Quantitative Findings** • All students reported moderate/average levels of emotional exhaustion, personal accomplishment and burnout. Low levels of depersonalization and STS, and high levels of Compassion satisfaction. • 1st year students had significantly lower levels of emotional exhaustion and burnout compared to those students in 2nd and 3rd year. • 3rd and 4th year students did not report any significantly higher levels of any of the negative experiences than the students in the lower years of the program. • 4th year students had significantly higher levels of accomplishment. • **Qualitative Findings** • Themes: enhancement of "otherness", evidence of role actualization/fulfillment and predictions of burnout in the future. • Students stated mostly that their clinical experiences had affected them in a	• The University of Delaware has a unique model of the Nursing education program in that all clinical rotations take place in the 4th year of the program, after all in-class education has been completed. This removes the factor of prolonged exposure to client care- a highly cited antecedent of CF from the student population studied. • Only interviewed 3rd/4th year students due to lack of clinical experience for the 1st/2nd year students. • There is some confusion because some of the quotes state they are

			positive manner- that they became more empathetic, caring and compassionate. • 4th year students felt as though their clinical placements made them feel like real nurses and that they were applying what they had learned. • Students alluded to the anticipation of burnout in their career as an inevitability. • Authors make a note that although the students report mod/average and low levels of noxious psychological experience from a professional grade instrument, the data may suggest that these negative experiences do begin to emerge in early nursing student training. • 4th year students did not report significantly higher levels of burnout or CF, which lead the authors to deduce that clinical exposure may not be the mechanism by which CF is dependent upon.	from 3rd year students, talking about their clinical placements, however, the placements supposedly do not start until the 4th year of this program. • Study states "there were no significant differences in reports of burnout or compassion fatigue between the grade cohorts suggesting that perhaps the frequency and intensity of clinical experience during nursing school may not be the mechanism by which these conditions are incubated…" This deduction seems to be a limitation because it's very hard to conclude something about clinical experiences having an impact on a clinical phenomenon when only ¼ of the individuals examined have had clinical exposure.
Sheppard, K. (2011)	Compassion Fatigue Hits Students Too.	• Article.	• States that burnout is commonly examined and talked about, but less so compassion fatigue	• Appears solely to be anecdotal evidence from expert opinion.

			• It is assumed in the literature that CF is not a concern for students, but it is. • Encourages self-reflective journals to identify stressful events. • Addressing CF may improve retention and strengthen workforce.	
Figley, C. (2017)	It Might Not Be Burnout: Recognizing Compassion Fatigue and Building Resilience	• Article	• Highlights the difference between compassion fatigue and burnout: burnout including a degree of being tired with the job and contrarily compassion fatigue where the individual enjoys their job but can't adequately manage the emotional nature of it. • In order to provide a patient with a genuine empathetic response, an individual must first be empathetic as well as be able and willing to interact with people who are suffering or traumatized. • Signs/Symptoms of STS: isolation, anxiety, unintentional thoughts about patients, emotional numbing, low tolerance for others, and difficulty concentrating. • States that consistent engagement with people who have been traumatized holds the possibility for extended exposure to suffering. • This phenomenon also impacts those who are specially equipped and gifted at dealing with traumatized individuals.	• Expert opinion only. • Focus on Oncology workers only.
Beaumont, E. (2016)	Building Resilience by Cultivating Compassion	• Opinion Article/Literature Review?	• Students in healthcare programs may be confronted with unique challenges that typical students transitioning into university may not experience.	• Expert opinion.

			• Students still have exposure to clients who have been traumatized and as such would be at risk for compassion fatigue. • Highlights empathy as an antecedent of compassion fatigue. • Allude to the fact that students should be taught self-management techniques that will help them cope with compassion fatigue related difficulties in the future and that these should be embedded within the curriculum. • Students experience many challenges that impact ability to perform self-care such as: clinical placements, scholastic obligation, financial stress, issues in personal life, vicarious trauma, etc. all of which hinder performance and compassion, also possibly contributing to compassion fatigue development. • Students with high self-compassion and wellbeing have fewer symptoms of compassion fatigue and burnout. • Self-compassion may be an effective strategy to combat CF in this population. • Article proceeds to outline two central interventions that could be embedded within healthcare professional training to avoid the negative impact of these aforementioned concerns. • These include: Compassionate mind training (CMT) and compassion focused therapy (CFT). • Ultimately students require more information and education regarding these empathy and compassion based	

			phenomena that they are sure to encounter within their time in the field.	
Beaumont, Durkin, Martin & Carson. (2015)	Compassion for others, self-compassion, quality of life and mental well-being measures and their association with compassion fatigue and burnout in student midwives: A quantitative survey.	• **Design:** Quantitative Survey using 4 separate questionnaires. • **Sample**: n=103 student midwives. • **Setting:** north-west university in England (UK) • **Method:** 4 Questionnaires: ProQOL, Self-Compassion scale, Warwick and Edinburgh Mental Well-Being Scale (short) and the Compassion for Others scale.	• Average compassion for others scores were high. • Average self-compassion scores were moderate • Over half the sample had burnout score of average or greater, 40% shared similar patterns with compassion fatigue. • Self-judgement negatively correlated with compassion for others and well-being. • Positive relationship between compassion fatigue and self-judgement. • Self-kindness was associated with less burnout. • Compassion satisfaction negatively correlated with burnout and compassion fatigue. • Therefore, the students who reported greater satisfaction, have lower rates of compassion fatigue. • Found that self-judgement is a large player in the mix when considering contributors to compassion fatigue. It decreases well-being and ability to be compassionate.	• Midwifery students with rather low sample size. • Only surveyed one site. • Data only collected at one point in time.

