Building resilience:
Resilience for nursing students undertaking their final clinical placement.

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Signed: [Signature] Date: 16/05/17
ABSTRACT

Introduction
In order for graduates to be work ready and to retain them in the labour force, nursing schools need to be effective in preparing students with the skills to cope with their role in often challenging workplaces (Milton-Wildey, Kenny, Parmenter, & Hall, 2014). Resilience is the recovery that occurs to successfully find a way through stress and adversities (Stephens, 2013). This research evaluated an educational intervention with follow up support to improve resilience and decrease perceived stress in nursing students undertaking their final clinical placement.

Research design
The research design was a quasi-experimental pilot study. Participants were students from the Bachelor of Nursing degree at a regional tertiary institute in New Zealand. The pre-clinical data collection consisted of a questionnaire that was based on the Brief Resilience Scale (BRS) (Smith et al., 2008) and the Perceived Stress Scale (PSS) (Cohen, 1994) delivered via SurveyMonkey™. A three-hour educational workshop was delivered to the Intervention Group after the first questionnaire was completed, and this group received follow up support at two weekly intervals. The participants’ clinical placement was nine weeks in length; and then the second questionnaire was completed. In the post-clinical questionnaire, as well as identical questions based on the scales, there were also open-ended questions.

Findings
There were 15 participants in the Intervention Group and 14 participants in the Control Group who completed the pre-clinical questionnaire. The post-clinical questionnaire was completed by 15 participants from the Intervention Group (100%) and 7 from the Control Group (50%) of the original sample that completed the pre-clinical questionnaire.

When the individual responses to the questionnaires were examined and compared, the results indicated that the students in the Intervention Group displayed more optimism and active coping skills.
There was a significant increase in overall BRS scores ($p$ value = 0.028) from pre-clinical to post-clinical scores for the Intervention Group. There was also a significant decrease in PSS scores ($p$ value = 0.010) from pre-clinical to post-clinical. This contrasts with the Control Group who demonstrated no significant change from pre-clinical to post-clinical scores in either the BRS or PSS scores.

In the first open-ended question there were groups of similarities for general beneficence, stress management, and the related group of self-care. When commenting on strategies to deal with stressful events, both groups mentioned debriefing or reflecting. However, as the Intervention Group mentioned “relaxation techniques” more frequently, this could point to a decrease in rumination, and perhaps a reframing of self-care as ‘relaxing’. The process of reinforcing self-help techniques via email was supported and may have contributed to the decrease in perceived stress.

**Conclusion**

It appears that the content of the educational workshop, along with the regular emails, were effective strategies to influence a significance increase in resilience and a significant decrease in perceived stress in the Intervention Group. This contrasted with the Control Group who had no change in either measure. The results could indicate that the students in the Intervention Group displayed more optimism and active coping skills, and less rumination. This research adds to the emerging literature on promoting resilience in nursing students.
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One final acknowledgement: Before there was the word resilience relating to emotional health the authors of the Bible wrote of the concept: “And that’s not all. We are full of joy even when we suffer. We know that our suffering gives us the strength to go on. The strength to go on produces character. Character produces hope” (Rom 5: 3-4, New International Reader’s Version).

Q.E.D
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CHAPTER ONE: INTRODUCTION

Setting the scene - Registered Nurses in New Zealand

In New Zealand (NZ) in 2010, 57% of the nursing workforce were over the age of 45 years. This meant NZ had an aging workforce with over half the workforce expected to retire over the next 25 years. During those same 25 years, the population was expected to increase by 17%, and to contain a larger proportion of those who are over 65 years old. As people age they use more health services. Therefore, it is projected that more nurses will be required for the increased demand as well as population growth (Nursing Council of New Zealand, 2013).

Currently there are approximately 54,000 practising nurses in NZ. About 25 percent of that number are Internationally Qualified Nurses (IQNs) (Nursing Council of New Zealand, 2016). However, attrition rates from newly Registered Nurses (RNs) are high, and young inexperienced nurses have lower job satisfaction levels and greater turnover as employees than older, more experienced nurses (Milton-Wildey et al., 2014).

In 2016, there were 18 schools of nursing that offered the three-year undergraduate degree that led to registration as a nurse. For the year ending March 2016, 1994 candidates from 17 schools of nursing sat the state final examination for the registered nurse scope of practice; 1883 (94%) passed (Nursing Council of New Zealand, 2016).

Of the cohort of RNs that were registered over 2005/06, only 78% of the New Zealand Qualified Nurses (NZQNs) and 60% of the IQN cohort were practising in NZ three years later. Ten years after registering, only 52% overall were practising in NZ. More recently, in the cohort of those who were registered over 2012/13, 87% of the NZQNs and 69% of the IQNs were practising in NZ after three years (Nursing Council of New Zealand, 2017). Although there is a small decrease in those who have ceased to practice in NZ, there continues to be an early erosion of the nursing workforce.

The perception of competence and preparation for the work may be key factors in early attrition from the workforce. In order for graduates to be work ready and to retain them in the labour force, nursing schools need to be successful in providing students with skills for coping with their role in often difficult workplaces (Milton-Wildey et al., 2014).

To address this attrition rate various national strategies have been implemented. Supportive work environments and supportive mentors have been recognised as being
essential for success at this stage (Milton-Wildey et al., 2014). Therefore, although some District Health Boards (DHBs) had previously developed new graduate programmes, in 2006 the Nurse Entry to Practice (NETP) structured programme was implemented at all 21 DHBs in NZ, with a focus on secondary care. For those graduates in the NETP programme, preceptorship and extra study days have been key aspects in developing skills and confidence (Haggerty, Holloway, & Wilson, 2013).

There are some differences in nursing education to what is meant by the terms mentor or preceptor. When a student is allocated to a RN on a day by day basis, the RN is often referred to as a mentor. The mentor the student is assigned to may change every day. Often a facilitator from the education institute will have overall management of the students. On the other hand, a preceptor is an RN who has a longer supervisory relationship with the student. In the preceptorship model, the preceptor will have the responsibility to support and assess the student for competence (Walker, Dwyer, Moxham, Broadbent, & Sander, 2013).

To assist in the transition from student to registered nurse, other strategies have also been implemented. One national strategy was the Nursing Council of New Zealand (NCNZ) changing the requirement for the length of the final clinical placement in the Bachelor of Nursing degree. Since the start of the undergraduate degrees in the mid-1990s, the length of the final clinical placement in many schools of nursing had been five weeks. Although the minimum number of clinical hours for the undergraduate degree remained the same at 1100 hours, the final clinical placement was required to be a minimum of 360 hours or nine weeks from the academic year beginning February 2012 (Nursing Council of New Zealand, 2010).

Also in 2012, the Advanced Choice of Employment (ACE) process was begun to monitor graduate RN’s initial employment. The ACE process is a recruitment process for graduate RNs to obtain a NETP or New Entry to Specialist Practice: Mental Health and Addiction (NESP) graduate position in New Zealand (Advanced Choice of Employment (ACE), 2017). The focus has been widened from secondary care to include some employers from residential care facilities and primary care settings. Although since 2012 ACE has been the only way to obtain a graduate position within a DHB, newly graduated Registered Nurses have been able to apply for other jobs, or with employers that are not part of the ACE process. This is due to there being more graduates than graduate positions. For example, in 2016 there were approximately 1,300 graduate positions across New
Zealand, which was about 60 percent of the predicted numbers of graduating students (ACE, 2017).

However, before graduation has occurred, the process of obtaining a nursing degree has been described by Webster (2017) as demanding a high emotional, physical and academic commitment. In addition, many students have had to manage the competing demands of study with work and family commitments, which has left little time for self-care. Nursing students have been told to treat each clinical placement as a job interview, particularly during the final clinical placement, which is when the preceptors write recommendations for the ACE process. At the end of their degree student nurses have been expected to proactively and competently care for patients at an independent (within the student role) level. With many competing demands nurses have needed resilience to both acute and chronic stress. To this end, tertiary institutes have been expected to prepare, and support students for the challenges of working in nursing (Webster, 2017).

There have been clear links made between staff health and wellbeing, and patient safety and patient outcomes. Research has implied that resilient people were more effective at managing changing work environments, more likely to make sound decisions in important moments, were less likely to take sick leave or to have chosen to leave their employment (Sull, Harland, & Moore, 2015). It has been documented that resilience is promoted by ensuring a safe and healthy workplace, effective team work, supervision and mentoring programmes, opportunities for professional development, access to necessary equipment and supplies, appropriate workloads, and attractive working conditions. In addition, previous approaches have focused on coping strategies to deal with stress, rather than assisting individuals to build resilience (International Council of Nurses, 2016).

Now, along with many other faculties, schools of nursing have begun to research methods of increasing resilience in students. One example is the study by Stephens (2012) that researched the effectiveness of an educational intervention to increase resilience in undergraduate nursing students. The experimental group received four educational messages and/or questions via Twitter each week for six weeks that were designed to promote resilience. Students in the control group received four nursing trivia messages or questions related to basic nursing knowledge per week for the same six weeks. The sample was 70 randomly assigned junior-level nursing students, ages 19-23, at two universities in the United States of America (USA). Junior-level students are in the third year of the four years of their nursing degree in the USA.
In this study both groups completed the Sense of Support Scale (SSS), the Perceived Stress Scale (PSS), and the Connor-Davidson Resilience Scale (CD-RISC) at three times of measurement. There was no statistically significant difference between the groups in the sense of support. Both groups showed a decrease in perceived stress, but the control group demonstrated a greater decrease in scores at follow-up. There was an increase in resilience from pre-test to post-test in the intervention group, but this declined at follow-up after a month (Stephens, 2012). One hypothesis as to what led to these results was that by focussing on these measures it heightened the students’ awareness, and thus their scores were affected simply due to this increased awareness over time.

There have been several similar relevant studies since which will be discussed in the further chapters.

**Aim of the research**

The aim of this research was to evaluate an educational intervention to improve resilience and reduce stress in nursing students undertaking their final clinical placement. It will test the hypothesis that an educational workshop with follow-up support can improve resilience and decrease perceived stress.

**Research Question**

The research question was: what differences in resilience and perceived stress occurred following a three-hour educational workshop on resilience, with follow-up support over a period of ten weeks, for nursing students undertaking their final clinical placement?

**Significance of the research**

If this educational intervention can be shown to be effective, then the workshop can be included as part of the nursing undergraduate education, thereby assisting students to enter the workplace with a greater range of skills relevant to the modern health care environment. This research adds to the literature on the effectiveness of promoting resilience to undergraduate nursing students, particularly in the New Zealand nursing context.
Researcher’s interest
The researcher has had an interest in promoting emotional health in nurses for many years. As a nurse educator working within an undergraduate nursing programme, the researcher was interested in taking a solution-focused approach to assist nursing students not only with their degree requirements, but beyond into their career.

Structure of thesis
Chapter One introduces the context of the research and the significance of the research to nursing and education.

Chapter Two will provide an overview of the literature on resilience as it relates to nursing education, stress management, and promoting resilience to nursing students and nurses. The literature was sourced from peer-reviewed journal articles and relevant books.

The design of the research is outlined in Chapter Three. Here the aim, design, participants, questionnaires, the intervention, and ethical and cultural considerations will be discussed.

Chapter Four presents the quantitative and qualitative results from the questionnaires and comparisons within and between groups.

Chapter Five discusses the results and relates them to the review of the relevant literature.

A summary and conclusion is presented in Chapter Six. This chapter includes educational and practice implications, as well as recommendations for further research.
CHAPTER TWO: LITERATURE REVIEW

Introduction
The articles for this literature review were found by searching the databases Pubmed, Proquest, ScienceDirect, CINAHL, and Google Scholar. The search terms were “resilience OR resiliency OR hardiness AND nursing AND student* OR student AND nurse*”. The search was limited to English-language peer reviewed journals, published in the last five years. Some articles were also found by searching the references in articles. Articles that related to student nurses were included, as well as some recent literature on resilience interventions in nurses. Literature was excluded if there was a discussion of resilience as a finding of study, without resilience being part of the actual study. Some information from The Resilient Nurse (McAllister & Lowe, 2011) was also included.

For this review resilience is first discussed, then the application of it in nursing education, and the related subject of hardiness. Then sources of adversity such as stress as a nursing student and conflict and bullying are examined. Finally, some intervention studies involving Registered Nurses are included.

Background
Resilience was identified initially from research on children of parents with mental illness in the 1980s. Many of these children developed learning difficulties and social and mental health problems due to parental inconsistency and neglect. However, there was a group of young people who dealt with and overcame adversity better than others, and this indicted that they may have had individual protective factors related to resilience (McAllister & Lowe, 2011).

