

Attrition in Undergraduate Nursing Students

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This project is submitted in partial fulfillment of the requirements for the degree of Masters in
Nursing in the School of Nursing, University of Victoria, Faculty of Human and Social
Development

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Date: August 26th, 2014

Abstract

Attrition is defined as discontinuation of an educational program before the student has successfully completed the requirements regardless of reason. Dropping out of school may have a negative impact on the student, their families, educational institutions, the nursing profession, and the health care system. In this integrative literature review, attrition in undergraduate nursing students is explored in comparison with the Nursing Undergraduate Retention and Success (NURS) model proposed by Marianne Jeffreys. The goal of the project is to understand attrition in undergraduate nursing students, learn about the NURS model, and to identify gaps in knowledge about attrition. From this foundation of knowledge, future studies will be developed to understand characteristics of particular groups of students and implement strategies to address the challenges of attrition.

Attrition in Undergraduate Nursing Students

Attrition is defined as discontinuation of an educational program before the student has successfully completed the requirements regardless of reason (Wells, 2003). Students who do not finish the educational program are also referred to as wastage, dropouts, or discontinuers (Andrew et al., 2008). Successful completion indicates persistence. Students who leave their programs may experience a sense of personal loss and may have financial, social, and emotional costs (O'Donnell, 2009; Taylor, 2005). However, leaving school (i.e., attrition) may also represent a positive move when students realize nursing is not their preferred career (O'Donnell, 2009). It is important to understand attrition in order to address problems that attrition creates.

Background and challenges

There is substantial variability in rates of attrition in the literature, with a reported range of 10-45%. Attrition rates in undergraduate nursing programs in Canada are 10-18%, it is worthy to note that 5-8% of students who drop out and are included in attrition rates return to nursing studies within three to ten years (Day, Paul, Boman, McBride, & Idiss, 2005). Nationally in Britain the attrition rate is approximately 25% (Fowler & Norrie, 2009) and 20.9% in the United Kingdom (Mulholland, Anionwu, Atkins, Tappern, & Franks, 2008). Jeffrey (2007b) describes a 25% attrition rate for associate degree students in the United States (equivalent to a two year diploma program in Canada); while Peterson (2009) found 43.9% of students in a baccalaureate program in New York did not continue full-time after first semester.

A substantial barrier to comparing results in attrition research is the variability in the conceptual and operational definitions of attrition used across various studies (Jeffrey, 2012). Attrition rates, graduation rates, persistence rates, and retention rates have been used in research (Robertson, Westlake Canary, Orr, Herberg, & Rutledge, 2010). For example, Sadler (2003) and

Jeffreys (2004) define attrition as the number of students who enrol in the nursing program but do not complete it. Attrition has also been defined as the difference between the number of students beginning the cohort and the number who complete the cohort (Salamonson et al., 2011; Urwin et al., 2010). Students who complete a program in a non-traditional way such as those who take longer to graduate, go part-time, take a break from school but eventually do graduate have been considered part of the attrition group in some studies and part of the retention group in others (Newton & Moore, 2009). Fowler and Norrie (2009) report the Department of Health in the United Kingdom suggests the following formula to calculate attrition:

$$\text{Attrition} = \frac{(\text{Starters}) + (\text{transfers in}) - (\text{transfers out}) - (\text{number completing})}{(\text{starters})}$$

For example, 50 students start in a baccalaureate nursing program in September. Over the four years, there are 10 transfers in, 5 transfers out and 40 complete the program.

$$\begin{aligned}\text{Attrition} &= \frac{50 + 10 - 5 - 40}{50} \\ &= 15/50 \\ &= 30\%\end{aligned}$$

Utilizing a consistent conceptual and operational definition would support comparisons between data and facilitate the evaluation of results across studies. Both the measurement of attrition and the establishment of realistic, academically sound benchmarks should be a priority to advance the research knowledge base and to address real world attrition problems (Robertson et. al., 2010).

An additional challenge in the collection of data for research purposes is the lack of information being collected. In 2005, 56.5% of baccalaureate educators and 37.5% of diploma nurse educators collected attrition data in the form of an exit interview (Day et al., 2005). It is

recommended that all nursing education institutions collect attrition data and implement a standardized exit interview (Day et al., 2005).

The scope of this project was limited to attrition; articles about retention (reasons for successfully completing a program) were not included in this project. The relationship between attrition and retention cannot be assumed, it may be tempting to think they are opposites which is not necessarily valid. The reasons for remaining in a program and successfully completing it (retention) may be very different than the reasons for attrition. In order to fully investigate undergraduate nursing students' pathways through nursing programs, retention would have to be explored prior to developing and implementing retention strategies.

The National League for Nursing Accreditation Commission suggests a retention rate of 80% is acceptable, acknowledging not all students will be successful in completing the program (Newton & Moore, 2009). In the United Kingdom, higher education institutions are required to maintain attrition below 13% or face financial penalty (Deary, Watson, & Hogston, 2003). Some degree of attrition is to be expected to maintain standards within the profession, and some would argue that educators have an ethical and moral imperative to ensure attrition in some cases (Urwin et al., 2010).

Marianne Jeffreys published the first edition to her book, *Nursing Student Retention: Understanding the Process and Making a Difference* in 2004 and updated the text in 2012. The Nursing Undergraduate Retention and Success (NURS) model, toolkits, and retention strategies are introduced in the books. Because the model is nursing specific, recent, and provides a basis for research and interventions to be developed, it was used in this project to compare with current literature.

The NURS model was chosen to use in the project after an investigation of numerous theories of attrition was conducted. Most attrition theories are general to post-secondary education for example Bean and Metzger's theory (1985); and Tinto's theory (1975). The NURS model was chosen because it focuses on nursing students; it is recent, and multi-factorial. Although not discussed in this project, Jeffreys (2012) also developed a toolkit for educators to collect information about attrition (see www.springerpub.com/JeffreysRetention) and proposes strategies to prevent attrition.

Jeffreys (2012) discusses tracking students via three different retention pathways (ideal, continuous, and interim or stopout), three attrition paths (first semester, voluntary, and involuntary), and three licensure options (does not attempt, pass on first attempt, or pass on subsequent attempts). In ideal program retention, students are continuously enrolled and successful in the required courses sequentially, in the intended time frame (full or part time) without withdrawals or failures (Jeffreys, 2012). The continuous pathway involves students being constantly enrolled in classes, but may have to repeat classes due to withdrawal or failure. With interim enrollment, students take classes intermittently (full or part time), with at least one break in semesters, possibly repeating courses due to withdrawal or failure. Voluntary attrition is when a student drops out of the program due to personal reasons; while involuntary attrition happens when a student is forced to leave the program due to academic reasons (dismissal or failure). Jeffreys (2012) found that in associate degree students, 26% went through the ideal pathway, 24% in the continuous pathway, and 25% of students were following the interim pathway. Jeffreys' proposed pathways acknowledge that students can follow a part time path or take a break and may still be successful completing a nursing program. It reveals specific and useful information about attrition. However Jeffreys' (2012) classification of progression of

students may make it hard to interpret and compare literature due to the increased number of pathways and it presents a challenge for educators and researchers to record student progression due to lack of timelines and the absence of information concerning licensing success.

Significance of the problem

Attrition is an important issue for students, educators, educational institutions, healthcare systems, and the nursing workforce (Jeffreys, 2012). A student's decision to discontinue school is a major alteration of their life path. Students experience a multitude of feelings after leaving school; some students feel relieved; others feel distressed, ashamed, and/or upset after withdrawing (O'Donnell, 2009). Post discontinuation, students cope with reactions from friends and family and renegotiate relationships (O'Donnell, 2009). In addition to the emotions that students experience, significant financial repercussions may occur as most students have non-refundable investments in tuition, transportation, supplies, and/or books (Peterson-Graziose, Bryer, & Nikolaidou, 2013). Students' career prospects have changed, as they can no longer continue on the path to becoming a nurse and they usually choose a different direction for their future although, as previously reported, 5-8% of drop outs will return to nursing studies within three to ten years (Day et al., 2005).

Educators and administrators of higher learning are concerned about attrition. Approximately 50-75% of Canadian educational institutions gather data about attrition from their nursing students (Day et al., 2005). Attrition is costly for the institution due to loss of tuition revenue. In addition, progression, graduation, and attrition rates represent measures of quality and success of schools (Robertson et al., 2010). High attrition rates may suggest problems with curricula and/or instructional strategies within the school. Schools that have high attrition rates may have difficulties recruiting future students (O'Donnell, 2011). For these reasons, educational

institutions are paying attention to attrition, tracking persistence rates, and developing strategies to support student success.