Hinderer et al. (2014)	Burnout, Compassion Fatigue, Compassion Satisfaction and Secondary Traumatic Stress in Trauma Nurses.	• **Design:** Cross-Sectional Descriptive Study • **Setting:** Trauma center in eastern USA. • **Sample: n**=128 nurses providing direct patient care to traumatized patients. • **Method:** demographic instrument, Penn Inventory and ProQOL scale.	• 35.9% of nurses in the study had scores suggesting high burnout or high risk of burnout. • Compassion fatigue was reported by 27.3% of the nurses. • High percentage of the sample (78.9%) reported above average levels of compassion satisfaction, and 21.1% experienced low compassion satisfaction. • 7% of the nurses reported score consistent with criteria suggesting the presence of secondary traumatic stress. • Burnout and compassion fatigue were associated with lower compassion satisfaction scores. • Burnout and compassion fatigue were both positively correlated with secondary traumatic stress and contrarily, higher compassion satisfaction was associated with lower reports of secondary traumatic stress. • It was found that burnout, compassion fatigue and compassion satisfaction represented 36% of the variability in secondary traumatic stress with burnout and compassion satisfaction as significant predictors of STS. • No significant correlations were found between burnout and personal or environmental factors. Similarly, no significant relations were found with compassion fatigue as well. • Burnout was also negatively correlated with positive coping strategies such as	• Relatively small sample size. • Only surveyed one site. • Self-report data. • Penn Inventory (measure for stress in working with traumatized) has not been widely validated.

			support systems, meditation and counselling. • Those with higher CF scores were found to work more hours. • Overall, Burnout and CF had the strongest correlation. Also, CS had strong negative correlations to BO and CF- so those with high CS scores reported lower CF and BO scores. • CF was higher in the nurses who reported partaking in fewer outside of work hobbies/activities, worked longer shifts, lower emotional self-awareness and did not have strong positive relationships with their coworkers.	
Kelly & Todd (2017)	Compassion Fatigue and the Healthy Work Environment	• **Sample:** n=105 nurses. • **Method:** Demographic background information, ProQOL Questionnaire and the AACN HWEA scale. • **Design:** Quantitative cross-sectional descriptive survey. • **Setting:** Magnet-designated medical center in SW USA.	• ProQOL Findings: • Burnout: low=44.8%, moderate=55.2% • Secondary Trauma: low=46.7%, moderate 53.3% • Compassion Satisfaction: high= 31.4%, moderate 68.6% • Burnout negatively correlated with all HWEA criteria. • Nurses who reported healthier work environments reported lower levels of burnout and higher levels of CS. • Secondary trauma was negatively but not significantly related to any of the HWE standards. • Strongest indicator of HWE was authentic leadership and reflected lower burnout and higher compassion satisfaction scores. •	• Single site, small sample. • Cross-sectional. • No one reported high levels of burnout and so this can alter how certain factors were viewed.

Beaumont, Durkin, Martin & Carson (2016)	Measuring relationships between self-compassion, compassion fatigue, burnout and well-being in student counsellors and student cognitive behavioural psychotherapists: a quantitative survey.	• **Design:** Quantitative survey. • **Method:** Administration of the following 4 surveys: ProQOL, Self-compassion scale, Warwick and Edinburgh Mental Well-being Scale (short) and the Compassion For Others scale. • **Sample:** n=54 student cognitive behavioural therapists and personal centered counsellors in their final year of study.	• Mean score for compassion for others was high. • Mean self-compassion score was moderate. • High compassion satisfaction and low compassion fatigue scores were reported as well. • Negative correlation between self-compassion and burnout; self-compassion and compassion fatigue. • Positive correlation between self-compassion and well-being. • No relationship between self-compassion and compassion for others. • Negative correlations between compassion for others and burnout/compassion fatigue. • Greater well-being score were found in those with higher scores for compassion for others. • Self-judgement correlated positively with compassion fatigue and burnout. • Ultimately having greater self-compassion reduces experience of compassion fatigue and burnout and increases student well-being.	• Small sample size. • Only examined in one year of program, limiting knowledge of how these levels may have changed over time in the program.
Coetzee & Laschinger (2017)	Toward a comprehensive, theoretical model of compassion fatigue: An integrative literature review.	• **Design:** Integrative literature review. • **Keywords:** compassion fatigue, model, conceptual framework, theory. • **Data Sources:** PubMed, EBSCOHost	• Highlights the concern that this concept has historically lacked conceptual clarity and as such, research surrounding the phenomenon may have been slower to unfold. • Also highlight that empathy is a component that creates conceptual conflict amongst researchers as to what its contributory place in the etiology of CF is.	•

		(Medline, PsycINFO, Academic Search Premier, CINAHL, MasterFILE, and Health Source Consumer Edition) as well as some grey literature including internet websites. • **Sample:** n=11 studies.	• Antecedents of CF: clients/client factors, work environment, caregiver factors, and clinical factors. • The models suggest the two main components involved in developing either CF or Compassion Satisfaction are the balance of resources and stress appraisal. • Authors utilized conservation of resources theory (COR)- an integrated stress model- to better described the process of CF development. • **Compassion Fatigue Model:** created based off of the literature review and previous models of CF. • **Resources:** object, conditional, personal, energy. • **Resource Appraisal:** perception of stressors or demands as a threat or not a threat. Perceived as threat when individual has poor resource balance. • **Processing Modes:** experiential (involuntary) and propositional (voluntary). • **Other Focus:** Allows for empathy and empathetic concern with self-other distinction. Allows for resource gain and compassion satisfaction. However, if a negative experience, may have a negative feedback leading to compassion stress and ultimately compassion fatigue. • **Self-Focus:** Caregiver and patient experience similar feelings but there is no distinction between self and other. Instigates self-reflection which may either	