The definition of resilience varies due to the descriptive nature of the concept. In general, the concept of resilience relates to people’s ability to recover to a previous state after a time of stressful transition or an adverse event (Stephens, 2013). This definition appeared to fit particularly well as the participants were nursing students beginning their Transition for Nursing Practice paper. Stephens (2013) examined the literature for definitions of resilience thoroughly to clarify the concept, and this definition had common elements from several renowned authors on the subject. It was also more concise than the ensuing operational definition which was “nursing student resilience is an individualised process of
development that occurs through the use of personal protective factors to successfully navigate perceived stress and adversities” (Stephens, 2013, p. 130).

Various key internal factors to resilience have been recognised in the research literature. These are factors such as hardiness, hope, resourcefulness, optimism, and emotional insight (McDonald, Jackson, Wilkes, & Vickers, 2013). Further studies have also considered external factors, such as social support and a sense of connectedness. Since the early 2000s resilience has been studied in many contexts, such as in those with chronic health conditions such as asthma, diabetes and HIV/AIDS (L. Thomas & Revell, 2016). Resilience has also been studied in military personnel after high levels of traumatic stress were found, as a result of the stressors involved in preparing for or engaging in war (Weidlich & Ugarriza, 2015). Resilience has also been studied in the health professions such as nursing, social work, psychology, counselling and medicine. This is due to the awareness that there are frequent workplace stressors that can impact on physical and mental health, and in some, rise to the traumatic level (McCann et al., 2013).

In these studies on resilience, many researchers have considered resilience an inherent trait or characteristic within people (Reyes, Andrusyszyn, Iwasiw, Forchuk, & Babenko-Mould, 2015). However, other researchers have focused on the hypothesis that resilience is more of a process and may be modifiable through education (McAllister & McKinnon, 2009; Stephens, 2013; L. Thomas & Revell, 2016; Weidlich & Ugarriza, 2015).

**Resilience in the nursing profession**

Jackson et al. (2007, as cited in McAllister & Lowe, 2011) stated that there are five strategies to develop resilience in nursing: building positive relationships; maintaining positive emotions; developing insight into one’s own protective factors; life balance and spirituality; and using reflection to find meaning in present challenges. As well as these strategies, exercise is also recognised as an efficient and effective way of removing the stresses of the day and promoting resilience (Brannan, de Chesnay, & Hart, 2011).

Further strategies in *The Resilient Nurse* by McAllister and Lowe (2011) includes themes such as learning from role models, the use of realistic appraisals in stressful situations, a knowledge of conflict management, and tools for coping in a crisis. Hickman (2013) suggested this book provides a toolkit of skills, communication techniques, and scenarios to prepare nurses for the challenges of the health care environment. McAllister and Lowe
(2011) adapted psychobiological mechanisms to propose that there are certain characteristics of resilient people that can be learnt or developed. For example, optimism was described as a trait of resilient people and the recommendation to develop this trait was to apply Cognitive Behavioural Therapy (CBT) techniques.

**Self-help interventions to develop resilience traits**

CBT is a type of intervention that believes that psychological distress is maintained by cognitive patterns. In a review of meta-analyses, Hofmann, Asnaani, Vonk, Sawyer, and Fang (2012) explain that CBT is a popular therapy that has been applied to a range of problems including general stress, insomnia and anxiety disorders. The basic model of CBT claims that therapeutic strategies to change maladaptive thoughts leads to changes in emotional distress and maladaptive behaviours. There are large differences in the specifics of treatment, but they share the same fundamental model and overall approach. As well as CBT delivered to an individual by a trained professional, there is evidence for group CBT interventions, self-help CBT interventions, and the use of CBT in combination with therapies such as relaxation. The authors postulate that overall the evidence base is large and very strong especially for anxiety disorders. However, there is dubious efficacy for some mental health disorders and further research is required.

Although online self-help CBT has been evaluated, by definition self-help strategies are those actions that the general public can do to address distress without requiring professional guidance (Morgan, Chittleborough, & Jorm, 2016). In a study of self-help techniques for mild anxiety, 18 strategies were identified by both a panel of experts and a panel of consumers with lived experience for helpfulness and ease to implement. There were a further 48 strategies that were also endorsed as helpful, but a little less easy to action. These strategies included cognitive techniques as well as stress management techniques. There was also some overlap of self-help techniques for sub-threshold depression from a previous study (Morgan et al., 2016). The study of self-care strategies for subthreshold depression via email utilised two emails a week for six weeks that contained advice about actions participants could take. This was compared to a control group of those whom received emails that contained depression knowledge information. Those that received the self-help information had a significant difference in decreasing depression symptoms. The study concluded a series of email containing self-help advice
was effective in reducing symptoms as well as being a relatively simple method to widely distribute an intervention (Morgan, Jorm, & Mackinnon, 2012).

Although there has not been a similar study on self-help strategies to promote resilience per se, there is a negative correlation between psychological distress and resilience. Educating students to develop more optimism, and lower levels of negative thinking may help less resilient students (Riolli, Savicki, & Richards, 2012). Therefore, ways resilience relates to nursing students will be examined next.

**Promoting resilience in nursing education**

There have been several recent reviews of the literature relating to resilience in nursing students. These include integrative reviews by L. Thomas and Revell (2016) and Reyes et al. (2015); a review of quantitative literature by McGowan and Murray (2016), and a concept clarification by Stephens (2013).

An integrative review analyses the literature and identifies common themes. Both L. Thomas and Revell (2016) and Reyes et al. (2015) identified similar themes from their integrative reviews. These themes were that resilience was important in nursing education, what factors contributed to resilience, and how had it been promoted to nursing students.

Resilience was important in nursing education due to the stress nursing students experienced. The students felt stress when they applied new concepts and skills in clinical practice, and from experiences such as nursing someone who then subsequently died (Reyes et al., 2015; L. Thomas & Revell, 2016). L. Thomas and Revell (2016) also identified that nursing students experience more academic stress than other health professional students. This finding was attributed to the fact that nursing students were more likely to have external employment than students in pharmacy, dentistry and medicine. This then meant less time for studying and more external job stress (Edwards, Burnard, Bennett, & Hebden, 2010).

Resilience was related to protective factors. L. Thomas and Revell (2016) described protective factors such as optimism, flexibility, a sense of humour, self-efficacy and support. Support included family support, peer support and support from teaching faculty. Reyes et al. (2015) posited that protective factors acted interdependently of each other to
adjust risk factors. Therefore, not just one factor should be promoted, but a number simultaneously to increase resilience.

The last theme was how resilience had been promoted to nursing students, and both sets of authors agreed that the promotion of resilience to nursing students was in its infancy. The vast majority of articles they sourced had been published since 2013, and there were only two interventional studies by Pines et al. (2014), and Stephens (2012) with disparate methods and results (L. Thomas & Revell, 2016). Reyes et al. (2015) concluded that it was difficult to make conclusions on the relationship of resilience to other variables such as academic success, empowerment, conflict management, and educational interventions until more testing with larger samples has been completed.

The aim of the systematic literature review by McGowan and Murray (2016), was to explore the concepts of resilience and hardiness in nursing and midwifery students and to identify educational interventions to promote resilience. A systematic review discovers gaps, reaches conclusions, and identifies best practice. The authors highlighted that the concept of resilience was highly complex, presented a challenge to develop an operational definition, and that resilience was closely related to and often confused with hardiness. To illustrate the overlapping of the concepts of resilience and hardiness consider the quote from McAllister (2015): “… four psychological mechanisms of resilience have been identified; stress hardiness, having an internal locus of control, ability to bounce back from adversity, and optimism” (p. 138). McGowan and Murray (2016) deemed there was weak evidence that resilience and hardiness was associated with improved academic performance and deceased burnout.

However, the eight quantitative studies McGowan and Murray (2016) examined were disparate in design and had poor quality of methodology. These studies included Pines et al. (2014) and Jameson (2014), which have been examined further in this review. These studies respectively reported 9 and 7 quality criteria markers out of 12 for single group quasi-experimental pre-post- test design in their published articles. These are the only interventional studies on nursing students that these authors determined met their criteria for the systematic review. The other quasi-experimental pre-post study had no intervention, three were descriptive correlational studies, one other had the sample as graduates of nursing administration, and one was an analytical cross-sectional study of first year nursing students. The authors concur that further research needs to be undertaken with strong methodology (McGowan & Murray, 2016).
In an attempt to clarify the concept of resilience in nursing students Stephens (2013), applied a different approach when she reviewed the literature, and described it according to its antecedents, attributes and consequences. The author gave a general description of resilience, and then described its significance for nursing students, such as coping with cognitive dissonance and bullying. She described relevant antecedents such as the perception of stress and/or adversity; and identified protective factors in resilient individuals such as: positive emotions; humour; self-confidence; social supports; faith; optimism; effective coping; and perseverance. The consequence of resilience is enhanced coping and wellbeing. The literature she reviewed supported the view that in general students demonstrated self-efficacy by the decisions they had made to be goal-orientated, have a dream of their future, and to persist despite adversity. From these findings Stephens (2013) developed an operational definition and model, which then led to a hypothesis.

Stephens (2013) hypothesis was that when nursing students reflected on what protective factors or coping techniques they had used and what they had learnt from the experience, the students will realise their past successes. The cumulative successful management of stressors will lead to a development of hope for the future and increased resilience (Stephens, 2013). She recommended nursing faculty promote resilience by asking the students these reflective questions. The author proposed that by having a knowledge of resilience, nurses can also assist others to develop resilience. She concluded a resilience focused curriculum will increase student and faculty awareness of the need to enhance protective factors for both clients and students and staff (Stephens, 2013).

It appears that the concept of hardiness has been superseded in the research literature by resilience, but that there are still some authors that utilise this term.

**Educational interventions to promote hardiness in students**

Hasel, Abdolhoseini, and Ganji (2011), and Jameson (2014) considered the concept of hardiness and sought to modify it in students. Hasel et al. (2011) explained hardiness consisted of the interrelated attitudes of commitment, control and challenge that turned stressful events into growth opportunities. The literature they reviewed described hardiness as being associated with active, problem-solving coping strategies (Hasel et al., 2011).
Hasel et al. (2011) conducted their educational intervention research on hardiness in university students (although not nursing students) in Iran. Their intervention consisted of two-hour educational sessions once a week for six weeks. There were 27 in the experiment group and 29 in the control group. Although the authors were from two different universities, the article did not explain where the participants were sourced. The key content for the training included stress management, adaptive coping strategies, healthy communication, conflict management and problem-focused resolution. Role-playing scenarios were utilised and within these the facilitators focussed on problem-resolution skills, identification of the core problem, and re-framing of issues within the scenario. Pre-test measures utilised were the Perceived Stress Scale (PSS) and the Hardiness Scale. Post-test scores of the same scales were obtained after the sixth session (Hasel et al., 2011).

Jameson (2014) conducted quasi-experimental research with junior Bachelor of Nursing students in three States in the USA. The aim was to find out if there was an increase in hardiness and decrease in perceived stress with those who participated in hardiness training. The initial sample in the experiment group was 54, with 45 in the control group, but the final sample was 40; and 39 respectively. Although McGowan and Murray (2016) had concerns over the quality of the design, this interventional study had undergraduate nursing students as participants and had considered the literature related to stress on said students. The methodology appeared similar to Hasel et al. (2011) with several sessions (one hour for five weeks), a workbook, and stress levels were measured on the same PSS scale. However, hardiness was measured by total scores on the Personal Views Survey Third Edition- Revised (PVS-III-R) (Jameson, 2014). A paired t-test was calculated between the pre-test and post-tests. One of the limitations in the article was a lack of a description of the content other than stating the programme emphasised the attitudes, coping strategies, and interaction styles of hardiness. The article did not articulate if role-playing scenarios were used (Jameson, 2014).

Hasel et al. (2011) found that in the experiment group the results were significant for the increase in hardiness total and the decrease in perceived stress scores; whereas in the control group hardiness decreased slightly and the perceived stress scores also rose slightly. Significant results were found even though there were limited numbers in the study (Hasel et al., 2011). In contrast, in the Jameson (2014) study perceived stress also decreased significantly, but the hardiness level remained the same in the intervention
The author suggested the measurement tool (PVS III-R) may not have been accurate enough to demonstrate a change in the hardiness level (Jameson, 2014). Even if hardiness scores did not change significantly, it would have been beneficial for the students involved in both studies to have a decrease in stress levels.