Health care systems and the nursing profession are influenced by attrition because when students discontinue potential nurses are lost. Worldwide nursing shortages are reported and the nursing workforce is aging (McLaughlin, Moutray, & Muldoon, 2008). Demographically, Canada's population is getting older, requiring more health care services, resulting in increased stress on the health care system (Jeffreys, 2004). New nurses are required to replace the ones that retire, as well as additional nurses to deal with the aging population to maintain present services. For example in 2010, there were 951 registered nurses and registered practical nurses employed in nursing per 100,000 people in Ontario compared to 1,025 nurses per 100,000 in Canada. By 2017, a shortage of 35,000 RNs and 1,350 RPNs is forecasted in Ontario (Schonewille, 2012). High attrition rates add to the concern of the lack of nurses.

One way to address the shortage of nurses is to increase the number of individuals entering the profession. High attrition rates in nursing programs produce fewer new nurses, potentially contributing further to the nursing shortage.

Purpose of Project

The purpose of this project is to explore the literature on attrition in undergraduate nursing students and to compare the literature with the NURS model proposed by Marianne Jeffreys (2012). The objectives of the project are to better understand attrition in nursing students, compare the literature to the NURS model, and to identify gaps in knowledge about attrition.

Methods

In order to address the objectives of this project an exploration of literature describing attrition was conducted for comparison with the NURS model. The following steps and criteria

were implemented to retrieve the relevant literature: the search was conducted using The Cumulative Index to Nursing and Allied Health Literature (CINAHL) between December 2011 and February 2012. Three terms used were 'student + nurse + attrition'. The search parameters included: English, full text, peer reviewed, and the publication date was inclusive from 2005-2012. These dates were chosen to maximize the number of possible articles while ensuring the research was recent. Using this criteria the search resulted in 1339 titles retrieved; based on title screening 160 articles were selected. Based on abstract screening, 46 articles out of the 160 were selected and carefully read in their entirety. Nineteen out of the 46 articles read in their entirety was used in the primary draft of the project. An additional 11 articles were located and added using the ancestry approach (Polit & Beck, 2008) and expert recommendation for a total of 30 articles used in the integrative literature review (see Appendix A for the flow chart).

Inclusion criteria for the search included qualitative and quantitative articles that were on topic to student nurse attrition at the bachelor, associate degree, or diploma level in a developed country. Articles retrieved that focused on other professions such as midwifery, or levels of education, such as masters or doctoral programs were excluded. Articles from developing countries were not used because of concerns regarding significant differences in confounding factors such as culture and educational programs. Research describing retention strategies, factors that influence grades or exam results, and faculty recruitment were excluded as they did not specifically address attrition as defined for this project.

The articles that remained were on topic to attrition, relevant, recent, from developed countries and peer reviewed. All were carefully read, summarized, and compared to Jeffrey's (2012) NURS model. To summarize the articles, a chart was developed comparing the

population studied, method of research, and major findings (Appendix B). This information was then compared to Jeffreys' NURS model and used to write this project paper.

In the following section of this paper, background information about Jeffreys' assumptions, goals, and development of the theory are presented. This includes six sections introducing Jeffreys' NURS model proposing the factors that influence attrition followed by supporting or refuting information from recent research. Finally, two outcomes proposed by Jeffreys (2012) follow the factors influencing attrition in the paper.

The Nursing Undergraduate Retention and Success Model

Jeffreys (2012) developed the NURS Model to examine factors that influence the retention and success of undergraduate nursing students. The information summarized in this project represents the attrition model proposed in *Nursing Student Retention: Understanding the Process and Making a Difference* (2012). The NURS model is unique in that it is specific to nursing students and presents a multi-factorial approach.

The organizing framework presents six multidimensional factors (i.e., student profile characteristics, student affective, academic, environmental, professional and social integration, and outside surrounding factors) and two outcomes (i.e., academic and psychological) influencing attrition and retention. The goals of the model are to identify students at risk of dropping out of nursing programs, develop strategies to facilitate success, support effective teaching innovations, encourage educational research within the framework, and evaluate interventions aimed at promoting nursing student retention and success (Jeffreys, 2012). These goals are multi-factorial, addressing attrition from multiple points of reference. For example, from a student's perspective, the model may identify students at risk and develop strategies for support. From a research perspective, the model may streamline definitions, introduce concepts,

and encourage consistency in the information collected thereby facilitating evidentiary comparisons. Faculty who use the model may acquire the ability to document success, facilitate support for students, and evaluate teaching interventions (Jeffreys, 2012). Educational institutions may evaluate interventions leading to an increase in student success. As such, Jeffreys' model may be used to assess, plan, develop interventions, and evaluate student success strategies.

NURS was originally developed using data from non-traditional undergraduate nursing students, however it was broadened by Jeffreys so that it may be applied with both traditional and non-traditional undergraduate nursing students. Non-traditional students are defined as nursing students who are enrolled at an undergraduate level and who qualify in at least one of the following criteria: are a) 25 years or older; b) commuters; c) enrolled part-time; d) male; e) members of an ethnic and or racial minority group; f) speaks English as a second language; g) have dependent children; h) have a general equivalency diploma (GED); and/or i) require remedial classes. According to Jeffreys (2012), the prevalence of non-traditional students is increasing. Traditional students are considered to be those that came to college or university following high school and do not have family or work responsibilities, and are enrolled in full-time studies (Jeffreys, 2012). The focus of traditional students' lives is school and there are fewer outside factors competing for students' time and energy compared to the non-traditional student.

The NURS model identifies that the needs of the non-traditional student differ from those of the traditional student. For example, social integration has been identified as a key factor influencing the adjustment, attrition, and success of traditional students, while in non-traditional students, environmental and professional integration factors such as faculty advisement and peer

mentoring are identified as being more critical in influencing decisions about retention (Jeffreys, 2007a; Jeffreys, 2012).

The model is based on several assumptions: student retention is a priority concern for nurse educators; attrition is affected by the interaction of many factors; all students can improve performance through professional socialization; psychological and academic outcomes interact and may influence retention; and environmental and professional integration play a huge role in retention of undergraduate nursing students (Jeffreys, 2012). Jeffreys acknowledges the multidimensional nature of attrition; rarely is it one factor in isolation that prevents a student's success. Rather, Jeffreys suggests numerous factors interact with each other creating barriers that impede a student's success. This multidimensional nature of attrition may make interventions complicated to address.

In the following paragraphs, the six factors that affect retention are explored in more detail followed by psychological and academic outcomes. Before starting to read those sections, consider that Andrew et al. (2008) found that reasons for leaving a program varied by semester. In semester one, students left because they were unprepared for the academic demands, they were disappointed in the course and/or themselves, and/or they had difficulty managing family, health, and finances. In semester two, students approached the program with a different attitude, framed the course as a challenge and wanted to prove they could succeed, but some found the realities of the program demands too great and left the program. Some students reached a crisis point and quit the nursing program as evidenced by the following quotation, "Yeah, I think I was starting to burn, burn out and just with the [family difficulty] and that was what tipped me over and I thought well, before I go too bad, pull out and then I can always try again when everything's settled down" (Andrew et al., 2008, p.870).

Student Profile Characteristics

Student profile characteristics consist of basic background factors that are determined prior to students entering nursing programs. These characteristics include age, ethnicity and race, gender, language, educational experience, family educational background, work experience, and enrolment status (Jeffreys, 2012). Certain characteristics that put students at a higher statistical risk of attrition may not be modifiable; in these circumstances, additional supports may help students succeed.

Age.

Increasing numbers of adults older than 25 are returning to school for second careers or to upgrade their education (Jeffreys, 2012). Numerous stereotypes may serve to create barriers to success for the older student. One myth is that older students are poorly equipped to meet the challenges of higher education, yet some research indicates more effective study habits, greater goal commitment and motivation, effective time management skills, and higher grades in older students (Jeffreys, 2004). Traditionally, social integration into school activities and clubs was perceived as important to the retention of students, yet in the mature group this seems to be less important (Jeffreys, 2012).

Consistent with Jeffreys' work, the literature reflects a growing number of mature students entering nursing education (Andrew et al., 2008). Mature students tend to have more responsibilities than younger students, however mature students have developed coping strategies to balance academic and domestic demands (Hinsliff-Smith, Gates, & Leducq, 2011). Montgomery, Tansey, and Roe (2009) identified characteristics such as commitment, focus, hard work, and previous experience that facilitate success in older students. Mature students have unique challenges in school, as environmental factors are more important for non-traditional

students than are academic factors (Jeffreys, 2012). For example, family responsibilities may play a much larger role in success or failure in a nursing program for a mature student who has children as compared to a late adolescent who is living at home with his/her parents.