			result in growth or personal distress, distancing self from the patient.	
Sorenson, Bolick, Wright & Hamilton (2016)	Understanding Compassion Fatigue in Healthcare Providers: A Review of Current Literature	• **Design:** Literature Review. • **Method:** Whittemore and Knafl's integrative review methodology. • **Data Sources:** CINAHL and PubMed. • **Sample:** n=43 articles spanning 2005-2015.	• More sleep, lower burnout and good predictor of STS. • Higher emotional intelligence/management showed decreased CF. • CF can be reduced using resilience training • Improved self-care can decrease levels of CF and burnout. • Positive correlation between CF and Burnout. • ER were at highest risk level in many studies, some of which meeting all diagnostic criteria for STS/CF. Some reports of ER nurses showed CF levels as high as 86%. • Across the studies and populations examined, common themes were reported as *contributing* factors of CF development: lack of managerial support, lack of experience (younger nurses) emotional stress, conflicting values, caring for patients who were victims of violence, as well as death and suffering or witnessing distressing procedures. • Nurses in general medical surgical units are at lower risk than those working in critical care units. • Cited protective factors: self-care (most significant in prevention) education, teamwork, teaching coping strategies	• Some professional roles or designations are missing from the review.

			• In one study, CF was cited as reason for 29.6% of nurses as reason for leaving the profession. • Only mention of undergraduate nursing students showed they had minor signs of CF but were concerned for the development of the phenomenon in future life. • There is an overall concern in the literature for CF causing individuals to leave their professions or impact health and well-being.	
Lynch (2018)	Looking at Compassion Fatigue Differently: Application to Family Caregivers	• **Design:** Commentary with literature synthesis.	• Added concepts of empathy and psychological response to the definition of compassion fatigue. • Connects compassion fatigue literature to family caregivers: • Inability to disengage from the suffering of a loved one as well as experiencing blurred boundaries of care, leading to the absorption of suffering of the family member.	• Expert Opinion Only.
Finley & Sheppard. (2017)	Compassion Fatigue: Exploring early- career oncology nurses' experiences.	• **Design:** qualitative phenomenological interviews. • **Methods:** In depth, semi-structured interviews. • **Sample:** n=5 oncology nurses.	• Found that getting overly attached to patients and families brought about symptoms of STSD. • Long-term provision of care exacerbated this. • Another contributor was when family members relied on the nurse for emotional support. • Difficult deaths and perception that life is not fair- a clash of expectation and reality of what is assumed to be right. • Nurses experienced isolation, exhaustion and a depletion of energy.	• Small sample size. • Homogeneous sample.

			• Frequently cited psychological signs of STSD, all resulting in numbing emotions. • One of the nurses stated that she felt she was unable to feel deeply for patients anymore but felt that it was solely as a self-defense mechanism. • Reported high compassion satisfaction. • Valued self-care, coping and compartmentalization all prevented negative feelings from taking over personal life of the nurse.	
Deary, Watson & Hogston (2003)	A longitudinal cohort study of burnout and attrition in nursing students.	• **Design:** Longitudinal cohort study. • **Method:** Questionnaires, psychometric tests and demographic information collected at time 1, 12 months later, and 24 months later at the end of the program. (Questionnaires: Alice Heim 4 Test; NEO Five Factor Inventory; Coping inventory for Stressful situations; General Health Questionnaire; Maslach Burnout Inventory; stress in nursing students)	• Slight increase in neuroticism over time may suggest an effect of stress on nursing students. • There were significant increases over time of emotion-oriented, avoidance and distraction coping strategies over time- indicating negative adaptation. • Those who dropped out between assessment times showed a difference in agreeableness and conscientiousness. • Those who were less agreeable and showed increased qualities of ruthlessness and selfishness as well as lack of conscientiousness were more likely to drop out of the program.	• Study began in 1999, when the majority of participants would be diploma students- limits generalizability to most undergraduate nursing programs at present. • Homogeneous sample: majority female.

		• **Sample:** Due to longitudinal nature of the study the sample sized changed at each assessment period. Samples sizes at time 1, 2 and 3 were 168, 124 and 90 respectively. • **Setting:** Diploma level nursing students in the UK.		
Merkley (2016)	Student nurse attrition: A half century of research.	• **Design:** Descriptive literature review. • **Key Words:** student nurse, attrition, drop-out, retention, education policy. • **Data sources:** PubMed, EBSCOhost, Ovid, CINAHL, ProQuest and ERIC. • **Sample: n=42** journal articles spanning 1965-2015	• Factors supporting student completion of program: inner strength, high self-determination, pre-course preparation, support of family and friends, as well as tutor support. • Learning environment: unpleasant behaviour from faculty may hinder a student's ability to learn and seek resources to succeed. • Tutoring and faculty mentorship improve retention rates. • Clinical placements: were a major theme found to contribute to whether or not a student will continue in the program or drop out. • Contributing factors included: unpleasant experiences in the clinical setting, feeling accepted, level of support, and perceptions of nursing as a profession.	•

Sorenson, Bolick, Wright & Hamilton (2017)	An Evolutionary Concept Analysis of Compassion Fatigue.	• **Design:** Concept Analysis • **Method:** Rodgers' Evolutionary Model of Concept Analysis • **Data Sources:** PubMed and HealthSource. • **Sample:** 25 papers spanning 2005-2015 focusing on HCPs in formal healthcare settings.	• **Compassion Fatigue Surrogate Terms:** Secondary Traumatic Stress (STS) provides greater clinical description, but creators of both terms agree it is describing the same phenomenon. • **Attributes:** inability to process emotional stress related to caring for traumatized or suffering individuals, emotional, physical and spiritual exhaustion and abrupt onset of symptoms. • **Antecedents:** Working as a healthcare provider (HCP), prolonged exposure to clients' traumatic events, empathy for the suffering individual and desire to absorb or alleviate the individual's suffering. • **Consequences:** difficulty compassionately engaging with patients, impacts job performance, impedes ability to form quality connections with patients and thus job satisfaction, attrition from the profession. This has broader implications and consequences that extend beyond the individual HCP. • Cost of replacing HCP ranges from $36,900-$57,300 thus approximately $729 million per year in the USA.	• N/A