Nursing student stress and management
Resilience has been described as the ability to recover from adversity, and in general there have been many sources of adversity for nursing students. Within the education setting there have been long hours of study, financial stressors, and difficulty balancing work and home life—especially for students with children (Jameson, 2014). In addition to the academic pressure, nursing students have also experienced many firsts on clinical placements, such as exposure to death and dying, diverse lifestyles and communicable diseases (Stephens, 2013). Students may also have experienced ethical dilemmas, unwelcome attitudes of staff, and experienced fear of making an error, all of which may have added to their stress levels (Reyes et al., 2015). As the students near the end of their undergraduate degree, they must also focus on obtaining future employment as a registered nurse (Alexander & Stewart, 2016).

As well as being expected to possess knowledge and technical skills, student nurses have been expected to work in partnership with patients, respect patients’ dignity and choices, listen empathetically, take time to understand the patient, and do the little things to demonstrate caring to the patient (Curtis, Horton, & Smith, 2012). However, in a grounded theory study in the United Kingdom (UK) with 19 student nurses, and 5 nurse teachers, it was found that the students experienced dissonance between professional ideals and the reality of nursing practice in acute hospital areas. Student nurses expressed that the ideals of compassionate practice were very different to the reality of nursing. While the students expressed having time to communicate with patients was imperative to be able to empathise with them, the reality they experienced was staff shortages, high acuity of patients, and short stays. This allowed little time to develop personal engagement with each patient (Curtis et al., 2012).

Another finding was that the students identified their desire to fit in with the team impacted on their ability to challenge the constraints on nurses. It appeared the students had begun to balance their idealism with the reality of nursing practice to survive. This was part of the
professional socialisation process as there was an internalisation of the values and norms of the group (nurses) into the behaviour and attitudes of the new member of the profession (Curtis et al., 2012).

**Workplace socialisation and resilience in nurses**

In the late 20th century positive and negative socialisation in the workplace received much attention. Negative socialisation included horizontal violence, bullying, verbal abuse, harassment and intimidation; and positive socialisation included mentoring, role modelling and preceptorship. The literature was clear that these concepts were not unique to nursing, but that the negative aspects had to decrease in nurses for the positive aspects to be adopted. Professional support was one way to increase resilience in nurses (Madison, 2014).

One professional support role has been the one of the preceptor. A preceptor was defined as a RN who supervised a student nurse through a one-to-one relationship during a clinical placement. There have been several aspects to this role. In New Zealand, preceptors have been responsible for assessing whether the students were at the expected level of competence for them to progress in their nursing programme. Preceptors supported the student with developing critical thinking skills, assisted with socialisation of the student into the clinical area, as well as being a role model for the student (Sanders, 2013). In addition to role-modelling evidence-based approaches, a good preceptor also role-modelled nurses treating each other in professional, positive and supportive ways (Madison, 2014).

Jackson, McDonald, and Wilkes (2011) identified collegial support as essential to a positive work environment. The authors quoted the old adage “a problem shared, is a problem halved”, but recognised that it was not always safe to do so. They recommended nurses developed a professional support network. Brannan et al. (2011) explained that professional support gave nurses chances to relate, to express their feelings, and to reaffirm that they were not alone in a challenging workplace. More experienced colleagues guided and assisted reappraisals of challenging work situations and suggested positive solutions to these challenges. Non-professional supports such as family and friends were also imperative. This helped restore emotional wellbeing as these people
listened, validated feelings, reaffirmed their self-worth, and reminded them of their beliefs and values (Brannan et al., 2011).

The reality of nursing is that nurses have worked in challenging and sometimes personally harmful conditions (Jackson, McDonald, et al., 2011; Madison, 2014). There have been numerous instances of workplace hardships such as excessive workloads, shortages of staff, lack of support, abusive work environments, shift work, feeling devalued, interpersonal conflicts and frequent organisational restructuring. These difficult conditions have affect the capability of the nurses to work together and to obtain a measure of job satisfaction (Jackson, McDonald, et al., 2011). This leads the discussion to one aspect of negative socialisation: conflict and bullying.

Conflict, bullying and resilience
Jackson, Hutchinson, et al. (2011) explored nursing students’ experiences of negative behaviours to identify ways they used to manage and resist hostile behaviours in the workplace. The authors believed that this indicated resilience to workplace aggression. A thematic analysis of 105 answers from open-ended questions taken from an online survey at an Australian university was undertaken. They suggested there was tolerance to a culture of incivility and bullying throughout the clinical environment. This culture sought to marginalise and see students as less worthy. Resistance was seen by students voicing or enacting opposition, and this assisted the students to develop a sense of dignity and control. The findings showed repeated acts of incivility or exclusion from conversations. Resistance was in the form of mutual support, backing each other up, reporting mistreatment, countering allegations of incompetence or blame, and having a shared plan to address problems. Confrontation was perceived as high risk as it could have led to retaliation or escalation. However, some students had sufficient resilience that they were able to employ this method to respond to damaging behaviours in a productive, active manner (Jackson, Hutchinson, et al., 2011).

To determine the extent of the problem in Australia, Budden, Birks, Cant, Bagley, and Park (2015), aimed to identify the amount and type of bullying and/or harassment experienced by nursing students on clinical placement. The method was a cross-sectional survey which used mainly closed ended questions with four-point Likert scales. There were 888 participants from eight states and territories in Australia. Half (50%) of the
students confirmed they had been bullied or harassed on clinical in the last year. Younger students in all years were more likely to have experienced bullying or harassment. However, as the students progressed through their course, the percentage that experienced bullying or harassment increased (60% had experienced it by the third year). The students indicated they were bullied and/or harassed most frequently by Registered Nurses, then by Enrolled Nurses, and then by patients. Of these students, only 29% had reported the event either to the clinical area or to the university, while 71% had not. The majority who had not reported it indicated they had been worried about negative consequences if they had reported it (53%), and/or they had not thought anything would be done about it (45%), and/or they had not known where/how to report it (31%). Many of the students (47%) indicated these experiences had led to them to reconsider nursing as their career choice.

Budden et al. (2015) purposefully did not define bullying or harassment, and some of the surveyed students indicated they had negative experiences such as being denied acknowledgment of good work, being neglected, or having eyes rolled at them. The authors advised that students need to know what bullying and harassment is, and their options to report it. The authors concluded that bullying and harassment are unacceptable; and that policies and procedures are required to address this problem. Another recommendation was that the undergraduate curriculum included strategies to build resilience against potential exposure to bullying behaviour (Budden et al., 2015).

The research by Pines et al. (2014) focused on increasing resilience in nursing students by reducing their vulnerability to adversity and conflict in the workplace. The research was a quasi-experimental pre-post pilot study on nursing students in their final year of four in a university in the USA. Although the reported study design did not meet all quality assessment criteria for pre-post studies, this was the only previous educational intervention on nursing students identified consistently across integrative literature reviews from Reyes et al. (2015) and L. Thomas and Revell (2016), and the systematic literature review from McGowan and Murray (2016). The aim of the research was to determine whether the students had increased perceptions of resiliency, empowerment and a change in conflict management style after training exercises spread over two semesters.

Pines et al. (2014) described empowerment as the perceived sense of meaning and purpose, competence, and self-determination. The five conflict management styles identified were accommodating, avoiding, collaborating, competing and compromising.
These styles were defined as follows: accommodating was unassertive, and allowed the other person to dominate; avoiding was unassertive and action was not taken; collaborating was assertive and attempted to find a solution to the conflict; competing was assertive but one person’s solution could have been at the expense of another; compromising was mid-way on assertion and attempted to find a solution that partially satisfied each person. Nursing students had been found to prefer the avoiding and accommodating styles (Pines et al., 2014).

The intervention in the Pines et al. (2014) study was based on a previously successful curriculum of four modules of three hours each. These modules included role play opportunities, simulations, group discussions, videotaped sessions, and debriefing sessions. In the study, quantitative data was obtained from questionnaires on conflict management, psychological empowerment, and the Stress Resiliency Profile (SRP) tool was utilised to measure resilience. The results indicated that there were some changes to conflict management styles, with a significant decrease in accommodating style and a significant increase in compromising style. However, there was a significant change in only one of the three subsets of the resiliency score which related to the habit of focusing on commitment rather than choice; and there was no significant change found in empowerment (Pines et al., 2014).

A strength to the study by Pines et al. (2014) was the length of intervention: 12 hours in total. However, the post-intervention survey was after the second semester was completed, which was many weeks after the intervention was completed. It is difficult to determine how the time delay between their intervention and the second survey affected the results, but presumably they were looking for findings that remained significant over time. An important point the authors made in the discussion was that the students were beginners with little real-world experience of the situations they were about to be immersed in. This meant they had little understanding of the context to apply their new classroom knowledge. The conclusion was that they need more studies with larger samples to determine how best to promote resiliency and to empower nursing students.

**Educational interventions on resilience for registered nurses**

At an Australian health service, McDonald et al. (2013) recognised a need for education on resilience due to the level of stress in the nursing environment. The resulting study was
part of an instrumental collective case study. The 14 participants attended six whole-day workshops with experiential learning experiences, using creativity, and new ideas and strategies to develop resilience. They also attended a mentoring programme over six months, although this was not further described. The personal and professional results included themes of increased confidence, self-awareness, assertiveness and self-care. Those nurses who participated in this intervention improved relationships with colleagues, extended their peer support, were able to be more assertive when conflicts arose, and implemented boundaries in work relationships (McDonald et al., 2013). The authors indicated that although the study met its aims, there was a need to conduct further research on the efficacy of the programme. The authors concluded educational interventions that focused on promoting personal resilience pointed the way to a more satisfied and stronger workforce, who are empowered to withstand workplace adversity (McDonald et al., 2013).

Although all nurses experience stress at some point in their career, there are certain times that cause more stress than others. It is known that orientation to a hospital environment is one of the most stressful times in a nursing career, particularly for new graduate nurses. However, there are few evidenced-based strategies to reduce stress in nurses transitioning into the hospital setting, and into new roles (Chesak et al., 2015). One study in the USA by Chesak et al. (2015) evaluated a brief resilience intervention in an orientation programme for a group of new nurses in a hospital. There were 70% new graduate nurses in this group. The intervention group of 25 nurses participated in one 90-minute education session, with subsequent biweekly handouts sent by email. There was one 60-minute follow-up session after four weeks, but this was poorly attended with only 4 of the original 25 nurses participating. The actual content of the programme was not clearly explained as it was part of a licensed programme. The authors did reveal the participants learnt about the neurobiology of stress, and then learnt skills to reframe experiences with gratitude, compassion, acceptance, forgiveness and higher meaning. A control group of 26 nurses received a standard session that covered topics related to stress, including reality shock for new graduate nurses.

The results from the questionnaires administered after twelve weeks—on mindfulness, anxiety, the Perceived Stress Scale (PSS), and the Connor-Davidson Resilience Scale (CD-RISC) did not show significant differences between the groups. There was a small increase in mindfulness, and no change for resilience within the intervention group; and a
small decrease in mindfulness and resilience in the control group. There was minimal change in stress and a small decrease in anxiety for those in the intervention group; whereas anxiety slightly increased and there was a significant increase in perceived stress for those in the control group (Chesak et al., 2015). There were limitations of the study noted: participants were aware of who was in the intervention versus control group and so may have modified their behaviour for the researcher; and the nurses in both groups worked closely with each other and so there may have been a crossover of the intervention. The authors recommended a larger number of participants to increase its effect size, but the nurse education leadership saw sufficient potential benefit to continue to offer a revised version as part of the orientation programme (Chesak et al., 2015).

Summary of the main points
Resilience has been studied in the health professions due to the awareness that there are frequent workplace stressors that can impact on physical and mental health (McCann et al., 2013). There has been continued debate on whether resilience is a trait or a process that be modifiable through education (Reyes et al., 2015; Stephens, 2013). McAllister and Lowe (2011) proposed that there are certain characteristics of resilient people that can be learnt or developed. For example, optimism has been described as a trait of resilient people and the recommendation to develop this trait is to apply Cognitive Behavioural Therapy (CBT) techniques. There is evidence for CBT delivered individually, group CBT interventions, self-help CBT interventions, as well as the use of CBT in combination with other therapies (Hofmann et al., 2012). Educating students to develop more optimism, and lower levels of negative thinking has been proposed as techniques to increase resilience (Riolli et al., 2012).