Montgomery et al. (2009) identified issues that affected mature students' studies including: financial concerns (53%); family commitments (46%); childcare issues (42%); and work commitments (25%). Two studies examined in this project found that mature students have lower attrition rates (Mulholland et al., 2008; Pryjmachuk, Easton, & Littlewood, 2009), while another found no significant difference between mature and younger students (McCarey, Barr, & Rattray, 2007). Age is positively correlated with academic achievement (Andrew et al., 2008).

Ethnicity and Race.

Jeffreys (2012) found that ethnicity and race play a large role in the experience of nursing students. White, non-Hispanic nurses of European American heritage represent approximately 83% of all registered nurses in United States but minority students are attending nursing programs with increasing rates (Jeffreys, 2012). Minority students come with unique needs which tend to be neglected by nursing faculty, and as a group, minority students experience higher rates of attrition from nursing school and the nursing discipline (Jeffreys, 2012). The minority populations are another group that would benefit from more specific research to address their needs.

Minority students have a higher attrition rate (Jeffreys, 2007b; Pryjmachuk et al., 2009), and on average take longer to complete their educational program. Diversity in ethnic backgrounds is becoming more common in nursing education which is reflective of the Canadian population (Andrew et al., 2008). Students from minority populations may have unique needs and experiences. For example, in an article regarding aboriginal youth in nursing school in

Saskatchewan, Canada, researchers describe challenges that aboriginal youth experienced including: being academically unprepared; English as an additional language; cultural change; family responsibilities; child care; study space; lack of role modeling and mentors; and financial concerns (Anonson, Desjarlais, Nixon, Whiteman, & Bird, 2008). The authors found aboriginal students were required to ‘act white’ to fully assimilate into nursing culture, presenting not only academic challenges but also expectations of cultural and value changes.

Love (2010) found similar expectations of socialization and assimilation into the dominant culture when examining the lived experiences of socialization of African American students at a university with predominantly Caucasian students. The following themes were uncovered: having the strength to pursue more; encounters with discrimination; pressure to succeed; isolation and sticking together; to fit in and talk white; and to learn with new friends and old ones. One student discussed the discrimination she faced, “I was telling a past teacher that I was applying to the program, and that it’s really competitive and not everyone’s getting in. And the first thing she said to me, is well, is there some type of minority quota they have to fill? Basically saying that I was going to get in because I was a black woman,” (Love, 2010, p. 346). It is difficult to assess how discrimination by faculty and students affects students’ success.

Gender.

Males represent approximately 6% of the nursing workforce in United States (Jeffreys, 2012). Studying gender as a factor in nursing attrition is difficult due to the low numbers of males entering the profession. Social isolation, fears of being perceived as unmanly, and questions about sexual orientation may contribute to low propensity of men entering the nursing profession and may contribute to attrition in male nursing students (Jeffreys, 2012).

Studies examining the relationship between attrition and gender reveal varied results. Some articles describe a higher attrition rate in males (Mulholland et al., 2008; Prymachuk et al., 2009), and others report no difference or inconsistent differences between the genders (McCarey et al., 2007; Salamonson et al., 2011; Stickney, 2008; Jeffreys, 2007b). What is apparent is that male nursing students have a different experience than do females. Males face additional challenges in their careers and education due to stereotypes (Stott, 2007). Men feel isolated and may find that the caring aspects of nursing do not come as naturally as the technical aspects. “The science sort of clicks for me... but I think it’s... they talk about that bedside manner that you learn in practical. I think that’s when it comes more naturally to girls and I find myself nervous at times,” (Stott, 2007, p. 329). Men may face discrimination based on gender and may be prevented from going to certain clinical areas such as maternity or pediatrics (Stott, 2007; Jeffreys, 2012).

English as an additional language.

Students for whom English is an additional language have higher attrition rates than students whose first language is English (Jeffreys, 2012). Factors such as diverse cultural values and beliefs, family responsibilities, socioeconomic level, and immigration status interact with language factors making it critical to understand each student holistically to meet their educational needs (Jeffreys, 2012).

Current literature supports Jeffreys’ conclusion that students who speak English as an additional language experience additional challenges and higher attrition rates (Anonson et al., 2008). Salamonson et al. (2011) found language the most important predictor in course completion; those who did not speak English at home were twice as likely to not complete the program.

Educational experience.

Consistent with global trends, prior educational experience is increasing in diversity in United States. There has been an increase in undergraduate nursing students with prior degrees and an increase in those who are not academically prepared (Jeffreys, 2012). Students who are not academically prepared have higher attrition rates. The diversity in skills and knowledge represents a huge challenge to the educator.

Educational experience can be useful as a predictor of success in nursing education in specific circumstances. Past academic success tends to positively correlate with success in nursing programs (Hopkins, 2008). Traditional students entering a nursing program immediately following high school demonstrate nursing education success similar to high school. High school marks are not accurate predictors of success for minority or non-traditional nursing students (Jeffreys, 2012). Yet, the type of high school preparation seems to be important, (i.e., whether the student has taken college or university level high school courses) as learning at the university preparatory level results in less attrition in nursing school. Gaps in education can be addressed by remedial or refresher courses in relevant subjects such as math, English, biology and chemistry. Generally, if students have been successful completing college or university degrees prior to entry to nursing programs, they have higher nursing program success rates, possibly because they have developed the study skills necessary for success, require fewer credits for graduation, and generally have a secure financial status (Jeffreys, 2012).

Educational experience is another variable that is hard to analyze in current literature. Some nursing students come directly from high school, other students are coming from college or university backgrounds where they may or may not have been successful, and others enter the program after being out of school for a number of years, yet the literature does not clearly

distinguish these sub-groups. The majority of studies reviewed for this project found students with higher entry qualifications got better marks or were more likely to succeed in nursing programs. Conversely students with lower entry qualifications were more likely to have lower marks or drop out of the program (Fowler & Norrie, 2009; Hopkins, 2008; Peterson, 2009; McCarey et al., 2007; Salamonson et al., 2011). Sadler (2003) found no statistical difference between admission grade point average (GPA) means of completion versus attrition groups. It makes sense that if a student has demonstrated good study habits and skills in prior educational programs that they would carry these skills to a new academic setting.

Surprisingly, students who have gone to college prior to entering a university nursing program may have lower odds of success because the college environment is student-centered and aims to raise student self-esteem while the university environment may be less student-centered (Newton & Moore, 2009).

Family's educational background.

First generation students are students whose parents or guardians have not attended college, university, or an apprenticeship program (Sinacore & Lerner, 2013). First generation students are at a higher risk of attrition than are students whose parents or guardians went to college or university (Jeffreys, 2012). It is difficult to determine whether family socialization, expectations, and/or support play pivotal roles in attrition (Jeffreys, 2012). No studies in the literature selected for this project addressed this factor.

Prior work experience.

Increasing numbers of students have work experience prior to entering nursing programs. This may be due to workforce restructuring, government sponsored work initiatives, displaced homemakers, midlife career changes, and increased mobility in health care. Conflicts between

responsibilities may make it more difficult for these students to succeed (Jeffreys, 2012). No studies in the literature selected for this project addressed this factor.

Enrolment status.

Enrolment status reflects whether a student is enrolled full-time or part-time, a commuter or campus resident. Approximately almost half of American college students attend part-time (Jeffreys, 2012). Retention rates are highest in traditional age students who live on campus. Part-time students discontinue more often than full-time students (Jeffreys, 2012). No studies in the literature selected for this project addressed this factor.

Student Affective Factors

Student affective factors consist of the attitudes, values, and beliefs about education, nursing, and one's ability to succeed. This includes cultural values and beliefs, self-efficacy, and motivation. Educators can influence student self-efficacy and motivation during their educational experience (Jeffreys, 2012).

Values and beliefs.

Values and beliefs underscore all of life's thinking, decisions, and actions, giving life meaning and importance. Cultural values and beliefs guide individual's thinking and behaviour. The degree that students' values and beliefs fit with professional and peer environments is called cultural congruence (Anonson, et al., 2008; Jeffreys, 2012). Jeffreys (2012) claims that the higher the degree of cultural congruence, the greater chance of positive academic and psychological outcomes, enhancing retention. Even students who are open to considering new values and behaviours to fit with the requirements of the profession find the process of learning new values challenging. This can result in acculturation stress which contributes to poor academic and psychological outcomes (Jeffreys, 2012).