Coetzee & Klopper (2010)	Compassion fatigue within nursing practice: A concept analysis.	• **Design:** Concept Analysis • **Method:** Walker and Avant method of concept analysis. • **Data Sources:** dictionaries, journals including: SAePublications, International Journal Database Systems, Science-Direct, EBSCOHost (Academic Search Premier, CINAHL, Health Source, MasterFilePremier, MEDLINE, Pre-CINAHL, PsycINFO, SocINDEX, Humanities International Complete and Academic Search Complete. • **Sample:** Material spanning 1992 to 2007	• **Attributes:** Where energy expenditure outstrips restorative process with a loss of power of recovery. This occurs after compassion discomfort or compassion stress. • **Antecedents:** Authors refer to the antecedents as "risk factors" for developing CF. These include: prolonged, continuous and intense contact with patient, the use of self and stress that exceeds individual's capacity to cope. • **Consequences:** physical, social, emotional, spiritual and intellectual impacts.	• Some lack of clarity in defining attributes and antecedent differentiation.
Lynch & Lobo (2012)	Compassion fatigue in family caregivers: A Wilsonian concept analysis.	• **Design:** Concept Analysis • **Method:** Wilson's concept analysis strategy.	• **Related Terms:** Secondary traumatic stress, vicarious traumatization, countertransference, burnout. STS and CF most closely related. BO has more gradual onset compared to CF and more related to work-related environmental stressors.	• No explicitly defined antecedents of the concept, they are fused with defining attributes.

		• **Data Sources:** dictionaries, newspapers, Academic Search Complete, Atla, CINAHL, PsychInfo, and PubMed. • **Sample:** Literature spanning 1980-2010.	Vicarious traumatization involves the caregiver undergoing a transformation in personal and professional belief systems. Finally, countertransference is the absorption of another's trauma. • **Attributes:** established relationship e between caregiver and patient, empathy, stress, shared experiences, psychological response. • **Antecedents:** (Note: no explicit antecedents are identified in this concept analysis, however some items are described by the author as concepts that must be present in order for the concept to emerge, thus indirectly identifying antecedents). Empathy, must be individuals who care for patients repeatedly and listen to their experiences of trauma or pain, they must be caring for individuals with serious problems, inexperience and lack of energy. • **Consequences:** psychological (i.e. apathy, depersonalizing patients, diminished sense of accomplishment, depression, anxiety, isolation), physical (i.e. fatigue, exhaustion, weight change, GI complaints, tachycardia, HTN, headache, sleep disturbances), spiritual (i.e. doubting values and beliefs, inability to feel joy) and social (i.e. substance/food abuse, social isolation, cynicism) symptoms.	

Missouridou (2017)	Secondary Posttraumatic Stress and Nurses' Emotional Reponses to Patient's Trauma.	• **Design:** Research Review. • **Keywords:** compassion fatigue, emotion work, secondary traumatic stress, self-care and trauma.	• Situations that trigger STS: patient death, aggression, end of life care, verbal abuse, open wounds, massive bleeding and traumatic injuries, and CPR. • Personal triggers: crossing of professional boundaries (becoming overly involved), having unrealistic expectations, over-identification with patient and situation, self-sacrificing behaviours • Work triggers: lack of managerial support, work overload. • When the stress of exposure to the above outweigh the ability of the nurse to cope- they withdraw or become disengaged. • Sometimes the reaction of the professional is resultant of their own personal history. • Self-awareness, acknowledgement of personal loss history and unresolved issues are precursors for a genuine encounter. • Group debriefing may be beneficial to assist in coping.	• Limited methodological information. • Focus on trauma and STS as related concepts of CF.
Beck (2011)	Secondary Traumatic Stress in Nurses: A systematic review	• **Design:** Systematic Review. • **Data Sources:** CINAHL, Pubmed, PsycINFO. • **Keywords:** secondary traumatic stress, compassion fatigue secondary trauma, PTSD, vicarious	• Examined nurses in the following settings: pediatrics, hospice, emergency, oncology and forensics. • 25% of forensic nurses reported scores consistent with experiencing STS. Protective factors against STS included peer support, satisfaction with compensation, older age, more education. Risk factors included diffuse goals, high caseload, greater prosecution orientation and organizational support.	• Relatively small number of studies included in systematic review. • Small, mostly homogeneous samples among the studies examined- mainly Caucasian women. • Different instruments were used across all of the studies included, making it difficult to

		traumatization and nurses. • **Methods:** Sources were searched from years 1981-2011. Inclusion criteria: sample included nurses, STS symptoms were measured, English language. • **Sample:** Seven studies.	• 33% of ER nurses reported elevated STS. Common symptomology included, avoidance of patients, intrusive thoughts surrounding patients and difficulty sleeping. • 38% of oncology nurses had elevated STS. Most common symptoms reported included difficulty sleeping, intrusive thoughts about patients, irritability, and diminished activity level. • 26.4% of hospice nurses were at high risk for CF and 52.3% at moderate risk. • Pediatric nurses cited the most common risk factors for developing compassion fatigue included seeing painful procedures, sadness, and childhood death witness or witnessing chronic illness. They also cited a personal trigger for developing CF as becoming overly involved or disregarding professional boundaries. • Coping strategies identified across studies: sense of humour, positive attitude, debriefing, personal awareness for triggers of CF or STS. • Greater compassion fatigue scores were positively correlated with longer time spend providing direct patient care as well as blurring professional caregiving boundaries. • Advocate for education and adequate preparation regarding nurses' vulnerability to this phenomenon. • Factors that influenced resilience included peer support, older age and additional	draw inferences and comparisons of data across the studies.