From their integrative review of resilience in nursing students, L. Thomas and Revell (2016) identified three themes: resilience was related to protective factors such as optimism, flexibility, a sense of humour, and self-efficacy; that resilience was important in nursing education due to the stress nursing students experienced; and that there was a minimal amount of evidence on how resilience had been promoted to nursing students (L. Thomas & Revell, 2016). Reyes et al. (2015) concurred with their analysis, and concluded that it was difficult to make conclusions on the relationship of resilience to other variables until more testing with larger samples has been completed. McGowan and Murray (2016) examined eight quantitative studies on resilience and hardiness in nursing
students. They agreed that the studies were disparate in design and that further studies are required. After clarifying the concept Stephens (2013) hypothesized that when nursing students reflected on experiences and their coping techniques, the students would realise their past successes. This would then lead to increased resilience.

Hasel et al. (2011), and Jameson (2014) considered the concept of hardiness and sought to modify it in students. Hasel et al. (2011) utilised scenarios over several weeks and found that in the experiment group the results were significant for the increase in hardiness total and the decrease in perceived stress scores (Hasel et al., 2011). Although the intervention was also conducted over several weeks in the Jameson (2014) study and perceived stress also had a significant decrease, the hardiness level remained the same in the intervention group.

Decreasing perceived stress was a reoccurring theme when resilience in nursing students was examined. The sources of stress were many. Student nurses expressed that the ideals of compassionate practice were very different to the reality of nursing. The students expressed ideals such as having time to communicate with patients was incongruent to the reality of nursing with staff shortages, high acuity of patients, and short stays. Students also identified the need to fit in with the team as part of their socialisation process (Curtis et al., 2012).

One way positive socialisation was developed was through preceptorship. Preceptors supported the student with critical thinking skills, assisted with socialisation of the student into the clinical area, and behaved as a role model for the student (Sanders, 2013). In addition, collegial support has been identified as essential to a positive work environment (Jackson, McDonald, et al., 2011).

Negative socialisation included conflict and bullying. Jackson, Hutchinson, et al. (2011) studied how students resisted repeated acts of incivility or exclusion from conversations. Resistance was demonstrated by mutual support, reporting mistreatment, countering allegations, and by having a shared plan to address problems. This indicated some students had sufficient resilience to respond to damaging behaviours in a productive, active manner. To identify the extent of the problem in Australia, Budden et al. (2015) surveyed 888 nursing students. Half of the students confirmed they had been bullied or harassed on clinical in the last year. Many of the students indicated these experiences had led them to reconsider a career in nursing. The authors recommended that policies
and procedures need to address this area of concern, and that the undergraduate curriculum included strategies to build resilience against potential exposure to bullying behaviour.

The aim of the study by Pines et al. (2014) was to increase students perceptions of resiliency, empowerment and conflict management after an educational intervention. However, although there were some changes to more assertive conflict management, there was no significant change found in empowerment, and only one subset with a significant change for resiliency after their intervention (Pines et al., 2014).

Recent research on nurses that included educational interventions was by McDonald et al. (2013) and Chesak et al. (2015). At an Australian health service 14 nurses attended six whole-day workshops with experiential learning experiences designed to increase resilience. Those nurses who participated in this intervention improved relationships with colleagues, were more assertive when conflicts arose, and implemented boundaries in work relationships (McDonald et al., 2013). Chesak et al. (2015) evaluated a brief resilience intervention in an orientation programme for a group of new nurses (70% new graduates). Although the numbers were small, the only significant result was an increase in perceived stress for the control group (Chesak et al., 2015).

In conclusion, these studies lend weight to the concept that resilience can be modified through education, and that it is indeed vital for nursing students to develop resilience. Resilience will be required throughout their career. Another point of note is that although there are studies on resilience in nursing students included in this literature review from the UK, USA, Iran, and Australia, there does not appear to be recent literature from New Zealand. To add to this literature an intervention study has been undertaken as explained in the next chapter.
CHAPTER THREE: METHODOLOGY

This chapter will outline the research aim, design, participants, pre-clinical data collection, educational workshop, post-clinical data collection, statistical analysis, thematic analysis, ethical considerations and cultural considerations of the intervention study.

Research aim
There have been several recommendations from researchers to include resilience training as part of undergraduate nursing education (McAllister & McKinnon, 2009; Stephens, 2013; L. Thomas & Revell, 2016). Near the end of their undergraduate degree, Bachelor of Nursing third year students at all New Zealand tertiary institutes participate in a nine-week long final clinical placement (Transition for Nursing Practice). This study was a quasi-experimental study to determine what differences in resilience and perceived stress occurred following an educational workshop with follow up support on resilience for nursing students undertaking their final clinical placement.

The hypothesis was that the Intervention Group would demonstrate greater resilience and a decreased perception of stress (as measured by the Brief Resilience Scale (BRS) (Smith et al., 2008) and the Perceived Stress Scale (PSS) (Cohen, 1994) respectively than the Control Group at the end of the final clinical placement. If this hypothesis was found to be true, the educational workshop with follow-up support may have provided the students with additional skills with which to enter the modern healthcare environment.

Research design
This study design was developed from a positivist paradigm. This paradigm assumes that reality exists independent of observation, and that observable facts and events are not random, but have a predictable cause. This paradigm then leads to a quantitative approach. Although there may be good arguments for using inductive reasoning around the subject of resilience, the qualitative paradigm does not allow the same evaluation of the educational workshop.
Therefore, this research was predominantly a quantitative quasi-experimental pilot study with concurrent embedded qualitative data. The qualitative findings were used to explain or confirm the quantitative data. The experiment tested the hypothesis that an educational workshop (the intervention) could improve resilience and decrease perceived stress in nursing students. It sought to determine if there was a statistical difference in response between the Intervention Group and Control Group and applied evaluation tools that had been used in other studies with groups of nurses or nursing students. The qualitative data was used to determine if there was a difference in how the groups of students felt they dealt with stressful events, and if the Intervention Group of students perceived the workshop was beneficial.

Participants
During the academic year, the Bachelor of Nursing third year students were divided into two main groups for scheduling purposes. For this research, the Intervention Group was from Group A, and the Control Group was from Group B. There were 23 potential participants in Group A, and 22 in Group B. The groups were approached at the same time. An independent person gave the students a participant information sheet, explained the research project, and sought written consent. The students who agreed to participate had a random number allocated for confidentiality.

After completing the pre-clinical placement data collection, the Intervention Group attended the educational workshop. The researcher delivered the educational workshop at the regional tertiary institute in the last week of classes before the final clinical placement for the Intervention Group or in the week of revision classes after the completion of the final clinical placement for the Control Group. The Intervention Group also received two-weekly emails that reinforced the topics discussed in the educational workshop throughout their final clinical placement (also known as “transition”).

The inclusion criteria were Bachelor of Nursing students of a regional tertiary institute in New Zealand; who had met requirements to enter their final clinical placement in September 2016; who were willing and able to participate; and who consented. There was an exclusion if they had not met requirements; and/or did not give consent. It was a convenience sample.
Pre-clinical placement data collection

Participants from both groups completed the pre-clinical placement questionnaire, at the same time of the same day. The pre-clinical questionnaire was administered 19 days before the clinical placement began. On the same day both groups received the standard information in the Transition for Nursing Practice booklet. The booklet included information on the learning outcomes, practicum expectations, assessments, revision on key clinical frameworks and policies, and areas for documenting the students’ progress in the clinical placement.

The questionnaire used was based on the Brief Resilience Scale (BRS) (Smith et al., 2008) and the Perceived Stress Scale (PSS) (Cohen, 1994) delivered via SurveyMonkey™. The wording was identical to the original questions in the scales but the order of the questions was rearranged into positive and negative questions in each scale-for ease of scoring in the SurveyMonkey™ programme. Both original scales were self-report, five point Likert scales, which were publicly available. Likert scales are the most commonly used scales in healthcare studies. These scales measure the opinion or attitude of the participant (Gray, Grove, & Sutherland, 2017). The responses were on a scale from Strongly Disagree to Strongly Agree (BRS), or a scale from Never to Very Often (PSS).

The PSS was chosen as it was a common instrument used in four of the studies highlighted in the literature review: Chesak et al. (2015); Hasel et al. (2011); Jameson (2014); Stephens (2012). The PSS is a 10-item instrument, which according to according to Cohen (1994), has been the most widely used psychological instrument for measuring the perception of stress. Validity demonstrated in studies which showed higher PSS scores were linked with failure to quit smoking and greater vulnerability to reactive depressive symptoms (Cohen, Kamarck, & Mermelstein, 1983), and failure to control blood sugar levels in diabetic patients (Cohen, 1994). It has been determined to have reliability in three different samples (Cronbach’s alpha=0.84, 0.85, 0.86) (Cohen et al., 1983).

The BRS was chosen as it was designed by the authors to specifically assess resilience in its original and most basic meaning: as the ability to recover from stress. This was in contrast to other measures such as the Connor-Davidson Resilience Scale (CD-RISC) that measured characteristics including a sense-of-humor, patience and faith (Smith et al., 2008). In addition, although the CD-RISC instrument had frequently been used to look at
differences in response to an intervention (Windle, Bennett, & Noyes, 2011), it had a financial cost involved. Of the fifteen tools reviewed that measured resilience, the CD-RISC (25 items), the Resilience Scale for Adults (RSA) (37 items) and the Brief Resilience Scale (BRS) (6 items) received the highest psychometric ratings. There were correlations between the Brief Resilience Scale and the CD-RISC of 0.59. (Windle et al., 2011).

The internal consistency of the BRS was good, with Cronbach’s alpha ranging from .80–.91 The BRS was positively correlated with optimism, purpose in life, social support, active coping; and negatively correlated with pessimism, difficulty in expressing or describing emotions, avoidance coping, and self-blame (Smith et al., 2008). The test-retest reliability intra-class correlation coefficient (ICC) for agreement for the Brief Resilience Scale was 0.69 in one sample (n = 48) and 0.62 in another sample (n = 61) (Windle et al., 2011).

**Resilience educational workshop**

The Intervention Group attended the educational workshop after the preclinical questionnaire was completed. The three hour educational workshop was based on themes from *The Resilient Nurse* by McAllister and Lowe (2011). This book had evidence-based strategies that had been shown to be beneficial for promoting resilience in nurses. The researcher chose to extend some of the themes to include further content on the appraisal of stress, emotion-focused versus problem-focused coping, conflict management information, and information on how to apply Cognitive Behaviour Therapy (CBT) skills to increase optimism, decrease rumination and manage stress. This information came from a variety of sources such as undergraduate nursing textbooks and online journal articles. Topics covered in the educational workshop were an overview of resilience, adaptive coping, moderating responses, conflict management, self-care, reflection, and post-traumatic growth. An outline of the educational workshop is included in Appendix A.

To reinforce the concepts, at regular two-weekly intervals after the educational workshop, reminders were sent via email to the Intervention Group on the topics discussed. The first reminder covered the topics of: resilience and adaptive coping; the second of: moderating responses and conflict management; the third of: self-care; and the fourth of: reflection and post-traumatic growth.
For equity reasons the same educational workshop was provided to the Control Group in the week of revision classes after the completion of their final clinical placement. The same revision of the topics was emailed to the participants of the Control Group two weeks after they completed their workshop.

**Post-clinical data collection**
The participants’ clinical placement was nine weeks in length; and then the post-survey questionnaire was completed four to seven days after the conclusion of the clinical placement. In the post-clinical questionnaire, as well as identical questions based on the BRS and PSS scales, there were also open-ended questions to gather further data. The Control and Intervention groups were asked “What strategies did you use for stressful events? Please give one or two examples.” In addition to this, the Intervention Group was asked “Which part(s) of the resilience workshop did you find the most useful? Why?”

**Statistical analysis**
The pre-clinical and post-clinical questionnaires for each student were matched from the random number that had been initially allocated. The participants’ results were evaluated to determine if their scores changed between responses. The individual questions within the scales were evaluated to determine if some questions displayed larger differences than others. The answers were weighted, averaged, and analysed for change between responses. The mean of scores between the Intervention Group and Control Group was compared using a two-tailed $t$-test for independent groups, with a confidence interval of 95%.

**Thematic analysis**
Information obtained from the open-ended questions was analysed for themes. Thematic analysis is a method for identifying patterns or themes within the text (Richardson-Tench, Taylor, Kermode, & Roberts, 2014). The qualitative data was analysed using a general inductive approach (D. R. Thomas, 2003). Only the results from participants that completed both pre-clinical and post-clinical questionnaires were included in the analysis.
With about 45 in the potential total group, this was a similar number to the study by Chesak et al. (2015) for their pilot intervention. Still, the low numbers were predicted to be a weakness in the rigour of this study, which is why utilising qualitative data was seen to add validity.