All students go through enculturation, a process of learning the expectations and values of the nursing profession such as the code of ethics or standards of practice (Jeffreys, 2012). Students learn to live and practice by the values and norms of the profession. This process is harder if the student's values are not congruent with those of nursing. Educators can support students through this process and minimize stress (Jeffreys, 2012). Refer to the discussion under ethnicity and race for further information.

Self-efficacy.

Self-efficacy is defined as a student's perceived confidence or ability for learning or performing tasks to achieve a goal (Jeffreys, 2012). Jeffreys' assumptions concerning self-efficacy are based on Bandura's 1986 social cognitive theory (Jeffreys, 2012; Nancy & Piotvowski, 2010). A key concept in this theory is that learning and motivation are directly related to a person's self-efficacy. Motivation is the power within a student that results in positive action with the intended outcome of achieving goals. Students with strong self-efficacy have high motivation and perceive that they can achieve goals and will actively seek help to maximize their abilities (Jeffreys, 2012). New or difficult learning is viewed as a challenge to work hard and is accepted willingly as an opportunity to grow. Students with high self-efficacy are persistent in achieving their goals, and therefore higher efficacy students usually experience lower attrition rates (Jeffreys, 2012). Conversely, students with low self-efficacy are at risk for higher attrition rates, lower motivation and less goal commitment, giving up when obstacles are encountered. Supremely efficacious students may be unaware of weaknesses, overestimate their abilities, and overrate their strengths, resulting in poor effort, inadequate preparation, and possibly being dangerous during clinical placements. Educators play a key role in facilitating learning with both inefficacious and supremely efficacious students because both may not

recognize or want to seek support from faculty. Self-efficacy is constantly changing and being appraised so input from teachers, peers, preceptors, and patients may mould self-efficacy in students (Jeffreys, 2012).

Students with higher self-efficacy were more likely to have higher marks (McLaughlin et al., 2008), yet Peterson (2009) found no relationship between attrition and self-esteem or self-efficacy. Peterson-Graziose et al. (2013) found no relationship between self-efficacy, life stressors and attrition, but there was a relationship between self-esteem and attrition. Somewhat related to self-efficacy, an internal locus of control is conducive to high achievement, social adjustment, and independent functioning but is also associated with resistance to submit to authority, and reduced sympathy for others (Moy Wood, Saylor, & Cohen, 2009).

Academic Factors

Study skills and habits.

Academic factors consist of students' study skills and habits, academic services, absenteeism, and course availability (Jeffreys, 2012). Academic integration is the affiliation with the school both in and outside of the classroom (e.g., use of college services, interactions with faculty, peers, and clubs). Study skills (including reading and writing skills, note-taking, preparing papers, exam preparation, listening in class, attitude about responsibility for studying, time management), study hours, class schedules, and general academic services have been found to be critical to nursing students' success (Jeffreys, 2012). Approximately one-third of college students perceive challenges with one or more study skills, and this statistic may be rising due to the increasing diversity of students entering nursing programs (Jeffreys, 2012). When it comes to studying, quality is more important than quantity, as excellent time management skills, effective organization, and planning are better predictors of success than the number of study hours;

however students with sufficient personal study hours are expected to have more positive academic outcomes than students with inadequate study hours (Jeffreys, 2012).

Academic factors are major reasons for involuntary attrition (Glossop, 2002; McLaughlin et al., 2008). When students cannot meet academic expectations, they may leave the program, drop some of their courses, or repeat academic courses, semesters, or years. Many students are unprepared for the academic demands of nursing programs (Andrew et al., 2008). Some students develop coping skills to balance academic and domestic demands (Hinsliff-Smith et al., 2011), while others lack adequate time management skills and have difficulty with workloads (O'Donnell, 2011). "No, nursing isn't like any other university course is it? I'd never been to university before but I had visions of it being good fun, great social life, but in reality it was like having a 9 to 5 job and then having to do work at home," (O'Donnell, 2011, p.59). Specific subjects, such as sciences, tend to be academically challenging for students (Andrew et al., 2008).

Academic services and course availability.

General academic services such as writing centres, the library, counselling, and computer labs are perceived by students to moderately or strongly support success. Flexibility in course availability increases the potential for success, especially for mature students (Jeffreys, 2012). The class schedule may interact with environmental factors to influence attrition, for example if a single mother has classes over four days instead of two, and spends double the amount of money and time for transportation, her ability to remain in the program may be affected.

Attendance.

Attendance in classroom, lab, and clinical placement is critical for success with nursing students, as good attendance is associated with less attrition (Jeffreys, 2012). Learning

opportunities in laboratory sessions and at clinical placement cannot be replaced by classroom or independent learning strategies. Attendance may not be as simple as being present in class or attending clinical or laboratory sessions as students may physically be present but not engaged mentally to learn. High absenteeism is correlated with poor academic performance and attrition (McCarey et al., 2007; Glossop, 2002). Disengagement and skipping classes often happens before attrition and can be treated as a warning sign for attrition (Jeffreys, 2012; O'Donnell, 2011). It may be difficult to determine whether poor attendance leads to weak academic performance or if weak academic performance or some other factor (e.g., disenchantment with the program, financial concerns, and health issues) leads to poor attendance.

Environmental Factors

Environmental factors are those factors that are external to the educational process which affect student success. Important environmental factors have been identified as: finances; hours of employment; outside support; family responsibilities; and opportunities to transfer to other programs. Family emotional support, child care arrangements, family crisis, living arrangements, and transportation influence student persistence (Jeffreys, 2012). Good environmental support is critical for success as students perceive environmental factors are more influential on attrition than academic variables (Jeffreys, 2012).

Financial Status.

A student's financial status affects their risk of attrition directly; for example students who cannot pay tuition cannot register for classes. Financial stress may also contribute to attrition by increasing the number of hours students work outside of school and psychological stress. Often family financial support is required for students to persist, but there may be grants, bursaries, or community financial supports for students (Jeffreys, 2012). Minority students, older students,

women with dependent children, and economically disadvantaged students are at a higher risk of having financial status as a barrier to their success (Jeffreys, 2012).

In the literature, financial status is a frequently cited source of stress and attrition for nursing students (Andrew et al., 2008; Fowler & Norrie, 2009; Montgomery et al., 2009), with as many as 53% of students identifying financial issues as negatively affecting their studies (Montgomery et al., 2009). Assistance with costs helps students to succeed (Fowler & Norrie, 2009).

Family Emotional Support.

Family emotional support is the emotional involvement of family members in a student's academic life (Jeffreys, 2012). Positive emotional support can be expressed by being present, encouraging goals, positive self-confidence and self-worth, believing in the student's ability to succeed, offering assistance, and being optimistic (Jeffreys, 2012).

Strong family support does not always translate into a better chance of success at school if family ties are prioritized before school responsibilities. Jeffreys (2012) reports a lack of emotional support from family is not always a barrier for students. Dysfunctional family dynamics make it more difficult for students to succeed, especially if a coalition of two people against one exists within the family (Jeffreys, 2012). No studies in the literature selected for this project addressed this factor.

Students with children.

Students with dependants may be confronted with numerous emotional and logistical issues going to school. When a parent attends school, financial issues, balancing family and educational priorities, and role changes within the family present a challenging transition. Child care arrangements are often difficult for parents attending school, especially when nursing

students have clinical rotations during the day, evening, or night in various locations (Jeffreys, 2012). Balancing family and academic obligations is a significant barrier to student success.

As more of the student population is made up of non-traditional students, the numbers of students with family responsibilities may also increase. In a study by Montgomery et al. (2009), 62% of nursing student respondents had dependents and 42% identified childcare as a major issue that affected their studies. One student said, "I always wanted to [become a nurse] but... my girls were young so I waited for them to grow up a bit," (Montgomery et al., 2009, p. 37). The stress of balancing family responsibilities with school was identified as a major factor in attrition decisions by students (Andrew et al., 2008; Glossop, 2002; Hinsliff-Smith et al., 2012; Montgomery et al., 2009).

Family crisis.

Family crises are unpredictable and can have devastating or positive effects on student performance. Effects may be long or short-term, tangible or emotional. For example, if a student's partner dies, the student will be grieving (emotional) and experience loss of income (tangible). Generally, family crisis adversely affects attendance, performance, and attrition (Jeffreys, 2012). No studies in the literature selected for this project addressed this factor.

Employment hours and responsibilities.

Approximately two-thirds of undergraduate nursing students are working while attending school and this statistic is increasing. Employment hours are an important environmental factor that influences attrition (Jeffreys, 2012). As the number of employment hours increase, generally the number of study hours, social, and academic integration decrease, which explains the relationship between increased employment hours and lower grade point averages (Jeffreys, 2012).