			education. This highlights the concern for younger nurses in the workforce. • If self-care is not a priority of the working nurse, it compromises ability to provide quality care. • Strategies for prevention are three-fold; personal, professional, organizational. • Personal includes focus on self-care strategies: sleep, exercise, relaxation, nutrition, family balance, spiritual neds. • Professional strategies: peer consultation, setting boundaries, diversifying patient types, regular meetings. • Organizational strategies: having safe spaces, adequate resources, atmosphere of respect and support teams.	
CNA (2009)	Costs and Implications of nurse turnover in Canadian hospitals	• **Design:** Return on investment report. • **Method:** survey across 10 provinces in Canadian hospitals.	• 20% of nurses in hospitals leave their job each year, costing approximately $25,000 for the institution. • Higher turnover related to lower job satisfaction, medical errors, increased overtime hours and role conflict. • Improved leadership related to better mental health of staff , increased job satisfaction and productivity. •	• Not up to date research.
Duarte & Pinto-Gouveia (2017)	The role of psychological factors in oncology nurses' burnout and compassion fatigue symptoms	• **Setting:** Portugal general hospitals with oncology/palliative care units. • **Sample: n**=221 registered nurses. • **Design:** Cross-sectional design.	• 25% of nurses had high burnout and CF with low CS according to the ProQOL scale. • No significant difference in BO, CF, and CS between genders. • Age positively associated with CS and BO. • Years in current position correlated with BO and CF.	• Causality inferences cannot be drawn due to the fact that the data is cross-sectional in nature • Small, homogeneous sample size.

		• **Methods:** use of the following scales: ProQOL, Interpersonal Reactivity Index, Self-Compassion Scale, and Acceptance and Action Questionnaire.	• BO and CF positively associated with psychological inflexibility and personal distress. • Compassion fatigue was also positively correlated with empathetic concern. • Professional experience did not correlate with any of the ProQOL subscales even when age was controlled for. • Higher levels of empathy increased compassion satisfaction and interestingly also was correlated to increased levels of CF. • Self-compassion was associated with lower levels of compassion fatigue. • Psychological inflexibility predicted high levels of burnout.	• Many instruments were used which can confuse data.
Hunsaker, Chen, Maughan & Heaston (2014)	Factors that Influence the Development of Compassion Fatigue, Burnout and Compassion Satisfaction in Emergency Department Nurses.	• **Design:** Nonexperimental, descriptive and predictive study. • **Methods:** Self-administered survey of the ProQOL as well as demographic questions. • **Sample: n**=285 • **Setting:** Emergency department nurses throughout the US.	• 56.8% average level of CS, 65.9% low level of CF and 54.1% fell into the average level of burnout. • Older nurse, higher CS • Younger nurse, higher burnout and CF score. • Higher education reflected higher CS scores and lower burnout scores • More years of experience related to higher CS and lower burnout. • Years of experience did not significantly relate to CF level. • Shift length was not significant to levels of BO, CS or CF. • Managerial support increases CS and decreases CF and BO. • Predictors of CS: age, manager support. • Predictor of CF: negative manager support.	• Small sample size as well as a low response rate. • The surveys were sent to specific members of the ENA group- which might highlight certain characteristics and make the results less generalizable. • Single point in time for measurement. •

			• Predictor of BO: age, manager support. (negatively) • CF decreases with age and work experience. • Manager support was a predicable indicator for all components of the ProQOL scale.	
Perry (2015)	A Qualitative Study of Compassion Fatigue Among Family Caregivers in Long-Term Care Homes.	• **Design:** Descriptive and interpretive qualitative study. • **Method:** over 260 hours of observational data including verbal and non-verbal interactions. Additionally, open-ended interviews with family caregivers were performed. • **Sample:** n=6 family caregivers with a family member resident in long-term care. • **Setting:** Two publically owned and funded LTC homes.	• Three central themes: • 1) **Relentless vigilance**: this describing the family's statements of being in a constant state of watching over their family member. This leads to the feeling of needing to visit every day, as well as mistrust of formal caregivers. This can be a source of stress in the family caregiver in that they don't believe they can take a break. • 2) **Consistent inconsistency:** lack of consistency in the quality of care provided by formal caregivers. This includes, inconsistent routines, caregivers themselves as well as scheduling. No formal plans or schedules which causes frustration. • 3) **Role confusion:** Loss of natural role as a family member when having to assume caregiving role. This is a lot of pressure and the family members sometimes want to be just that- not a caregiver. • These themes highlight contributing factors that may lead to the development of compassion fatigue among family caregivers.	• The study self-identified the limitation that the first author was also a family caregiver of a family member in a LTC home which may have influenced interpretations. • Difficult to fully capture what is happening in observations. • Small sample size.

			• The ongoing care responsibility of these individuals and expectation to provide nursing care may be a risk factor for CF in these individuals.	
Kinker, Arfken & Morreale (2018)	Secondary Traumatic Stress in Medical Students.	• **Design:** Letter to the Editor Research note. • **Setting:** Wayne State University School of Medicine.	• Overall students reported rarely experiencing traumatic stress symptoms. • Students reported the most common symptom they experienced was emotional numbing. • Highlight concern for what protective factors may be in place that could potentially shield students from	• Small sample size. • Students who had been previously exposed to a significant trauma prior to medical school were excluded- this could be a potential contributor to development of