**Ethical considerations**

Ethical considerations are fundamental to human research to protect participants from harm. Harm may be in the form of inconvenience, emotional, physical or economic harm. The goal is to have minimal risk of harm whilst providing a benefit to the participants for volunteering (Sieber & Tolich, 2013). Ethical requirements include informed consent, lack of deception or coercion, the right to withdraw, privacy and confidentiality, and safeguards for vulnerable groups (Richardson-Tench et al., 2014)

As the research population was a convenience sample of the Bachelor of Nursing third year students of a tertiary institute, it required locality approval from the institute’s ethics committee. This was granted in June 2016 (Appendix B).

The hypothesis was that there was a potential benefit for the students, but no harm as the Control Group received the standard information, and could opt to participate in the same session after the clinical placement had been completed.

Given that this study was a group intervention anonymity was not possible but confidentiality could be assured. The consent forms for the educational workshop were stored in a locked metal file cabinet. The data extracted from the questionnaires was stored on a secure server that was password protected. Each participant had a random number, with the Intervention Group allocated a number between 1 and 30, and the Control Group number allocated a number between 31 and 60. Due to the low numbers in the study, demographic data was not collected as it potentially could have identified the participants. Only the researcher and Eastern Institute of Technology (EIT) thesis supervisors had access to the research data.

At the end of the research any personal information of the participants was destroyed immediately except that, as required by the institute's research policy, any raw data on which the results of the project depended, will be retained in secure storage for five years, after which it will be destroyed via shredding.
Tertiary students have been considered vulnerable participants, with a potential power imbalance existing between educators/researchers and students. Although the researcher was also an educator in previous stages of the Bachelor of Nursing course, the Transition for Nursing Practice paper was perceived as a separate stage of the educational process. The researcher had not actively participated in any educational or assessment component of the Transition for Nursing Practice paper. Ethics approval was granted from the local Institute of Technology Ethics Committee, and the EIT Research Ethics and Approval Committee (Appendix B, C).

An independent person, not the researcher, gave potential participants the Information Sheet for Participants (Appendix D), the Participant Consent Form (Appendix E), and was present to answer immediate questions. The information sheet contained the statement that the potential participants would not be affected by the decision to participate or not. The consent form included the right to withdraw at any stage, up to the point of data analysis. The participants had a random number recorded by an independent person, and the researcher was not aware of which students were allocated each number. There was no deception employed, nor incentive offered.

If a student did not complete or pass the final clinical placement they did not complete the second questionnaire and therefore their results were not included in the data analysis.

The participants were informed that the results of the project will be available in the Eastern Institute of Technology Library (Napier, New Zealand), and may be presented at conferences and/or published.

**Cultural considerations**

The Treaty of Waitangi obligations justify why research should both include Maori and benefit Maori. Article Three of the Treaty provides a right to a fair share of society’s benefits. There is an expectation for both Maori and non-Maori to have equivalent health and an equitable share of any benefits.

Maori nursing students may have been part of the group of nursing students studied, but no ethnicity data was collected. If there was a benefit for the students, then there may also have been a benefit for Maori students. Both ethics committees considered implications for Maori as part of the approval process.
Summary
This chapter has described the aim to evaluate an educational intervention to improve resilience in nursing students undertaking their final clinical placement. The research design was quantitative quasi-experimental pilot study with concurrent embedded qualitative data. Participants were from the Bachelor of Nursing students of a regional tertiary institute in New Zealand who had met the requirements to begin the final clinical placement.

Pre-clinical data collection consisted of a questionnaire that was based on the Brief Resilience Scale (BRS) (Smith et al., 2008) and the Perceived Stress Scale (PSS) (Cohen, 1994) delivered via SurveyMonkey™. The educational workshop was delivered on the same day to the intervention group. The participants’ clinical placement was nine weeks in length; and then the post-clinical questionnaire was completed four to seven days after the conclusion of the clinical placement. In the post-clinical questionnaire, as well as identical questions based on the BRS and PSS scales, there were also open-ended questions to gather further data.

The plan for statistical analysis, and thematic analysis has been described, as well as the ethical and cultural considerations for the research.

The following chapter will outline both the quantitative and embedded qualitative results.
CHAPTER FOUR: RESULTS

This chapter provides both the quantitative and qualitative results of the project. First the quantitative results of the BRS and PSS individual questions within the scales will be presented, and then the group results with comparisons. Finally, the similarities from the qualitative comments will be described.

Participants
The numbers of potential participants were 23 in Group A and 22 in Group B. In the Intervention Group there were 15 (65%) participants and 14 (66%) participants in the Control Group who consented and completed the pre-clinical questionnaire. All those in the Intervention Group who completed the pre-clinical questionnaire attended the educational workshop: thus there were 15 participants.

The post-clinical questionnaire was completed by 15 participants from the Intervention Group (100%) and 7 from the Control Group (50%) of the original sample who completed the pre-clinical questionnaire.

Quantitative data
The responses for each question were weighted as per the original scales. For the BRS the positive questions had a range from Strongly Disagree = 1, Disagree =2, Neutral = 3, Agree=4, and Strongly Agree =5. For the negative questions their scores were reversed so Strongly Disagree=5, Disagree=4, Neutral = 3, Agree =2, and Strongly Agree=1 (Smith et al., 2008). A higher score in the BRS indicated higher levels of resilience.

For the PSS the weight of the questions was congruent with the scoring from the PSS from Cohen (1994). The six negative questions had weights of Never= 0, Almost Never= 1, Sometimes=2, Fairly Often= 3, and Very Often=4. For the positive questions the score was reversed so 0 = 4, 1 = 3, 2 = 2, 3 = 1, and 4 = 0. A higher score in the PSS indicated a higher level of perceived stress.

Group responses to individual questions
Calculations were performed to determine if there were individual questions that demonstrated more change than others. These calculations consisted of weighting the
scores of all the answers for each individual question, determining a sum total, and then dividing by the number of participants. For example: for the first question in the pre-clinical BRS for the Control Group there was: 1 Strongly Agree; 5 Agree, and 1 Neutral, which equals a total of 28, which divided by 7 participants is a weighted average of 4.0 for this question.

**Brief Resilience Scale**

The pre-clinical and post-clinical weighted average BRS scores are shown in Table 1 for both the Intervention and Control groups.

Table 1. BRS weighted averages (I= Intervention Group, C=Control Group)

<table>
<thead>
<tr>
<th>BRS</th>
<th>Pre-clinical weighted average</th>
<th>Post-clinical weighted average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I</td>
<td>C</td>
</tr>
<tr>
<td>I tend to bounce back quickly after hard times</td>
<td>3.5</td>
<td>4.0</td>
</tr>
<tr>
<td>It does not take me long to recover from a stressful event</td>
<td>3.1</td>
<td>3.9</td>
</tr>
<tr>
<td>I usually come through difficult times with little trouble</td>
<td>2.9</td>
<td>3.7</td>
</tr>
<tr>
<td>I have a hard time making it through stressful events</td>
<td>3.6</td>
<td>3.9</td>
</tr>
<tr>
<td>It is hard for me to snap back when something bad happens</td>
<td>3.3</td>
<td>3.9</td>
</tr>
<tr>
<td>I tend to take a long time to get over set-backs in my life</td>
<td>3.5</td>
<td>3.7</td>
</tr>
</tbody>
</table>

After determining the weighted averages, the changes for the individual questions for the Intervention Group and Control Group were determined by subtracting the pre-clinical weighted average from the post-clinical weighted average.

When the changes were compared (Figure 1), all positive questions in the BRS increased in the positive direction for the Intervention Group, while for the Control Group little change was seen.
The average change for the Intervention Group for all questions was 0.40, while for the Control Group it was 0.12. This value was reached by adding the changes and then dividing by the number of questions.

In the question “I usually come through difficult times with little trouble” a notable positive increase of 0.8 was seen for the Intervention Group, compared to the 0.3 in the Control Group.

![Figure 1: BRS positive question changes for Control and Intervention groups](image)

In the negatively phrased questions of the BRS the question “It is hard for me to snap back when something bad happens” the Intervention Group’s responses indicated a clear increase in score of 0.5, compared to no change in the Control Group (Figure 2). There was little difference in the other questions.
Figure 2: BRS negative question changes for Control and Intervention groups

**Perceived Stress Scale**

As above, the individual responses for each question were weighted and averaged for both the groups.

Table 2. PSS weighted averages. (I= Intervention Group, C=Control Group)

<table>
<thead>
<tr>
<th>PSS</th>
<th>Pre-clinical weighted average</th>
<th>Post-clinical weighted average</th>
</tr>
</thead>
<tbody>
<tr>
<td>During the last month:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How often have you been upset because of something that happened unexpectedly</td>
<td>2.1</td>
<td>1.9</td>
</tr>
<tr>
<td>How often have you felt you were unable to control the important things in your life</td>
<td>2.0</td>
<td>1.7</td>
</tr>
<tr>
<td>How often have you felt nervous and &quot;stressed&quot;</td>
<td>2.7</td>
<td>2.5</td>
</tr>
</tbody>
</table>
How often have you found that you could not cope with all the things you had to do | 1.9 | 1.4 | 1.4 | 1.4
---|---|---|---|---
How often have you been angered because of things that were outside your control | 1.7 | 1.7 | 1.6 | 1.7
---|---|---|---|---
How often have you felt difficulties were piling up so high you could not overcome them | 1.7 | 1.6 | 1.4 | 1.6
---|---|---|---|---
How often have you felt confident about your ability to handle your personal problems | 0.9 | 0.6 | 0.7 | 0.7
---|---|---|---|---
How often have you felt that things were going your way | 1.5 | 1.0 | 1.1 | 1.1
---|---|---|---|---
How often have you been able to control irritation in your life | 1.4 | 1.0 | 1.2 | 1.1
---|---|---|---|---
How often have you felt like you were on top of things | 1.4 | 1.1 | 1.3 | 0.9

Using the same method as above, the changes for the Intervention Group and Control Group were determined by subtracting the pre-clinical score from the post-clinical score.

As seen in Figure 3, all the scores for the negatively phrased questions decreased in the Intervention Group. The mean change for all the questions for the Intervention Group was -0.25, while for the Control Group it was -0.04. This was determined by adding all the changes for the group and then dividing by the number of questions - in this case ten questions. The Intervention Group had the largest difference of -0.5 in the question “How often have you found that you could not cope with all the things you had to do”, whereas the Control Group had no change.
In the positively phrased question “How often have you felt you were on top of things” the Control Group had a slightly greater change of -0.2 compared to -0.1 for the Intervention Group. For the other three questions the Control Group had a positive change which meant they had increased their level of perceived stress, whereas the Intervention Group had negative changes for these questions. The largest difference was -0.5 for the Intervention Group compared to 0.1 for the Control Group for the question “How often have your felt that things were going your way?” as seen in Figure 4.
Complete scale scores
The means of the raw scores were determined by adding the scores and then dividing them by the number of participants in each group. The mean and standard deviation (SD) for the BRS and PSS results for both groups at both test points are shown in Table 3. To determine if there was a significant difference in the groups before the intervention, a two-tailed two-sample unequal variance t-test was performed via Excel. A $p$-value $\leq 0.05$ indicated a significant result. The pre-clinical BRS and PSS scores did not show a significant difference between the Intervention and Control groups with $p=0.131$ (BRS) and $p=0.310$ (PSS). This indicates that the groups can be considered to have the same baseline levels for BRS and PSS.

The change between pre-clinical and post-clinical scores for each group was calculated by using a two-tailed paired t-test for both scales. There was a significant increase in BRS scores from pre-clinical to post-clinical scores for the Intervention Group. This indicates an increase in resilience for the Intervention Group. There was also a significant decrease in PSS scores from pre-clinical to post-clinical, which indicates a decrease in perceived stress for the Intervention Group.

Figure 4: PSS positive question changes for Control and Intervention groups
Table 3: Comparison of pre-clinical and post-clinical scores

<table>
<thead>
<tr>
<th>Group</th>
<th>Pre-clinical BRS Mean (SD)</th>
<th>Post-clinical BRS Mean (SD)</th>
<th>BRS Change p value</th>
<th>Pre-clinical PSS Mean (SD)</th>
<th>Post-clinical PSS Mean (SD)</th>
<th>PSS Change p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intervention</td>
<td>3.35&lt;sup&gt;a&lt;/sup&gt; (0.54)</td>
<td>3.75&lt;sup&gt;a&lt;/sup&gt; (0.48)</td>
<td>0.026&lt;sup&gt;a&lt;/sup&gt;</td>
<td>17.3&lt;sup&gt;b&lt;/sup&gt; (4.7)</td>
<td>14.9&lt;sup&gt;b&lt;/sup&gt; (3.4)</td>
<td>0.010&lt;sup&gt;b&lt;/sup&gt;</td>
</tr>
<tr>
<td>Control</td>
<td>3.84 (0.69)</td>
<td>4.19 (0.61)</td>
<td>0.123</td>
<td>14.9 (5.1)</td>
<td>14.6 (2.9)</td>
<td>0.892</td>
</tr>
</tbody>
</table>

Note: superscript <sup>a</sup> indicates significant change (p ≤ 0.05) between BRS results, and superscript <sup>b</sup> indicates significant change (p ≤ 0.05) between the PSS results.