Seventy-eight percent of nursing students sampled in a study by Salamonson et al. (2011) had paid employment while attending school. In the study, the mean number of employment hours was 14.43 hours per week, with about half of the students working more than 16 hours per week. Other studies have found similar rates of employment amongst nursing students and nursing students who worked the most had the lowest grades and highest risk of attrition (Salamonson et al., 2011). Employment greater than twenty hours per week presents a barrier to academic success (Jeffreys, 2012).

Living arrangements.

Living arrangements vary widely. Students may live on campus, with family, friends, or alone. For students living on campus, integration into campus life plays a positive role in success at school. For non-traditional students, co-habitation with family may help the transition to school. Factors that present problems for students include: living long distances from school; having friends who go to different schools; differences in geographical area or size of town; having a cultural background different from the majority; and difficulty with parental separation (Jeffreys, 2012). No studies in the literature selected for this project addressed this factor.

Transportation.

As the number of non-traditional nursing students increase, issues with transportation may increase as well. Nursing students have a particular challenge with transportation as clinical placements may be in a variety of locations where public transportation may not be available. Transportation issues influence other factors, such as academic and psychological outcomes (increasing stress), financial stress, and family responsibilities (Jeffreys, 2012). No studies in the literature selected for this project addressed this factor.

Professional and Social Integration Factors

Social Integration.

Social integration represents the fit between the student and the social system of the college and involves faculty, peers, extracurricular activities, and both formal and informal interactions. Difficulty with integration creates stress and anxiety for the student while increasing the risk of academic difficulty and attrition (Jeffreys, 2012). Social integration may be important for the traditional nursing student, but tends to be less important for the non-traditional nursing student, subgroups vary (Jeffreys, 2012).

Friends outside of class may have a negative or positive influence on student success. Peers may encourage engagement with the school and positive study habits while some may perceive educational pursuits as time take away from family and friends (Jeffreys, 2012). No studies in the literature selected for this project addressed this factor.

Professional integration.

Professional integration and the way students view themselves as nurses may be formed even before a student enters undergraduate education. Sadler (2003) examined the effectiveness of using essays and GPAs prior to entry into the program in identifying students at risk of attrition. Discontinuers of nursing programs do not describe a personal experience with a nurse or working in healthcare in their essays despite volunteering or working in healthcare. Discontinuers observed events, but students who persisted in the program framed themselves as part of these events. It seems discontinuers framed nursing as something one does, instead of something one is (Sadler, 2003).

Educators may be able to influence this perception. Educators can enhance student integration through college socialization, faculty advisement and helpfulness, memberships in professional organizations, professional events, encouragement by friends in class, enrichment

programs, peer mentoring and/or tutoring (Jeffreys, 2012). Professional socialization is important for professional growth, especially for students who are underrepresented in the nursing profession such as minority students and males.

Professional integration factors are at the centre of the NURS model indicating Jeffreys' (2012) belief that they are central in students' decisions to persist or discontinue. Strong professional integration increases commitment, persistence, and retention. Throughout nursing programs, activities which encourage professional integration must be planned thoughtfully and introduced to students. Faculty must be caring, available, and empathetic towards students (Jeffreys, 2012). Faculty has the potential to prevent some student problems, to refer and support students as they encounter challenges, facilitate the development of student strengths, and encourage growth through addressing weaknesses. A negative experience with faculty may facilitate attrition as faculty are often students' first role model as nurses (Jeffreys, 2012).

Positive, genuine support from faculty and program flexibility support student success (Fowler & Norrie, 2009). In a systemic review of 18 research articles, Eick, Williamson, & Heath (2012) found that placement experiences with faculty, nursing staff, and patients have a significant influence on the perception of nurses and the nursing role by the student and whether or not a student decides to persist in a nursing program.

Outside Surrounding Factors

Outside surrounding factors exist external to the personal and school setting such as: world, national, and local events; politics and economics; the health care system; nursing professional issues; and job certainty. A positive example of local events affecting persistence could be recognition of nurses doing great work in the community, motivating students to continue in nursing school instead of discontinuing. Financial incentives such as bursaries,

scholarships, back-to-work programs, and second-career funding support student success. The media has a powerful influence on students' perceptions of nurses; a nurse portrayed as hurting patients may be disturbing and frightening and turn students away from the profession while a nurse altruistically making a positive difference in someone's life may influence a student to stay in school (Jeffreys, 2012). The reality of workplace conditions (e.g., perception of under staffing, stress, heavy workloads, and strikes) may increase student attrition (Eick, Williamson, & Heath, 2012). Job certainty has a powerful influence on nursing enrolment; more opportunities for employment results in greater enrolment and perhaps increased persistence (Jeffreys, 2012).

Academic Outcomes

Academic outcomes are represented by the student's grades, cumulative and grade point averages. Academic outcomes are often used in the literature to measure student's success; however variables such as methods of evaluation, instructor variability, and teaching methods may skew this quantitative measure. Academic outcomes influence attrition, many students fail courses and have to repeat them or experience involuntary attrition when they fail courses (Jeffreys, 2012).

Psychological Outcomes

Psychological outcomes include satisfaction and stress. Expectations and assumptions shape perceptions and student satisfaction. Dissatisfaction is a significant predictor of attrition (Jeffreys, 2012). Factors such as hybrid courses, student services, and faculty interactions heavily influence student satisfaction which in turn influences attrition (Jeffreys, 2012).

Stress is often high during the undergraduate experience as students grow through developmental and life changes (Jeffreys, 2012). Nursing students learn to manage their practice in an unpredictable, stressful, quickly changing environment where mistakes can result in death.

The way a student perceives a situation influences the amount of stress the student feels.

Students have individual coping methods to deal with stress which may have a positive or negative effect on their health and academic success (Jeffreys, 2012).

Expectations of the students influence satisfaction. Students come to university or college with preconceived ideas about what the nursing profession is and how their nursing education will transpire. Expectations are important because they lead to judgements of satisfaction or dissatisfaction with the nursing program (O'Donnell, 2011). Expectation themes reported by researchers in students who discontinued early in their nursing education trajectory were: disappointment in the course; expectations of a vocational educational component; and expectations that nursing education would be easy in comparison to medicine or pharmacy (Andrew et al., 2008; O'Donnell, 2011). This resulted in students being surprised at the academic workload (Fowler & Norrie, 2009). Students think that decision making in nursing is based on common sense instead of understanding that nursing knowledge and decision making is evidence-based (O'Donnell, 2011).

Hinsliff-Smith et al. (2012) found that students appreciated being able to contact faculty and obtain advice prior to entering a nursing program, thereby forming realistic expectations concerning the program. They revealed students are at a high risk for attrition if they come into the nursing program with unrealistic expectations.

Clinical placement experiences can be different from what students expect. These real nursing experiences are sometimes cited as reasons why students leave the program (Prymachuk et al., 2009), perhaps because of a negative experience, a realistic introduction to the workload, or not being able to handle the emotional aspects of nursing. Negative experiences demoralize students and distract them from academic work (Prymachuk et al., 2009).

Critical Analysis

Discussion of findings.

Student profile characteristics are background factors determined before students enter nursing programs. Generally, Jeffreys (2012) findings are consistent with the literature identifying that contradicting evidence exists about the relationship between age and attrition. Jeffreys identifies that in older students, social integration is not as important as with younger students, and environmental factors such as family responsibilities play a bigger role in the success of older students. Mature students have often developed coping strategies to cope with multiple demands. Mulholland et al., (2008) and Prymachuk, et al., (2009) found mature students have lower attrition rates, while McCarey, Barr, and Rattray, (2007) found no difference.

There is consistent information about minority students between Jeffreys' text and attrition literature suggesting the number of minority students is increasing in nursing programs and minority students have higher attrition rates than other students (Jeffreys, 2012; Prymachuk et al., 2009). Also, researchers have gathered qualitative data from minority students, facilitating an understanding of the process of assimilation into dominant white culture including information from Canadian students. It is also identified by the same authors that educators have done a poor job supporting the unique needs of these students (Anonson et al., 2008).

Males are a minority both in undergraduate nursing education and nursing practice (Jeffreys, 2012). Unique challenges male student nurses face come from all angles: as patients, educators, nurses, and citizens. Attrition rates for male students when compared to female students are inconsistent in the literature (McCarey et al., 2007; Salamonson et al., 2011;

Stickney, 2008; Jeffreys, 2007b). Specific retention strategies to support male students may be helpful.