		• **Sample: n=32** third year medical students. • **Method:** Self-report survey via email using Secondary Traumatic Stress Scale and the Revised Life Orientation Test.	experiencing this phenomenon (i.e. mentorship, supervision etc.)	STS/CF- would be interesting to collect data from this subset of students. • Limited direct patient care of participants (two month long clerkship).
Abendroth & Flannery (2006)	Predicting the Risk of Compassion Fatigue: A study of hospice nurses.	• **Design:** Non-experimental, correlational (descriptive) design using cross-sectional data. • **Setting:** Hospice organizations in Florida. • **Sample:** n=216 registered nurses, advanced practice nurses and licensed practical nurses. • **Method:** Two instruments were used, one for demographic collection and the other was the ProQOL.	• Divided into three categories of risk for CF- minimum, moderate and high risk. • 26.4% were categories as high risk, 52.3% moderate and 21.3% as low risk for CF. Thus approximately 80% of those in the study were at moderate to high risk for CF. • Nurses who were comfortable sacrificing their own needs for those of their patients were mostly found within the high risk for CF category than those who stated they were not willing to self-sacrifice • Found no correlations between CF risk and age, ethnicity or marital status • Small correlations existed between CF risk and experience of a traumatic death, shift work, high caseload and multiple deaths within short time frame. • Found that stress, trauma, anxiety, life demands and excessive empathy were central predictors of CF risk. • Work factors and demographics were not very indicative of CF risk. • "Unhealthy levels of empathy coupled with life demands and health factors are	• Measured only at one point in time.

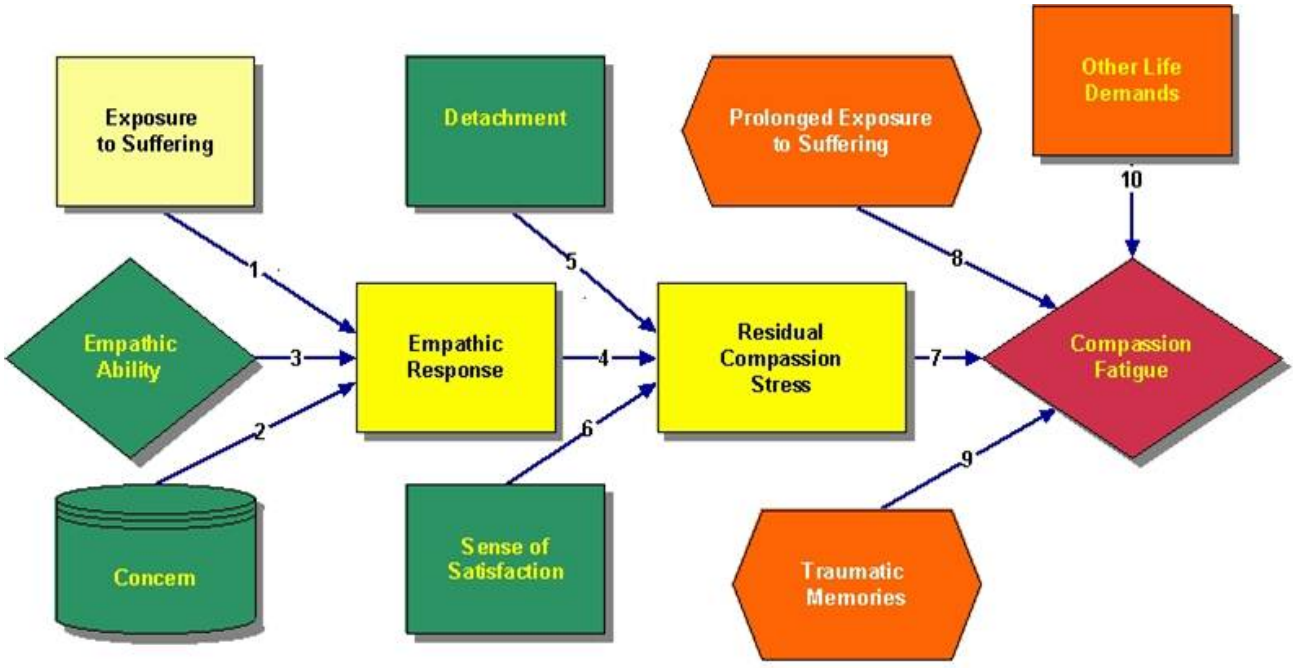
			directly related to CF risk and distress" (p.353). • Of the nurses who reported that they had no support following a patient's traumatic death, 83.3% found themselves to be in the high risk for CF category. • Nurses working shifts were at lower risk than those who did not.	
Yang & Kim (2016)	Factors influencing turnover intention in clinical nurses: compassion fatigue, coping, social support and job satisfaction	• **Design:** Cross-sectional correlational design. • **Methods:** Administration of a questionnaire assessing demographic information, occupational trauma, coping (using Yang's tool, an adaptation from Lazarus and Folkman), social support (using Park's tool), compassion fatigue (ProQOL), job satisfaction and turnover intention (both using Park and Yoon's tool.) • **Sample:** n=283 • **Setting:** Tertiary hospitals in Korea.	• Occupational traumatic events positive correlation with compassion fatigue. • The most common in this study was verbal and behavioural violence from patients. • Those using emotion-focused coping would suffer from compassion fatigue more often than those using problem-focused coping. • Heavy workload did not impact experience of compassion fatigue. • Compassion fatigue negatively impacted job satisfaction. • Job satisfaction was found to be the largest contributor for turnover intention. • State that compassion fatigue was not a significant factor affecting turnover intention.	• Limited study populations to nurses working in the ER, ICU, pediatrics, psych and oncology only. • Translated work- could be misinterpreted. • Homogeneous sample of majority young, female nurse's limits generalizability. • Disconnect in logic with some of the extrapolations. (Ex: compassion fatigue was said to negatively impact job satisfaction; job satisfaction was found to be the largest contributor of turnover intent, yet compassion fatigue was not found to impact turnover intent).