There was no significant change from pre-clinical to post-clinical scores for either the BRS or PSS scores for the Control Group.

Only the results from those whom had completed both the pre-clinical and post-clinical questionnaires were included.

**Qualitative data**

Due to the paucity of data from the open-ended questions, it was not possible to undertake the planned thematic analysis. However, there were some similarities identified in the comments provided.

**Single group question**

The question: “Which part(s) of the resilience workshop did you find most useful? Why?” was asked of the Intervention Group, with the intention of determining if the workshop was beneficial. Of the 15 participants, only 1 skipped this question. The comments were all positive with groups of similarities of general beneficence, stress management, and self-care.
**General beneficence**
Several participants mentioned the workshop session and/or the email reinforcement of topics in very wide terms.

- *I liked the session we had and the emails throughout placement.* (#9)
- *The handouts were great when doing transition because they gave us ideas to cope with stress.* (#5)
- *The workshop allowed me to identify how resilient I actually am!* (#8)

**Stress management**
Most participants mentioned some form of stress management including coping skills, and relaxation techniques

- *The strategies to implement. Gave a practical way to manage stress.* (#3)
- *Coping techniques- made me look at what I do and why.* (#1)
- *Relaxation and distraction techniques.* (#24)

**Self-care**
This cluster of similarities contained aspects of self-care such as maintaining a work-life balance and spirituality

- *Knowing that having faith is more important than anything else* (#6)
- *Work-life balance* (#17)

**Both groups question**
Both groups were asked the same question “What strategies did you use for stressful events? Please give one or two examples” to examine if there were similarities or differences between the groups.
Intervention Group

Eleven participants answered this question. There were some commonalities in the examples of strategies they provided on the topics of relaxation, reflection, and self-care.

Relaxation

These words appeared most frequently in the answers:

- Relax - not everything is within my control. (#1)
- Deep breathing and relaxation techniques. (#10)
- Took a break and used relaxation techniques. (#3)

Reflection

Debriefing, and reflecting was commonly mentioned.

- Reflecting and moving on. (#5)
- Reflecting on the situation and evaluating the best way to deal with the stressors without becoming overwhelmed” (#9)
- Debriefing (#17)

Self-care

Self-care activities as well as maintaining positive emotions

- Spirituality, humour and laughter. (#6)
- …exercise, dancing, talking to friends and family, (#2)
- Going for a walk. (#26)
Control Group

Only five participants from the Control Group provided examples to the question posed to both groups. There were some similarities in the examples provided along the lines of reflection, self-care, and miscellaneous stress management.

Reflection

This was the strongest similarity

...reflecting on what happened and how to improve if the situation arose again (#57)

Journaling/daily reflections helps me get rid of feelings from my head/ruminating, and helps me sleep better. (#34)

Think about the reasons that caused the situation, think about ways can resolve it, think about what I can change, what can not be changed, accept (#39)

Self-care

The activities of self-care were mentioned

Daily exercise… music, connecting with nature, being around loved ones. (#34)

Go to park, swim, do some shopping, have good meals, sleep, see friends, family (#39)

Miscellaneous stress management.

There were a number of statements made either once or twice, that could be broadly grouped into stress management.

Remaining positive and taking the best I could out of situations. (#57)

Prepare in advance, make a plan, don't leave things to the last minute. (#43)

Distract myself from other things like hanging out, watching movies…shopping, eating a lot. (#58)
Comparison of strategies for the groups

Although both groups mentioned reflection and self-care, the Intervention Group highlighted the term “relax” or “relaxation techniques” more than the Control Group participants. The percentages can be seen in Figure 5.

In the Intervention Group 56% mentioned relaxation, compared to 20% of the answers from the Control Group. Of the answers 46% of Intervention Group mentioned reflection compared to 60% of the Control Group; and for self-care 28% of the Intervention Group answers mentioned phrases relating to self-care compared to 40% of the Control Group.

![Figure 5: Comparison of strategies between Intervention and Control groups](image)

Summary

There were 15 participants in the Intervention Group and 14 participants in the Control Group who completed the pre-clinical questionnaire. All those in the Intervention Group attended the educational workshop. The post-clinical questionnaire was completed by 15 participants from the Intervention Group (100%) and 7 from the Control Group (50%) of the original sample that completed the pre-clinical questionnaire.

When the individual responses to the questions were examined and the change compared- the mean change for the Intervention Group for all questions in the BRS was 0.40, while for the Control Group it was 0.12.
In the individual responses to questions in the PSS the average change for the Intervention Group was -0.25, while for the Control Group it was -0.04.

The pre-clinical BRS and PSS scores did not show a significant difference between groups. However, there was a significant increase in BRS scores ($p = 0.026$) from pre-clinical to post-clinical scores for the Intervention Group. There was also a significant decrease in PSS scores ($p = 0.010$) from pre-clinical to post-clinical. This contrasts with no significant change from pre-clinical to post-clinical scores for either the BRS or PSS scores for the Control Group.

Due to the lack of comprehensive data from the open-ended questions, it was not possible to undertake a thematic analysis. However, there were some similarities in comments identified. In the question relating to which parts of the workshop the Intervention Group found beneficial, there were comments that related to general beneficence, stress management, and self-care.

In the question that related to strategies used to deal with stressful events, there were some differences in how frequently terms were articulated. In general, although the Intervention Group mentioned reflection, relaxation was mentioned more frequently, especially in comparison to the answers from the Control Group. Those answers that mentioned self-care also had a greater percentage in the Control Group. These results will be discussed in the next chapter.
CHAPTER FIVE: DISCUSSION

This chapter will discuss the results of the research and the implications. The aim of this research was to evaluate a three hour educational intervention with follow-up support to improve resilience and decrease stress over a period of ten weeks in nursing students undertaking their final clinical placement. The hypothesis was that the Intervention Group would demonstrate greater resilience and a decreased perception of stress than the Control Group at the end of the final clinical placement.

Group responses to individual questions

**Brief Resilience Scale (BRS)**

When the individual responses to the questionnaires were examined and compared- all the positive questions in the BRS increased in the positive direction for the Intervention Group, with a larger change than for the Control Group. The average change for the Intervention Group for all questions was 0.40, while for the Control Group it was 0.12. There were two questions in particular with noticeable differences in responses between groups.

The students in the Intervention Group received information on optimism, and active coping as part of the educational workshop content. When McAllister and Lowe (2011) described certain characteristics of resilient people that could be learnt or developed, optimism was linked to CBT. There were certain aspects of self-help CBT outlined in the educational workshop, including reframing negative thoughts and the technique of the Responsibility Pie Chart (RPC), otherwise known as responsibility reattribution.

The RPC technique entailed encouraging the students to think of a situation on a previous clinical placement and to assign a percentage of responsibility to themselves, others, environmental factors, and bad luck. These percentages were to add up to 100%, so that a pie chart could be drawn to illustrate these percentages. Then the students could consider if any self-critical thoughts they had experienced, in light of their level of responsibility, could be reattributed to another factor.

Arimitsu and Hofmann (2015) tested responsibility reattribution against other CBT techniques to determine its effectiveness for decreasing negative emotions. Another CBT
technique that was also evaluated was cognitive reappraisal. Those in the cognitive reappraisal group were asked to challenge their self-critical thoughts and then to rewrite them into rational thoughts. When evaluating significance in difference for scores of negative emotions pre-CBT techniques and post-CBT techniques: cognitive reappraisal had a large effect ($d = 1.05$); responsibility reattribution had a medium effect ($d = 0.54$); and there was a small effect for the control group ($d = 0.31$). The authors presented Cohen’s $d$ for $t$-tests as small effect $= 0.20$; medium effect $= 0.50$, and large effect $= 0.80$. For the Intervention Group in this resilience study, the reframing of negative thoughts and responsibility reattribution concepts were discussed in the educational workshop and also reinforced in the follow up emails.

On the other hand, a contributing factor that may have increased the participant’s stress and anxiety may have been the ACE process that also culminated during the students’ final clinical placement. ACE has been a collaborative recruitment process for students who were in their final year of the Bachelor of Nursing to gain a NETP or NESP position. International students have not been eligible for this process. During their final clinical placement students were contacted about interviews for employment, and were able to discuss with the prospective employer what specialties were available for the next calendar year. The final job offer was sent to all successful applicants the day after their NCNZ state final examinations (ACE, 2017).

It has been noted that as the end of their degree looms, students become increasingly focused on gaining employment as a graduate (Alexander & Stewart, 2016). Due to the questionnaire being anonymous, potentially there could have been an unknown number of students that received a setback in relation to future employment in either group, as well as international students in both groups who were not eligible for this scheme, and therefore were seeking employment through other avenues.

**Perceived Stress Scale (PSS)**

In the PSS the average change for all the questions for the Intervention Group was: -0.25 while the average for the Control Group was -0.04. There were two questions where there was an especially large difference between groups. The educational workshop was provided to the Intervention Group before they went out on their final clinical placement, so these were important findings.
The content of the educational workshop included strategies aimed at promoting resilience and coping skills and decreasing stress. Although the workshop had content that was based on six chapters of *The Resilient Nurse* book (McAllister & Lowe, 2011), further information was incorporated from other sources. This included content from the study conducted by Hasel et al. (2011) on stress management, adaptive coping strategies, and conflict management, and from undergraduate nursing textbooks on health psychology.

**Quantitative data- overall scores**

The Brief Resilience Scale (BRS) pre-clinical means were 3.35 for the Intervention Group and 3.84 for the Control Group. There was no statistically significant difference between groups for pre-clinical scores, indicating that the groups can be considered to have the same baseline levels of resilience. In a recent study by Delaney et al. (2016) the baseline BRS scores for junior BN students (in the third year of a four year degree) were 3.64 for the intervention group, and 3.50 for the control group. Therefore, the pre-clinical results from this research were on par with other nursing students.

The pre-clinical Perceived Stress Scale (PSS) means (SD) were 17.3 (4.7) for the Intervention group; and 14.9 (5.1) for the Control group. The means were not statistically significantly different, which implies the groups had the same baseline level of perceived stress. In a comparison with junior BN students, these scores were lower, but not significantly different, than the PSS means from the Jameson (2014) study. In that study the pre-test scores were 27.18 and 27.33 for the experimental (n=40) and control groups (n=39) respectively. In a study of new RNs, Chesak et al. (2015) found similar PSS scores of 20.16 and 22.30 for intervention and control groups respectively. This indicates that the pre-clinical perceived stress results from this resilience study were consistent with junior nursing students and new RNs.

When the post-clinical results were analysed there was a significant increase in resilience for the Intervention Group (BRS scores increased from 3.35 to 3.75) whereas there was no significant change in the Control Group: 3.84 to 4.19. Comparing this with another study that used the same instrument, Delaney et al. (2016) demonstrated an increase in BRS scores from 3.64 to 3.74 immediately after the intervention and up to 3.88 at 4
months later (although this was not statistically significant); whereas the control group showed little change at 3.5, 3.61, and 3.57 at the same points in time.

In the post-clinical questionnaire, the Intervention Group had a significant decrease in the mean for perceived stress from 17.3 to 14.9; whereas the Control Group had no significant change (14.9 to 14.6). In the study conducted by Jameson (2014), the PSS scores also decreased significantly after the experiment. Hasel et al. (2011) found that in their experiment group the results were significant for the decrease in PSS scores; whereas in the control group the PSS scores rose slightly. In the study by Chesak et al. (2015), the results from the PSS questionnaire administered after twelve weeks did not show a significant difference for the intervention group, but there was a significant increase in perceived stress for those in the control group (Chesak et al., 2015).

One potential reason for the significant results from this intervention was that the educational workshop content was based on the Resilient Nurse book (McAllister & Lowe, 2011) and studies such as Hasel et al. (2011) which had previously shown successful results using similar content to the book.

**Qualitative data**

The first open-ended question to the Intervention Group was intended to give further data on whether the workshop was beneficial or not. Although the comments were generally positive, due to the paucity of data it was not possible to undertake a thematic analysis.

However, there were some similarities in comments identified. These groups of similarities were general beneficence, stress management, and the related group of self-care.