English-as-a-second-language students have higher attrition rates than other students (Jeffreys, 2012; Anonson et al., 2008; Salamonson et al., 2011). Differences in culture, values, family responsibility, economic factors, and immigration status interact with language factors making it hard to isolate this factor. Additional supports are required to meet the needs of these students, for example some educational institutions have implemented English testing to ensure students meet a minimum criteria. If students do not meet the minimum standards, additional courses may facilitate success.

Educational experience is an important variable. Traditional students graduating from high school immediately prior to entering a program tend to have similar grades as in high school; this does not hold true for non-traditional students who may have not been in school for years, or may hold other credentials (Jeffreys, 2012). In the literature, comparisons between traditional versus non-traditional students is hard to analyse because researchers have not clearly distinguished between sub groups of students. Generally, it has been found that students with higher grade point averages in high school were more likely to succeed in nursing programs, and students with lower grade point averages were less likely to succeed (Fowler and Norrie, 2009; Hopkins, 2008; Peterson, 2009; McCarey et al., 2007; Salamonson et al., 2011).

First generation students are at higher risk for attrition according to Jeffreys (2012), however this factor was not addressed by the literature reviewed for the project. Research was conducted with full-time students, none of the literature mentioned conducting the research with part-time or distance students. More studies that include sub groups of students, such as part-time students, are needed.

Student affective factors consist of the values, attitudes and beliefs that students have about their own ability to succeed, education, and nursing. Self-efficacy, the student's perceived ability for learning or performing skills, was found to increase grades in some studies (McLaughlin et al., 2008) but no clear relationship with attrition was identified in others (Peterson, 2009). Jeffreys (2012) relates high self-efficacy with high motivation, characterizing students with high self-efficacy with behaviours that will maximize their abilities; and equating learning with an opportunity to grow, lowering attrition rates.

Cultural congruence is the degree to which students' values fit with professional and peer values. Students with a high degree of cultural congruence have a greater chance of positive academic and psychological outcomes, and less risk of attrition (Anonson, et al., 2008; Jeffreys, 2012).

Academic factors heavily influence a student's success in undergraduate nursing programs but the variability in academic skills coming into nursing programs is increasing (Jeffreys, 2012). Academic factors such as study skills, number and quality of study hours, schedules, and academic services have been critical to nursing students' success (Jeffreys, 2012; Glossop, 2002; McLaughlin et al., 2008). Many students are unprepared for the amount of work and lack adequate time management skills (Hinsliff-Smith et al., 2011). Suggestions for improving this situation include: increasing communication between nursing educators and high school teachers about expectations in undergraduate education altering the expectations of students coming into nursing programs, also changes in high school expectations and criteria may be influencing the skills students have coming into nursing school therefore criteria for entry into nursing programs may have to be changed to have students that are prepared for the challenging workload.

Student expectations affect their satisfaction and stress (O'Donnell, 2011). If student expectations of the course do not match the reality, there is a higher risk of attrition (O'Donnell, 2011). Students are often surprised by the amount of work, and the application of scientific evidence based knowledge to practice (O'Donnell, 2011).

Gaps in the literature.

During this literature review, gaps in research such as the lack of Canadian studies were identified. It is difficult to compare programs in Canada to those offered in the United States or elsewhere, as prerequisites, length of time of the program, curriculum, and roles following nursing registration differs and details are often not reported in the literature. For example, an associate RN degree in the United States is roughly equal to a two year RPN diploma in Ontario. Difficulties in comparisons across countries gives rise to questions of generalizability of the findings into the Canadian context which exhibit a paucity of studies.

Gaps in evidence exist relevant to specific subgroups of students, such as practical nursing students, students in accelerated programs, distance students, and students attending part-time programs. Much of the available research has been completed with full-time baccalaureate nursing students. It is unknown whether the research that has been done with bachelor nursing students can be generalized to all undergraduate student nurse populations. Each group may have distinct challenges and motivation. Jeffreys (2012) has aggregated all student nursing groups yet each may be distinct in the investigation of attrition. More research should be done to compare various groups of students to respond to their needs.

Limitations.

There are several limitations in the project. First, there is limited empirical research which utilized and critically appraised the NURS model. Therefore, limited research literature

concerning attrition was found. Second, articles included in this project were retrieved from one database only. The inclusion criteria are specific and focused on attrition from developed countries, in the English language, during a short period of time. Third, the concept of attrition is the focus of this project, however retention was discussed because attrition and retention are so closely related concepts.

Implications.

The presence of so many factors makes the development of interventions unclear. In many cases, there are numerous factors that influence attrition (Day et al., 2005; Jeffreys, 2012).

The NURS model can support contextualization of research and interventions by nurse educators. The NURS model enables nursing educators to take a critical view of the nursing programs, categorize information from their students, and to implement interventions to decrease attrition. It has been developed specifically for use with nursing students acknowledging the changing student population and the non-traditional nursing student. It is a useful tool for nurse educators to address the concerning problem of attrition in nursing students.

Policy makers can set minimum standards concerning the information collected concerning attrition and homogenize definitions and the way attrition rates are calculated; ideally this could be developed and implemented internationally. The United Kingdom has policies in place that results in variations in financial grants based on attrition rates (Deary, Watson, & Hogston, 2003). Minimal amounts of information should be collected to advance knowledge about attrition and develop effective strategies to support student success. Canadian researchers and educators have an opportunity to be world leaders in attrition research and policy by leading discussions and the implementing standards about the definition of attrition, and developing

policies concerning the collection of information about attrition, while ensuring that the gaps mentioned above are filled.

Recommendations.

Due to the variety of conceptual definitions of attrition comparisons of evidence within the literature is extremely difficult. Possible solutions to this challenge would be to adopt an international definition of attrition developed by educators, researchers, and representatives from Ministries of Colleges and Universities would facilitate consistency in the calculating of attrition rates, allowing for comparisons between programs. Nationally developed surveys for undergraduate nursing students using the NURS model should be implemented each semester, resulting in consistent collecting and reporting of information. Exit interviews would be useful for educators to gain a better understanding of why students leave nursing programs. Students successfully completing their nursing programs should be surveyed to determine what supported their success. This basic information needs to be collected in a standardized format before research that is broadly generalizable or transferable can be compared and advanced. National surveys could ensure entry requirements, program details, population, and samples in studies would be better articulated to allow attrition comparisons between programs.

Some students leave nursing studies because they determine nursing is not what they thought it would be. Ideally, professional nursing organizations could take a leading role in educating the public about what nurses' roles are, and improving support for students. Educators could consider providing information sessions or screening interviews to ensure nursing student candidates are aware of the roles of nurses and what the professional expectations are.

Conclusion

Student trends are changing in undergraduate nursing education. Students increasingly tend to be older, be commuters, have families, be part of an ethnic or racial minority group, speak English as a second language, and are not sufficiently prepared for the demands of post-secondary education. Nursing students are a unique group, with distinctive demands and stress put on them during school. Attrition rates are high, varying between 10-18% in Canada. While some attrition is inevitable, and arguably beneficial, high attrition rates may contribute to nursing shortages and hence present problems for students, educators, and the health care system. The NURS model facilitates understanding attrition and retention.

In this project, literature was compared to the NURS model using Jeffreys' six factors: student profile characteristics; student affective factors; academic factors; environmental factors; professional and social integration; and outside surrounding factors, as well as academic and psychological outcomes influencing attrition and retention. Major findings from this project included the identification of the lack of a standardized definition of attrition, multiple and sometimes conflicting ways of measuring attrition, and limited information about attrition for specific subgroups of undergraduate nursing students in the literature. Recommendations include developing a national definition of attrition, completing more Canadian studies on specific subgroups of nursing students, and having professional nursing representatives communicate with the public about the roles of nurses.