Pitt, Powis, Levett-Jones & Hunter (2012)	Factors influencing nursing students' academic and clinical performance and attrition: An integrative literature review.	• **Design:** Integrative literature review. • **Method:** Whittemore and Knafl's framework approach using the QARI appraisal method. • **Data Sources:** MEDLINE, CINAHL, Proquest nursing and education, ERIC, PsychINFO, ScienceDirect and Jourals@OVID. • **Sample: n=44** Qualitative and quantitative literature spanning 1999-2011.	• In some studies, it was found that younger student age was correlated to lower academic performance and higher levels of attrition. • Males were found to have had higher attrition rates than females. • No studies were identified that examined impact of employment on attrition rates in nursing students; however outside employment typically manifested in poor academic performance. • When critical thinking was studied, high levels were associated with lower attrition levels and higher academic performance. • Those with higher perceived support from faculty members, those with psychological and functional support were less likely to withdraw. • Factors contributing to attrition: age (younger), gender (men), financial stress, not accessing support systems.	• Inability to draw connections between studies due to significant differences in study designs and populations that were studied.
Harris, Rosenberg & O'Rourke (2013)	Addressing the challenges of nursing student attrition.	• **Design:** Literature review and applying evidence into practice. • **Method:** Three-pronged approach to increase student success by providing supplies, mentorship, group meetings in 8 modules. • **Sample: n=18** students.	• Students at high risk for attrition: • Older students, ethnically diverse, those with financial strain, family responsibilities. • Those employed outside of school greater than 16 hours per week. • Lack of social support, failing a course early on in the program. • Common themes of successful students: faculty mentorship, social and peer support, time management, stress and communication management, financial aid.	• Studied on academic factors of the students-could limit understanding of their risk factors for success.

		• **Setting:** Associate of Applied Science nursing program in Midwestern university in the USA.	• Of the above, social support appeared most frequently in the literature. • It was found that mandatory participation in programs and services was far more effective in improving student success compared to voluntary programs. Though this was also difficult for some students as they felt it took up a lot of their time, and if they did not have adequate time management skills it could actually hinder their success.	

Appendix B

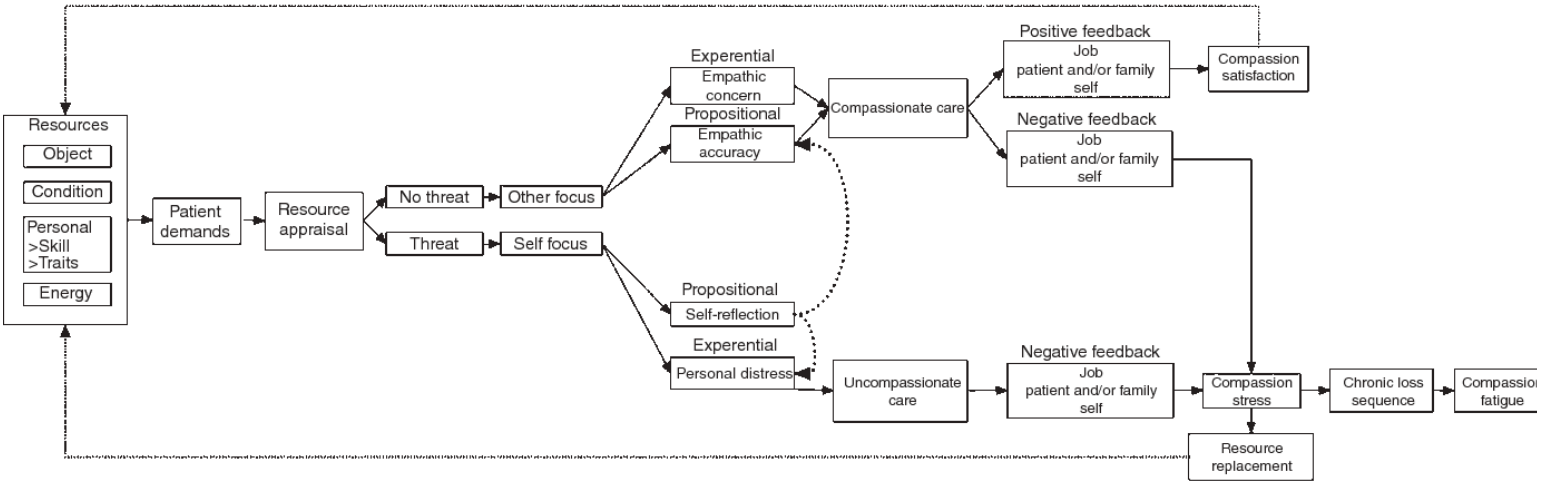
Model of Compassion Stress and Fatigue



The Compassion Fatigue Process (Figley, 2001)

Appendix C

Compassion Fatigue Model



(Coetzee & Laschinger, 2017)

Appendix D

Professional Quality of Life Scale (ProQOL)

Compassion Satisfaction and Compassion Fatigue
(ProQOL) Version 5 (2009)

When you *[help]* people you have direct contact with their lives. As you may have found, your compassion for those you *[help]* can affect you in positive and negative ways. Below are some-questions about your experiences, both positive and negative, as a *[helper]*. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the *last 30 days*.

1=Never	2=Rarely	3=Sometimes	4=Often	5=Very Often

_____ 1. I am happy.
_____ 2. I am preoccupied with more than one person I *[help]*.
_____ 3. I get satisfaction from being able to *[help]* people.
_____ 4. I feel connected to others.
_____ 5. I jump or am startled by unexpected sounds.
_____ 6. I feel invigorated after working with those I *[help]*.
_____ 7. I find it difficult to separate my personal life from my life as a *[helper]*.
_____ 8. I am not as productive at work because I am losing sleep over traumatic experiences of a person I *[help]*.
_____ 9. I think that I might have been affected by the traumatic stress of those I *[help]*.
_____ 10. I feel trapped by my job as a *[helper]*.
_____ 11. Because of my *[helping]*, I have felt "on edge" about various things.
_____ 12. I like my work as a *[helper]*.
_____ 13. I feel depressed because of the traumatic experiences of the people I *[help]*.
_____ 14. I feel as though I am experiencing the trauma of someone I have *[helped]*.
_____ 15. I have beliefs that sustain me.
_____ 16. I am pleased with how I am able to keep up with *[helping]* techniques and protocols.
_____ 17. I am the person I always wanted to be.
_____ 18. My work makes me feel satisfied.
_____ 19. I feel worn out because of my work as a *[helper]*.
_____ 20. I have happy thoughts and feelings about those I *[help]* and how I could help them.
_____ 21. I feel overwhelmed because my case [work] load seems endless.
_____ 22. I believe I can make a difference through my work.
_____ 23. I avoid certain activities or situations because they remind me of frightening experiences of the people I *[help]*.
_____ 24. I am proud of what I can do to *[help]*.
_____ 25. As a result of my *[helping]*, I have intrusive, frightening thoughts.
_____ 26. I feel "bogged down" by the system.
_____ 27. I have thoughts that I am a "success" as a *[helper]*.
_____ 28. I can't recall important parts of my work with trauma victims.
_____ 29. I am a very caring person.
_____ 30. I am happy that I chose to do this work.