All of the Intervention Group were sent the follow-up emails that covered two topics each time to reinforce the concepts discussed in the educational workshop. Although there was no indication as to who read these emails, several of the Intervention Group highlighted that the regular emails were beneficial. Kirkpatrick and Kirkpatrick (2016) proposed that these types of emails were a form of support to remind participants and provide further guidance, and that it can feel like personal support to receive these electronic communications.

Much of the content of the educational workshop included strategies aimed at promoting resilience and decreasing stress, so when the participants stated "strategies to implement"
this was not specific. Many topics overlapped for example relaxing, self-care, and managing stress by using techniques such as reframing distressing thoughts.

The open-ended questions relating to strategies the participants used to deal with stressful events was intended to show similarities and differences between groups. Both groups mentioned debriefing or reflecting. As Timmins, Murphy, Howe, and Dennehy (2013) explain reflection is valued as a tool for professional development in nursing. It is commonly used for teaching and learning both in the classroom and in clinical practice for nursing students.

One tool which has been included in the curriculum of the students that participated in this study is the Gibb’s Reflective Cycle (1988, as cited in Timmins et al., 2013). The Gibb’s Reflective Cycle involves five phases:- a description of the event, feelings, analysis, conclusion and an action plan (Timmins et al., 2013). All the students on their final clinical placement were required to submit four written reflections during this time as part of their assessment, so it is not surprising that both groups mentioned it. However, it was not clear from the data what process was involved or with whom the participants were debriefing.

In terms of the content of the educational workshop, there was time allocated for discussion on protective factors or coping techniques the student have previously used whilst on clinical placement. Stephens (2013) believed that when nursing students realised their past successes with coping strategies, this would increase their resilience. Two of the key strategies to develop resilience in nursing also discussed by Jackson et al. (2007, as cited in McAllister & Lowe, 2011) was to develop insight into one’s own protective factors and to use reflection to find meaning in current challenges. The second strategy of reflection was also explained in the educational workshop in terms of coping in a crisis. Recommendations were to remember that: in much of life you cannot control what happens, only your response; and that a key strategy for processing a distressing event is to find something that can be learnt from it (Shakespeare-Finch, 2011).

Although the Intervention Group cited reflection, they mentioned it less, and stated “relaxation techniques” as a strategy even more consistently. It was difficult to make a definitive conclusion from this as only the words were mentioned without further elaboration. However, this could be related to information they received in the last handout which contained the paraphrase from McAllister (2015) “Knowing when to reflect
on hardship and when to put boundaries around this reflection, is a resilience attribute”. Potentially this could have affected their perspective on the importance of reflection, compared to the Control Group. Comments such as “Reflecting and moving on” (#5), could point to a decrease in rumination. Rumination is the process of thinking repeatedly on an incident, and ascribing negative emotion to it. It has been proposed that rumination is a key driver above all others of an individual’s stress levels (Petrie, 2014).

Another potential explanation for the increased frequency of terms around relaxing, relates to the theme of self-care covered in the educational workshop. Much of this information came from Brannan et al. (2011) and included the topics of spirituality, humour, work-life balance, exercise, and support. This information echoes the other strategies from Jackson et al. (2007, as cited in McAllister & Lowe, 2011) which were: building positive relationships; maintaining positive emotions; life balance; and spirituality. In addition, the email on self-care included the quote “keep calm and relax” at the end in large letters. Therefore, although the Control Group had more answers that included terms relating to self-care, it is possible that some of the answers the Intervention Group gave that mentioned relaxing may have the intention of the care of self.

Sending “handouts” on self-care strategies via email was a similar process to the study by Morgan et al. (2012) on subthreshold depression. In that study, those who received self-help emails twice a week for six weeks had a significant decrease in depression symptoms. Consequently, reminding the Intervention Group in this study of self-help techniques may have contributed to the decrease in perceived stress whilst they were on their final clinical placement.

Limitations
The Bachelor of Nursing year three curriculum is a very full and challenging one, and this may have contributed to the low response rate. The educational workshop was held during a time where students also had other commitments at the tertiary institute. All 15 of the Intervention Group (100%); but only 7 from the Control Group (50% of the original sample) completed the post-clinical survey. One more participant completed the survey but did not include the allocated number and therefore the data could not be matched. The post-clinical questionnaire was undertaken at the time when the students were revising in preparation to sit the NCNZ state final examinations and this could also have
impacted on the response rate. A further limitation was that this study was undertaken at only one tertiary institute, which affects the generalisability of the findings.

**Summary**

When the individual responses to the questionnaires were examined and compared, the results indicated that the students in the Intervention Group displayed more optimism, and active coping skills. There were significant differences in a small sample which meant the differences were large.

The pre-clinical results from the resilience scale and perceived stress scale were on par with similar studies of nursing students or nurses. The analysis of the mean scores from the post-clinical questionnaires revealed there was a significant increase in resilience and a decrease in perceived stress for the Intervention Group, whereas there was no significant change in either for the Control Group. This would indicate that the educational workshop was successful in increasing resilience and decreasing stress in the Intervention Group of Bachelor of Nursing students in their final clinical placement.

There were some similarities in comments identified in the open-ended questions. These similarities clustered around general beneficence, stress management, and self-care. In the question on strategies to deal with stressful events, both groups mentioned debriefing or reflecting. However, as the Intervention Group mentioned “relaxation techniques” more frequently, this could point to a decrease in rumination, and perhaps a reframing of self-care as ‘relaxing’. The process of reinforcing self-help techniques via email was supported and may have contributed to the decrease in perceived stress.

A limitation of the study was that the Bachelor of Nursing year three curriculum is already a very full and challenging one, and this may have contributed to the response rate, especially the post-clinical questionnaire as it was within a week of the students preparing to sit their NCNZ examination for registration. Another limitation was that it was conducted at only one tertiary institute.

Further research suggestions as well as implications for education and for practice, will be discussed in the next chapter. The conclusions to this research will be also be presented.
CHAPTER SIX: CONCLUSION

Summary
In order for graduates to be work ready and to retain them in the labour force, nursing schools need to be successful in providing students with the skills to cope with their role in often difficult workplaces (Milton-Wildey et al., 2014). In 2016, 1883 candidates with bachelor degrees in nursing passed the state final examination for registered nurse (Nursing Council of New Zealand, 2016). Various national strategies have been implemented to assist a successful transition from student nurse to Registered Nurse (RN), which included an extended final clinical placement.

With many competing demands graduate nurses have needed resilience to cope with both acute and chronic stress (Webster, 2017). Research has implied that resilient people were more effective at managing changing work environments, more likely to make sound decisions in important moments, were less likely to take sick leave or to have chosen to leave their employment (Sull et al., 2015). If resilience is a key skill required in nurses, then undergraduate nursing programmes may need to consider ways for all graduates to possess this skill for them to be considered work-ready.

As demonstrated in the literature review, resilience was important in nursing education due to the stress nursing students experienced. As well as academic stress, nursing students experienced stress when they applied new concepts and skills in clinical practice (L. Thomas & Revell, 2016). Further stressors identified by student nurses were that the ideals of compassionate practice were very different to the reality of nursing- which was staff shortages, high acuity of patients, and short stays in hospitals. Students also identified the need to fit in with the team as part of their socialisation process (Curtis et al., 2012).

Adding to this, half of the students confirmed they had been bullied or harassed on clinical placement in the last year. Budden et al. (2015) recommended that the undergraduate curriculum included strategies to build resilience against potential bullying. The study by Pines et al. (2014) evaluated if students’ perceptions of resiliency, empowerment and conflict management increased after training exercises. They found that although there were some changes to more assertive conflict management, there was only a significant
change in one subset of the resilience measure. This highlights the difficulty in evaluating changes in resiliency.

There has been continued debate on whether resilience is a trait or a process that could be modifiable through education (Reyes et al., 2015; Stephens, 2013). McAllister and Lowe (2011) proposed that there are certain characteristics of resilient people that can be learnt or developed. For example, optimism was described as a trait of resilient people and the recommendation to develop this trait was to utilise CBT techniques. There were only a few previous studies on promoting resilience to nursing students identified by Reyes et al. (2015) and McGowan and Murray (2016). However, the studies appeared to lend weight to the concept that resilience can be modified, for example by educating students to develop more optimism, and lower levels of negative thinking (Riolli et al., 2012).

The methodology chapter described the aim to evaluate an educational intervention to improve resilience and decrease stress in nursing students undertaking their final clinical placement. The research design was a quantitative quasi-experimental pilot study with concurrent embedded qualitative data. Participants were from the Bachelor of Nursing students of a regional tertiary institute in New Zealand who had met the requirements to begin the final clinical placement. Pre-clinical data collection consisted of a questionnaire based on the Brief Resilience Scale (BRS) (Smith et al., 2008) and the Perceived Stress Scale (PSS) (Cohen, 1994) delivered via SurveyMonkey™. The educational workshop was delivered to the Intervention Group on the same day. The participants’ clinical placement was nine weeks in length; and then the post-clinical questionnaire was completed within a week after the conclusion of the clinical placement. In the post-clinical questionnaire, as well as identical questions based on the BRS and PSS scales, there were also open-ended questions to gather further data.

There were 15 participants in the Intervention Group and 14 participants in the Control Group who completed the pre-clinical questionnaire. All those in the Intervention Group attended the educational workshop. The post-clinical questionnaire was completed by 15 participants from the Intervention Group (100%) and 7 from the Control Group (50%) of the original sample that completed the pre-clinical questionnaire.

When the individual responses to the questions were examined and the change compared-, the average change for the Intervention Group in the BRS was 0.40, while for
the Control Group it was 0.12. In the individual responses to questions in the PSS the average change for the Intervention Group was -0.26, while for the Control Group it was -0.03.

There was a significant increase in overall BRS scores from pre-clinical to post-clinical scores for the Intervention Group. There was also a significant decrease in overall PSS scores from pre-clinical to post-clinical. This contrasts with no significant change from pre-clinical to post-clinical scores for either the BRS or PSS scores for the Control Group.

In the open-ended questions, there were some similarities in comments identified. In the question relating to which parts of the workshop the Intervention Group found beneficial, there were comments that related to general beneficence, stress management, and self-care.

In the question that related to strategies used to deal with stressful events, there were some differences in how frequently terms were articulated between groups. In general, although the Intervention Group mentioned reflection, relaxation was mentioned more frequently, especially in comparison to the answers from the Control Group. Those answers that mentioned self-care also had a greater percentage in the Control Group.

To summarise the discussion: the pre-clinical results of the resilience scale and perceived stress scale were on par with similar studies of nursing students or nurses. When the individual responses to the questionnaires were examined and compared, the results could indicate that the students in the Intervention Group displayed more optimism and active coping skills at the post-clinical stage.

The analysis of the mean scores from the post-clinical questionnaires revealed there was a significant increase in resilience and a significant decrease in perceived stress for the Intervention Group, whereas there was no significant change in the Control Group. This would indicate that the educational workshop with follow-up support was successful in increasing resilience and decreasing stress in the Intervention Group of Bachelor of Nursing students in their final clinical placement.

In the first open-ended question for the Intervention Group there were groups of similarities for general beneficence, stress management, and the related group of self-care. In the question on strategies to deal with stressful events, both groups mentioned debriefing or reflecting. However, as the Intervention Group mentioned "relaxation
techniques” more frequently, this could point to a decrease in rumination, and perhaps a reframing of self-care as ‘relaxing’. The process of reinforcing self-help techniques via email was supported and may have contributed to the decrease in perceived stress.

A limitation of the study was that the Bachelor of Nursing year three curriculum is already a very full and challenging one, and this may have contributed to the response rate, especially the post-clinical questionnaire as it was within a week of the students preparing to sit their NCNZ state final examination for registration. This study has limited generalisability as it was conducted at only one tertiary institute.

Research conclusions
It appears that the content of the educational workshop, along with the regular emails, were effective strategies to support a significance increase in resilience and a significant decrease in perceived stress in the Intervention Group of Bachelor of Nursing students who completed their final clinical placement. This contrasted with the Control Group who had no change in either measure. The results indicated that the students in the Intervention Group displayed more optimism, and active coping skills.

Both groups mentioned reflection as a strategy to deal with stressful events. However, the Intervention Group mentioned the group of relaxation techniques more frequently than the Control Group. This may be seen in light of a decrease in rumination, or a reframing of self-care activities as relaxation. Whichever is the correct explanation, both may be beneficial to decrease perceived stress levels.