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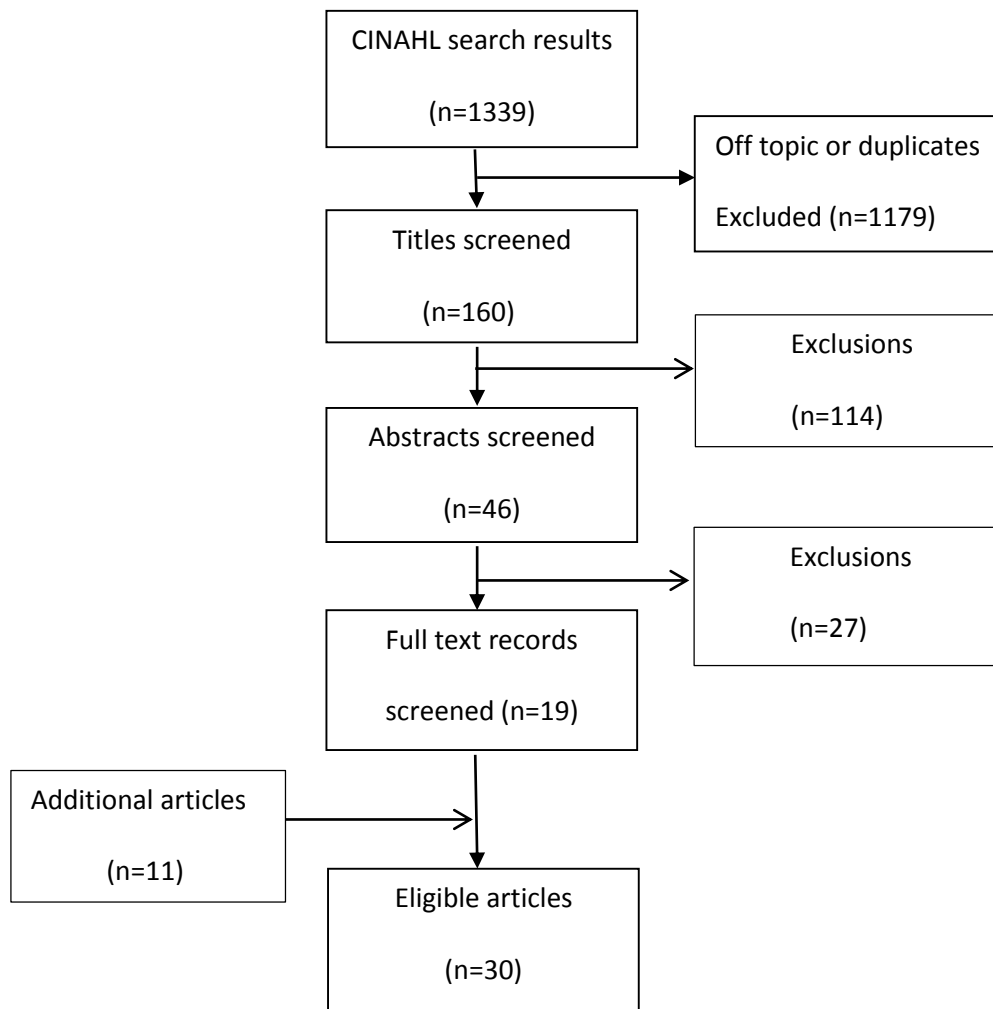
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Appendix A: Flow Diagram of Literature Search



Appendix B: Literature Review Summary of Full Text Articles Screened (31)

QL= qualitative QN= quantitative

Authors alphabetical	Purpose	Group Studied Type of research	Findings
Andrew, Salamonson, Weaver, Smith, O'Reilly, Taylor 2008	Explore whether students who leave course in first semester have same or different reasons for leaving in 2 nd or later semesters	Qualitative Australia Degree	<p>Themes found semester one:</p> <ul style="list-style-type: none"> • Unprepared for university • Disappointed in self and/or course • Managing family, health and finances <p>Semester 2: diff attitude sees course as challenge, wanted to prove they could do it themes:</p> <ul style="list-style-type: none"> • coming to terms with reality • Reaching crisis and tipping over <p>2nd semester generally hate to leave but outside demands become too much</p> <p>*good QL quotes for juggling multiple demands</p> <ul style="list-style-type: none"> • Science is a subject that students have difficulty with academically • None of the students mentioned quality of teaching as a reason to leave the course • Some students expected more of a hands on component and less theory • Discontinuers were highly likely to mention non-academic reasons for leaving, especially financial
Anonson, Desjarlais, Nixon, Whiteman, Bird 2008	To study recruitment and retention of aboriginal youth Saskatchewan, Canada	Aboriginal University QL	Article reviews the challenges aboriginal students face when trying to go through nursing school; not academically prepared, language (English not first), culture, family responsibilities, child care and study space, role models and mentoring, financial.
Deary, Watson, Hogston 2003	To investigate stress, burnout and attrition in student nurses Personal factors that lead to attrition in students	UK Scotland Longitudinal	<p>Personality was a more important predictor of attrition than cognitive ability</p> <p>Stress, burnout and attrition may not be directly linked</p> <p>None of the variables in the study provides a practical tool for predicting attrition although some have stat sig relationships</p> <p>Coping strategies, personality traits relatively stable over the study</p> <p>Instruments measuring personality, intelligence, psychological morbidity, stress, coping, burnout</p> <p>O, 12, 24months of program</p>

Authors alphabetical	Purpose	Group Studied Type of research	Findings
Eick, Williamson, Heath, 2012	To review student's reasons for leaving nursing programs	Systemic review from 1995-2011 QN and QL	Focus was on placement related issues Young and male at higher risk Exposure to bad experiences increased attrition Lack of support on placement a problem Perception of nursing profession problematic
Fowler & Norrie 2009	Explore factors that may contribute to attrition in preregistration program and identify strategies to minimize impact of these factors	QN/QL Method: Nursing and midwifery school UK 35 lecturers interviewed, 605 students did questionnaire, 10 students interviewed	Findings: Academic ability- B coming in good indicator of program success Reality takes effect Finances an issue Support- sometimes nursing taken as an 'easy degree' after not making it in medicine or pharmacy, lose support from family students not as committed Four positive and four negative factors around attrition/retention: Positive: fully committed to program, admission interview helped student to understand expectations, previous studies helped students to be prepared, assistance with costs helped Negative predictors: finding the volume of work too much, money hard, student did not know what they were getting into, increase in home life responsibilities Themes in addition to above: positive and genuine support from lecturers, program flexibility
Glossop 2002	18% attrition rate at this school Conduct exit interview to determine what factors affects attrition	Exit interview Stats over 8 year period QL Glamorgan (Wales) Pre-registration degree and diploma nursing students	AS THE MAIN REASON, Academic problems, wrong career choice, family difficulties (17%), health, financial challenges (rest 11% each), low attendance 9%, changed circumstances 5% (example partners job change) Average 1.6 reasons for leaving per student, 42% two plus reasons reported Limitation: reasons determined to be main and subsidiary Maternity leaves excluded Problem: *definition of attrition varies ++
Hinsliff-Smith Gates, Leducq 2011	Investigate factors that affect persistence/attrition in mature degree students	Focus group interviews with Bachelor nursing students at UK university	Mature students tended to have coping skills to deal with the demands of nursing school Mature students usually have more responsibilities than younger students

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McCarey,, Barr, & Ratray, 2007	Explores relationship between entry qualifications, age, gender, attendance and academic performance	Diploma nursing students 154 students US	Higher entry level qualifications got better marks Year 1 predicted year 3 performance High absenteeism=poor academic achievement Gender differences inconsistent Age differences not statistically significant No information on students who left
McLaughlin, Moutray, & Muldoon, 2008	Examine role of personality in attrition and academic performance of nursing students	Longitudinal Questionnaire then final marks were obtained for 350 university students UK Mean age 20.7	Higher self-efficacy, higher marks Higher psychoticism more likely to withdraw (aggressive and interpersonal hostility) Extraversion lower marks Most frequent reasons for dropping out of program academic (27.9%) and personal (16.3)- could be many reasons
Montgomery, Tansey, , Roe, 2009	Discover characteristics and experiences of mature nursing students	239 diploma students Questionnaire QN UK Belfast Questionnaire given 9 months into course already lost some students	62% respondents have dependents Major reasons for mature students to return to school (taking nursing): improve job satisfaction and security 28% said it was a lifelong ambition Issues that affected study: financial concerns (53%), family commitments (46%) and childcare issues (42%). Work commitments (25%) Mature students committed, focused, hard worker, previous experience helps students to become successful nurses Mature students defined as 26y and older
Moy Wood, Saylor, & Cohen, 2009	Investigate relationship between academic success, ethnicity and perceived locus of control (LOC)	QL and QN 106 baccalaureate nursing students	The ability to feel in control and accept personal accountability for one's own action has been linked to academic success and the development of nursing professionalism Internal LOC orientation is more conducive to high achievement, social adjustment, and independent functioning, but is also correlated with resistance to submit to authority and reduced sympathy for others Results: the higher the external locus of control, the lower the grade Top three factors that contribute to a student's success (according to student): 1. Study strategies, 2. persistence, 3. supportive social connections Discussion- increased awareness of LOC orientation may help students to recognize what is under their control