Appendix E

Silencing Response Scale (Baranowsky, 2011)

INSTRUCTIONS: This scale was developed to help caregivers identify specific communication struggles in their work. Choose the number that best reflects your experience using the following rating system, where 0 signifies rarely or never and 10 means very often. Answer all items to the best of your ability as they reflect your feelings over the previous two work weeks.

---------Rarely/Never=0 1--------Sometimes----------23--------4---------5--------6--------7--------8-------910 =Always

(1)____ Are there times when you believe your client is repeating emotional issues you feel were already covered?

(2)____ Do you get angry with client(s)?

(3)____ Are there times when you react with sarcasm toward your client(s)?

(4)____ Are there times when you fake interest?

(5)____ Do you feel that listening to certain experiences of your client(s) will not help?

(6)____ Do you feel that letting your client talk about their trauma will hurt them?

(7)____ Do you feel that listening to your client's experiences will hurt you?

(8)____ Are there times that you blame your client for the bad things that have happened to them?

(9)____ Are there times when you are unable to believe what your client is telling you because what they are describing seems overly traumatic?

(10)____ Are there times when you feel numb, avoidant or apathetic before meeting with certain clients?

(11)____ Do you consistently support certain clients in avoiding important therapeutic material despite ample time to address their concerns?

(12)____ Are there times when sessions do not seem to be going well or the client's treatment progress appears to be blocked?

(13)____ Do you become negatively aroused when a client is angry with you?

(14)____ Are there times when you cannot remember what a client has just said?

(15)____ Are there times when you cannot focus on what a client is saying?

TOTAL = _____

Appendix F

Empathy Questionnaire

Please **CHECK ONE** response that best describes you. Be honest, since the information will be used to help you in school and also help you become more prepared for college and careers. There are no right or wrong answers!

Student ID_____ **Date** _____

	Not very like me → Very like me				
	1	2	3	4	5
1. I try to see things from other people's points of view.	☐	☐	☐	☐	☐
2. When I don't understand someone's point of view, I ask questions to learn more.	☐	☐	☐	☐	☐
3. When I disagree with others, it's hard for me to understand their perspective.	☐	☐	☐	☐	☐
4. I consider people's circumstances when I'm talking with them.	☐	☐	☐	☐	☐
5. I try to imagine how I would feel in someone else's situation.	☐	☐	☐	☐	☐
6. When someone is upset, I try to remember a time when I felt the same way.	☐	☐	☐	☐	☐
7. When I'm reading a book or watching a movie, I think about how I would react if I was one of the characters.	☐	☐	☐	☐	☐
8. Sometimes I wonder what it would feel like to be in my parents' situation.	☐	☐	☐	☐	☐
9. When a friend is upset, I try to show them that I understand how they feel.	☐	☐	☐	☐	☐
10. I say things like "I can see why you feel that way."	☐	☐	☐	☐	☐
11. I've been known to say "You are wrong" when someone is sharing their opinion.	☐	☐	☐	☐	☐
12. When a friend or family member is sad, my actions let them know I understand (like a hug or a pat on the back).	☐	☐	☐	☐	☐
13. I say things like "Something like that happened to me once, I understand how you feel."	☐	☐	☐	☐	☐
14. I've told my friends things like, "You shouldn't be upset about that" or "Stop feeling that way."	☐	☐	☐	☐	☐
15. When I know one of my friends is upset, I try to talk to them about it.	☐	☐	☐	☐	☐

Gaumer Erickson, A.S., Soukup, J.H., Noonan, P.M., & McGurn, L. (2016). Empathy Questionnaire. Lawrence, KS: University of Kansas, Center for Research on Learning.

Appendix G

MBI - General Survey for Students

How often:	0	1	2	3	4	5	6
	Never	A few times a year or less	Once a month or less	A few times a month	Once a week	A few times a week	Every day

How Often 0-6	Statements:
1. _____	I feel emotionally drained by my studies.
2. _____	I feel used up at the end of the day at the university.
3. _____	I feel tired when I get up in the morning and have to face another day at the university.
4. _____	Attending classes all day is really a strain for me.
5. _____	I can effectively solve the problems that arise in my studies.
6. _____	I feel burned out from my studies.
7. _____	I feel I am making an effective contribution in class.
8. _____	I have become less interested in my studies since my enrollment.
9. _____	I have become less enthusiastic about my studies.
10. _____	In my opinion, I am a good student.
11. _____	I feel exhilarated when I accomplish something at the university.
12. _____	I have accomplished many worthwhile things in my studies.
13. _____	I just want to get my work done and not be bothered.
14. _____	I have become more cynical about whether my university work contributes anything.
15. _____	I doubt the significance of my studies.
16. _____	While working at the university, I feel confident that I am effective at getting things done.

(Administrative use only)

EX Total score: _____ CY Total score: _____ PE Total score: _____

EX Average score: _____ CY Average score: _____ PE Average score: _____

VITA AUCTORIS

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