Implications for education
There are many Bachelor of Nursing students in New Zealand every year who could potentially benefit from decreased stress and increased resilience. It has been established that nursing students experience high levels of stress during their undergraduate programme, and for some this affects their ability to complete their degree. There is potential for tertiary institutes to apply educational interventions to modify this, particularly as the literature on increasing resilience in nursing students increases in quantity.
Already there have been several interventions that have been evaluated at various stages of nursing programmes, and this research adds to that. The results of this research demonstrated increased optimism and active coping in the group of students who received the educational intervention. The time and resources spent on the educational intervention were not unmanageable and could potentially be replicated within other tertiary institutes.

Although this educational intervention was implemented before the final clinical placement, there are opportunities for a similar intervention to be included earlier in the curriculum. In addition, reinforcement of these educational interventions could occur as the curriculum in New Zealand spans three years. Furthermore, nursing students are being educated to enter a high pressure career which means there are implications for them to be work ready for clinical practice.

**Implications for clinical practice**

These resilience skills and attitudes potentially translate from student nurse to registered nurse (RN). In fact, by the time the participants in this research had completed their post-clinical questionnaire, they only had to be successful in the NCNZ state final examinations and they were able to be employed as RNs. As Sull et al. (2015) expounds clear links have been made between staff health and wellbeing, and patient outcomes. This is due to resilient people being more effective at managing change, making sound decisions, and being less likely to leave their employment (Sull et al., 2015).

There are several ways resilience skills could be modified or reinforced in clinical practice. One way would be to encourage nursing students to reflect on their past successes with recovering from adversity as part of regular debrief sessions. Another way would be to include educational interventions on resilience as part of preceptor training days. Then preceptors could reinforce some of the content, such as ways to increase optimism. And potentially these educational interventions could influence the preceptor RN’s own personal resilience for the better.

Nevertheless, although developing personal resilience is important, employers continue to have responsibility to their employees to provide a working environment that promotes resilience. As the International Council of Nurses (2016) clarifies resilience is promoted by ensuring a safe and healthy workplace, effective team work, supervision, opportunities for
professional development, access to necessary equipment and supplies, appropriate workloads, and attractive working conditions. Educational workshops on resilience could not negate the effects of a work environment that was unsafe, unsupportive, poorly resourced, with unmanageable workloads.

Further research suggestions

Future research could be undertaken to determine if conducting a similar educational workshop earlier in the curriculum was also beneficial. Other research questions are whether an individual workshop or having a series of educational workshops was more successful, how much of a role the emails to reinforce self-care played, and if some aspects of the educational workshop were more relevant to certain stages of their Bachelor of Nursing degree. This could also include further evaluation on whether the benefits were sustained.

Further research could utilise a mixed method that elicits richer data. Next time the qualitative questions might say: “please describe a stressful situation on clinical placement and describe what strategies you used or how you dealt with it?” Another option may be to utilise a focus group to gather more rich data for a thematic analysis.

To determine generalisability the research could be undertaken at more than one tertiary institute. As part of a larger study, the role that demographic data played to affect resilience in relation to age, gender and ethnicity could also be included.

In addition, evaluating if a similar educational intervention made similar differences to registered nurses would be a further direction of research.
REFERENCES


Weidlich, C. P., & Ugarriza, D. N. (2015). A pilot study examining the impact of care provider support program on resiliency, coping, and compassion fatigue in military
doi:10.7205/MILMED-D-14-00216

doi:10.1080/15427600802274019
Appendix A: Outline of Educational workshop

1300 Welcome and explanation of workshop

1305 Ppt: Resilience definition and protective factors explanation.

Lazarus’ early model of transactional stress, and examples.

Brainstorm of coping techniques- write answers on whiteboard

Problem vs emotional focused coping; active versus avoidant

Resilient characteristics that can be developed

1320 Youtube: Learned Optimism from Seligman, 2011. (4mins)

Hand out Optimism Boosters™ cards for students to look at

Ppt: Discuss Beck’s Negative Automatic Thoughts (Morrison & Bennett, 2012)

Stress management - identify cognitive distortions and apply cognitive techniques

Identify triggers and use problem-solving strategies.

Relaxation techniques for high levels of muscular tension and other signs of high arousal. Deep breaths! And practice

Discuss the five strategies for nurses

1340 Ppt: Discussion of physiological arousal and moderating responses.

Read story of physician and new grad (McAllister & Lowe, 2011, p.59). 2mins Ask students to write down their possible alternatives; answers p.68 3-5mins.

1350 Complaint Brainstorm in groups of four: 5mins to write possible replies and feedback

1400 Ppt: Conflict management. Review types: Shark etc.

Orange exercise brainstorm alternatives in groups (10mins)

1410 Read being persuasive excerpts (McAllister & Lowe, p.75-87) story 1min.

Discussion on assertiveness.

1415 Break (15mins)
1430 Ppt: list aspects of self-care.

In five groups write down what you think the class needs to know about these aspects (10mins) and feedback (5mins). Take handout and make sure all covered

1445 Reflection- Responsibility Pie chart- individually think of scenario and write down %

Role model exercise- must haves, good to haves. Strength cards 5-mins and share?

1455 Read Story of Millie (McAllister & Lowe, 2011, p.135) 90secs.

Ppt; then tell personal story to illustrate PTG- must learn something to make it meaningful

Write on whiteboard resilient sayings of nurses or people in general

1510 Break (15mins)

1525 Ppt: Winnie-the-pooh quote “You’re smarter than”…. and Bounce Back acronym.

1530 Explanation of follow-up: Two weekly topic reviews

1545 Summary and answer questions
Appendix B: Locality ethics approval.

18 May 2016

Debbie Watson

Dear Debbie

HUMAN RESEARCH ETHICS APPLICATION:
Building resilience in transition nursing students

The Human Research Ethics Committee met on 17 May 2016 to consider your application.

At this meeting the committee granted ethical approval for your research project for the duration of the project, subject to the following conditions:

- include a statement advising Debbie’s position as Nurse Educator at in the survey introduction
- include a consent form
- move question 5 of survey (re consent to participate) to the beginning of the survey

Please can you submit these changes to me for perusal before proceeding with your application. I am happy for you to consult with me on the above points if you have any queries.

If, for any reason you decide not to go ahead with your research or change it significantly please advise the secretary of the committee.

Congratulations and all the best with your project.

Yours sincerely

S. Bodkin-Allen
Dr Sally Bodkin-Allen
Human Research Ethics Committee Chair
10 June 2016

Debbie Watson

Dear Debbie

HUMAN RESEARCH ETHICS APPLICATION -
Building resilience in transition nursing students

Thank you for submitting your amended application.

I am pleased to advise that the amendments requested by the Ethics Committee have been sighted and approval is given for you to proceed.

Congratulations and all the best with your project.

Yours sincerely

[Signature]

Dr Sally Bodkin-Allen
Human Research Ethics Committee Chair
Appendix C: EIT REAC Approval

Reference Number 16/28

30 June 2016

Debbie Watson
Master of Health Science
EIT
dewatson08@gmail.com

Dear Debbie

I am pleased to inform you that your research project "Building Resilience In Nursing students" was received and approved by the Research and Ethics Committee at their meeting held on 24 June 2016.

You are reminded that should the proposal change in any significant way, then you must inform the Committee. Please quote the above reference number on all correspondence to the Committee. Please send all correspondence to REACapprovals@eit.ac.nz.

The Committee wishes you well for the project.

Yours sincerely

[Signature]

Jenevieve Fifield
Secretary – Research Ethics & Approvals Committee

CC: Bob Marshall, School of Nursing
Kathy Monson, School of Nursing
Appendix D: Information for Research Participants

Information for Research Participants

Date: 07/06/16

<table>
<thead>
<tr>
<th>Project Title:</th>
<th>BUILDING RESILIENCE IN TRANSITION NURSING STUDENTS</th>
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<tbody>
<tr>
<td>To:</td>
<td>Bachelor of Nursing third year students</td>
</tr>
<tr>
<td>Researcher(s):</td>
<td>Debbie Watson</td>
</tr>
<tr>
<td>Affiliation:</td>
<td>Master of Health Science postgraduate student at</td>
</tr>
<tr>
<td></td>
<td>Eastern Institute of Technology (EIT).</td>
</tr>
</tbody>
</table>

Description of the research:

This project aims to evaluate the hypothesis that resilience can be modified by an educational workshop. Nursing students in the transition phase are being evaluated to determine if resilience can be improved and consequently perceived stress decreased during this time. Participants will be divided into an intervention and control group.

What will participating in the research involve?

Should you agree to take part in this project, you will be asked to attend one three-hour afternoon workshop in August or November that will occur during Lecture Directed Learning time. The workshop will be led by the researcher, and held at . The workshop is based on strategies to improve resilience in nurses. There will be handouts sent via Email on the topics discussed in the workshop that you can read.

There will be two short five to ten minute questionnaires you will be asked to complete at two separate points in time via Survey Monkey. The surveys will be based on the: Perceived Stress Scale (PSS), and the Brief Resilience Scale (BRS), with one or two open ended questions at the second survey. You will be asked to refrain from discussing the content of the workshop with other students until the second workshop has been completed (in November).

What are the benefits and possible risks to you in participating in this research?

If the workshop is able to modify resilience, the benefits may be greater resilience and decreased stress, which will be beneficial for your wellbeing. It will also assist you to enter the workplace with a greater range of skills relevant to the modern healthcare environment. The control group will receive the standard treatment, and will be invited to participate in the resilience workshop at a later date. It will be known which workshop you may attend, but your individual survey results will not be identified.
Your rights:

- You do not have to participate in this research if you do not wish to.
- If you are a student at and decide to take part, you can withdraw from the research at any time and this will not affect treatment or assessment in any courses at .
- The survey information may be incorporated into the research report but actual names or other characteristics that may lead to identification of individuals or schools will not be disclosed, nor appear in any subsequent report, presentation or publication.
- Once you have completed the research you have a month’s period within which you can withdraw any information collected from you.

Confidentiality:

Identifiable information about you will not be made available to any other people without your written consent. You will be given a random number to use in the questionnaires, and the researcher will not be aware of which number you have been allocated. Data given in the initial questionnaires and follow-up questionnaires will be analysed to observe if there was a change between groups, and within individuals, following the workshop. Only the researcher and her thesis supervisors will have access to it. There will not be a recording of the workshop. The data collected will be securely stored in such a way that only those mentioned above will be able to gain access to it. As required by the Institute’s research policy, any raw data on which the results of the project depend will be retained in secure storage for five years, after which it will be destroyed. Reasonable precautions will be taken to protect and destroy data gathered by email. However, the security of electronically transmitted information cannot be guaranteed. Caution is advised in the electronic transmission of sensitive material.

If you wish to participate in this research, or if you wish to know more about it, please contact

<table>
<thead>
<tr>
<th>Contact Person:</th>
<th>Debbie Watson</th>
</tr>
</thead>
<tbody>
<tr>
<td>Faculty/School:</td>
<td></td>
</tr>
<tr>
<td>Work phone #</td>
<td>Email address</td>
</tr>
<tr>
<td>Supervisor Name(s):</td>
<td>Bob Marshall or Kathy Monson</td>
</tr>
<tr>
<td>(if applicable)</td>
<td></td>
</tr>
<tr>
<td>Work phone #</td>
<td>06 974 8000</td>
</tr>
<tr>
<td>Head of School/Manager:</td>
<td>Jennifer Roberts</td>
</tr>
<tr>
<td>Work phone #</td>
<td>06 974 8000</td>
</tr>
</tbody>
</table>

For any queries regarding ethical concerns, please contact:

Chair, Research Approvals Committee, EIT. Ph. 974 8000

This study has been approved by the Eastern Institute of Technology research and ethics committee on 24th June 2016, Reference # 16/28; and the Ethics Committee on 18th May 2016.
Appendix E: Consent form

Building Resilience in Transition Nursing Students

Declaration of Consent to Participate

I have received the Information Sheet for Participants and feel sufficiently informed to make a decision. Any questions about the research have been satisfactorily answered, and I understand that I may request further information at any stage.

I accept and note that:

1. My participation in this research is entirely voluntary.

2. I may withdraw from participation in the research at any time without explanation, disadvantage or disincentive, up to the point of data analysis.

3. I am willing to participate in a three hour workshop based on strategies to improve resilience in nursing.

4. The information given during the surveys is being utilised solely for the purpose of the specific research project and will not be disclosed to any other person or agency without my express consent.

5. This information may be incorporated into the research report but actual names or other characteristics that may lead to identification of individuals or schools will not be disclosed, nor appear in any subsequent report, presentation or publication.

6. I agree to refrain from discussing the content of the workshop until after revision week in November.

DECLARATION

I have read and understood the information set out on this form, and give my informed consent in accordance with the stated terms and conditions.

Name

Signature

Date