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Mulholland, Anionwu, Atkins, Tappern, & Franks, 2008	Study attrition using stats from student records	QN UK longitudinal 1808 students	Males and younger students had lower chance of completing program 20.9% did not complete program
Newton, & Moore, 2009	Describe relationship around scholastic aptitude, nursing aptitude and attrition	Degree students 94 students Exploratory descriptive	Aptitude is the complexity of knowledge needed by nursing student including nursing and scholastic aptitude Attrition is “departure from a nursing program without successful completion of the program but also can be defined to include students who are delayed in their progress toward program completion” California postsecondary education commission 2003 National league for nursing accrediting commission suggests 80% is an acceptable retention rate One variable not previously mentioned- students that have gone to college prior to degree may have less of a chance of success because college tends to be students centered and designed to raise self esteem Results: neither aptitude was predictive of attrition
O’Donnell, 2009	Describe student experiences Expectations and voluntary attrition	15 semi structured interviews exploring voluntary attrition in nursing program QL case study Students withdrew in year one	*Expectations are important because they create the frame of reference used to inform satisfaction decisions (Higgs et al, 2005) Satisfaction is a judgement, attitude, or psychological state arising from the confirmation/disconfirmation of expectations (Oliver, 1996) Culture change- students are acting more like consumers, higher education centres are reflecting a more outward facing customer focus Attrition rates quality assurance indicator, high rates may indicate poor curriculum design or deliver, or program weakness Significant number of first year students experience lack of time management skills and have difficulty with workload *Students have limited understanding of the complexity of the nursing role and nursing skills, students think work is based on common sense instead of evidenced based nursing knowledge *Results: study identified unrealistic student expectations of nursing preparation programs as a significant factor in later decisions to voluntarily withdraw

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O'Donnell, 2011	Explore emotional impact of nursing attrition	Semi structured interview 15 participants case study Degree, UK	Attrition attracts political, organizational and social interest because: nursing shortages, age profile of nurses, economical costs of attrition Some students that withdrew felt relieved after withdrawing from the course and focused on relationships that had deteriorated since started the course A minority of students felt distressed after withdrawing, ashamed and upset and felt they had personally failed A significant number of students went to peers instead of seeking formal supports Disengagement often happened before quitting, students skipped classes, stress increased until they actually made the decision to leave Results: students that left may experience lowered self-esteem, personal failure and embarrassment, anger, frustration, resentment
Peterson, 2009	Determine if self- esteem, self-efficacy and environmental variables are predictors of student attrition	NY, baccalaureate Descriptive correlational design 66 students QN	No relationship was found between attrition and self-esteem, self-efficacy and environmental variables 43.9% of students could not continue full time after first semester Past academic performance is significantly correlated with academic success
Peterson- Graziose, Bryer, Nikolaidou, 2013	Investigate whether positive self-esteem and self-efficacy are predictors of attrition	First semester associate degree nursing students, descriptive correlational design	Self-esteem associated with attrition No relationship between self-efficacy, life stressors and attrition Financial repercussions for tuition, books, transportation, supplies, etc.

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PrymachukEa ston, & Littlewood, 2009	Investigate factors having an impact on completion rates	Retrospective using routinely collected demographic and completion data 1259 students degree UK QN	Older students more likely to complete program (over 25y) Minimal qualifications less likely to succeed Involuntary removal more likely in male and black minority students Clinical placement experiences can be a reason why students leave, de-motivating students and distracting them from academic work
Robertson, Westlake Canary, Orr, Herberg, & Rutledge, 2010	Explore measurements of graduation, progression and attrition rates Better understanding of measurement concepts and processes used to determine rates and to study how this population's unique characteristics might influence success in the program	RN to BSN students California Older, married, school part time Sent survey to schools asking how they measured success QN	Progression, graduation and attrition rates reflect 'success' of school, monitor success, allow for feedback to improve or maintain strategies for student success *Measurement does not receive much discussion in research such as establishing realistic academically sound benchmarks Research fails to distinguish between specific programs (e.g. Degree vs. preparatory vs. RN to degree, diploma length, accelerated etc.) Some studies report attrition rates, come persistence or graduation rates, others, retention rates. Benchmarks or goals randomly chosen According to the National Center for Education Statistics (2008), Integrated postsecondary education data system the term attrition is not included in IPEDS, retention rate was defined as those enrolled in a particular year going to the next and graduation rates are based on 150% normal time to graduate. Cohort exclusions- student numbers to be left out of stats based on: death or total disability, service in armed forces, services with foreign aid, service on official church mission Papes and Lopez (2007) use IPEDS definition to clarify retention Entry point first nursing/clinical course Terms: progression, retention, continuation, completion, persistence, graduation, success

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Sadler, 2003	Identify effectiveness of student admission essays and GPAs in predicting attrition	236 students baccalaureate program USA QN	<p>Attrition clearly defined as students who enrolled in the nursing program and did not complete the program</p> <p>NO statistical difference between admission GPA means of the groups (completer vs. attrition groups), mean pre admission essay scores revealed a difference between the groups and those that stayed revealed thematic differences; completers wrote about nursing described an internalization of the nursing role while non-completers it was external</p> <p>Goal is to minimize attrition by predicting students most likely to complete program with interviews, GPA, essays, etc.</p> <p>18% attrition rate- essays analyzed to see differences between the successful and attrition group</p> <p>Themes “helping others” and “Family/personal caregiving” provided the most difference between groups</p> <p>Non completers- despite some working in healthcare or volunteering, none described a personal experience with a nurse, whether a family member or personal, nor any family care giving situations.</p> <p>To contrast, non-completers may have observed certain things, but completers were a part of it, helping care for sick, and developed personal goals based on what they had learned or see from other nurses</p> <p>Non completers described nursing as something you do vs. something you are.</p> <p>Could investigate emotional intelligence as a predictor</p>
Salamonson, Andrew, Clauson, & Cleary, 2011	Assess entry characteristics of students, attrition, progression and completion	Prospective longitudinal Sydney, Australia Undergraduate nursing program	<p>1/3 grad as expected</p> <p>1/3 dropped out</p> <p>1/3 still completing</p> <p>Definition: difference between the number of students beginning the cohort and the number who complete the cohort</p> <p>Urwin et al (2010) identify three types of contributing factors, professional or societal issues (macro level), b) institutional issues (meso-level), c) individual student factors (micro level).</p> <p>Results: Gender and nursing experience not related to completion</p> <p>2/3 of students had paid employment and Students who discontinued reported working the most and had lowest GPA</p> <p>Language was the most important predictor in course completion in this study, those who did not speak English at home were twice as likely not to complete program</p>

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Stickney, 2008	Investigating factors that affect attrition in 151 students in practical nursing	Florida Practical nursing in US- one year program Age, gender, race	Strategies to increase numbers of nurses in profession in US: 1. Modify existing workplaces to retain more nurses 2. Change image of nursing through media 3. Retain current nursing students Results: 36.6% attrition rate Male and female rate not stat different Race: attrition 30% white, 48% African American, 44.4% Hispanic, 50% Asian Age: 48.1% ages 36-45, 40% 46+, 33-40% for all other ages
Stott, 2007	Exploring factors affecting attrition of male students from undergrad nursing course	QL Australia Eight male students Interviews and diary	Males face additional challenges during their careers and education due to stereotypes Themes: 1. Isolation 2. The Nursing Role- caring and role models Bedside manner is more challenging, doesn't come as naturally as girls the guys feel Traditional gender roles- stereotypes Men seem to be attracted to the technical, high pressure aspects of nursing
Taylor, 2005	Commentary on attrition and suggestions for enquiry-based learning	UK Not raw research, commentary on research that has been done and enquiry-based learning	Enquiry based learning to: better student lecturer relationships, increased academic support, development of key transferable skills (interpersonal and study skills), exploration of practice situations in safe environment and integration of theory with practice Optimum retention Students are a part of a small enquiry based learning group for the duration of the program, each group is allotted a facilitator who is also their tutor EBL makes use of real life situations for the basis of exploring relevant issues Helps link theory and practice Not on topic, this explores way a way, EBL, to decrease attrition, not focused on reason
Urwin et al. 2010	Discussion on levels of contributing factors to attrition at macro, micro and meso levels		They recommend Tinto's theory for research Attrition 'difference between the number of students beginning cohort and the numbers who completed that cohort.' Glossop 2002 Micro- student level- academic ability, personal preferences, individual circumstances of students Meso- institutional factors- educational institution and clinical placements Poor mentorship programs, negative staff attitudes, poor preparation may be factors Macro level- political and professional issues- insufficient salary, financial hardship due to a lack of funding from government, childcare policy, and OSAP.
Wells 2003	Exploration of characteristics of presents students, exploration of epidemiologic approach to address attrition	Exploration of literature	Wells defines and discusses attrition Characteristics of nursing students Proposes primary, secondary and tertiary retention strategies