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Navigating the Storm: Integrative Review of Attrition Factors Among Undergraduate Nursing Students

Carmela Theresa T. De Leon

Department of Nursing, Pima Medical Institute, United States of America; cdeleon@pmi.edu

ABSTRACT

Studies have been conducted worldwide on attrition, a persistent issue affecting nursing education. Most focus on predictive factors of attrition or at-risk populations. Few focus on those who experienced it and their actual reasons. This integrative review seeks to investigate published literature, both qualitative and quantitative researches about actual or perceived factors that lead to temporary or permanent attrition among undergraduate nursing students. The review includes eight articles published in major health literature databases from 1996 to 2016. The lack of a unified definition of attrition is a major limitation in various studies. Findings reveal that there is no single reason why a student decided to leave. The complex factors identified were thematically grouped in three systems utilizing the Micro-meso-macro System Framework of personal (micro-system), institutional (meso-system) and professional (macro-system) levels. Better conceptual and operational definition of attrition is needed to facilitate more accurate reporting in institutions of higher education. Stakeholders affected by nursing student attrition need to address each identified factor in the multiple and inter-related levels to determine a comprehensive and collaborative plan to address the growing issue of attrition in nursing education.

Keywords: Nursing students, Attrition, Factors, Undergraduate

INTRODUCTION

Background

The current nursing shortage universally has brought about multiple issues that need to be addressed in the field of nursing education. The National League of Nursing in 2004 stated that the “supply will fall short of the demand and the gap will continue to grow”.⁽¹⁾ By 2020, the RN workforce will be nearly 20% below the projected requirements.⁽²⁾ In response to the current shortage, multiple efforts have been instituted by health care organizations, legislative bodies and academic institutions that affect nursing student attrition and program completion rates. Despite these efforts, undergraduate nursing programs continue to face growing concerns about high attrition rates among students, indicating a need to determine more accurate data on attrition. On average, United States (US) attrition rates have been reported to be 50% for students enrolled in baccalaureate nursing programs and 47% for students enrolled in associate degree nursing programs.⁽³⁾ In comparison, there is apparently no central record of student nurse attrition in the United Kingdom (UK), but Urwin et al.⁽⁴⁾ reported that in 2006, the Royal College of Nursing claimed that nationally the figure was 25%. This is the same rate for Australia,⁽⁵⁾ while Italy is estimated at 19 % to 20 %⁽⁶⁾. These estimated rates of attrition from various countries are difficult to compare as each country may have a different definition of attrition and of computing its rate. Attrition is usually defined as the difference between the number of students beginning and the number completing a cohort, however, this difference has to be adjusted for students interrupting their studies and transferring to other programs.⁽⁴⁾ In the UK, the Department of Health recommended a definition of attrition, considering transfers (internal and external), therefore, providing a standard calculation.⁽⁷⁾ In the US, the National League of Nursing Accrediting Commission defines attrition rate by a Program Completion Rate, related to the number of students who complete their education within 150% of the time of the stated program length.⁽⁷⁾ Regardless of how attrition is defined per country, these rates of attrition are still very concerning, as it affects multiple stakeholders in the health care delivery system. Students who went through attrition (the term “discontinued students” will be used for this study) experienced not only financial loss but psychological costs as well.^(1,8,9,10,11,12,13) The institution likewise suffers financial loss and a waste of education resources (e.g. slots for other qualified applicants, faculty

time and effort).^(8,9, 10,12) High attrition rates are also a poor indicator of the quality of education.⁽¹³⁾ Program accreditation levels , the ability of the institution to attract future students and the negative impact on students to qualify for government grants and subsidies are a few of the potential effects of high attrition rates.^(8,9) From a professional level perspective, attrition negatively influences the pipeline of future registered practitioners adding to the current and worsening worldwide nursing shortage.^(1,12) Nursing student attrition undermines the succession plan for nursing leaders and nursing educators,^(1,12) and has a strong correlation to achieving and maintaining patient safety.⁽¹⁾ A number of studies have been done focusing on the predictors of attrition or on the attributes of nursing students at-risk for attrition, but few on actual students who either temporarily or permanently left the program.

Purpose

The purpose of this integrative review is to investigate published literature on actual factors experienced or perceived among undergraduate nursing students that lead to temporary or permanent attrition during their stay in their respective programs.

METHODS

Literature Search

This review follows the five steps as identified by Whittemore and Knafl.⁽¹⁴⁾ These steps include problem identification, literature search, data evaluation, analysis, and presentation. Using a three-step strategy, a literature search was conducted to find relevant studies published between 1996 and 2016. These dates were chosen to maximize the number of possible articles while ensuring the research was recent. Inclusion criteria for the search involved qualitative and quantitative designs from original, integrative or systematic reviews that are written in English and studies done in developed countries. Articles from developing countries were not used because of concerns regarding significant differences related to variations in educational programs and culture. Other criteria included: sample population were undergraduate nursing students who had either permanently or temporarily left during the course of their program who may have not finished on time or may not have finished the program at all. Excluded articles were studies done with practical nursing (PN) and post-graduate Nursing degrees; studies on predictors of attrition and or retention; and editorials. Four broad search categories were used: nursing students, attrition, factors, and undergraduate were applied separately and in combination with the Boolean “and” in the simple and advanced search of ProQuest and the Cumulative Index of Nursing and Allied Health Literature (CINAHL) *plus*. Full text databases of journals, theses and dissertations were used to ascertain articles relevant to the concepts of interest. This strategy initially yielded a total of 1022 articles. Titles and abstracts were reviewed for relevance meeting inclusion criteria and removing duplicates. An additional 28 articles resulted from searching the reference lists of relevant citations. Full-text reviews and critical appraisal assessment appropriate to the type of study lead to the final eight articles included in this review. Figure 1 illustrates the summary of the literature search process. Bowling’s checklist for the quantitative studies⁽¹⁵⁾ and the Quality Assessment and Review Instrument (QARI) checklist for the qualitative studies by Pearson⁽¹⁶⁾ were the critical appraisal instruments used respectively.

Data Evaluation and Analysis

Each of the eight articles were mapped using a summary table, collecting data in a unified format. The summary table was utilized to extract and collate the data obtained from each study. Since the articles included qualitative and quantitative approaches to the topic of attrition, it was difficult to compare and collate the results without missing unique findings from each original study. The summary table (see Table 1) was used to prevent this and standardize the data extraction for further analysis. A narrative approach was utilized after several phases of re-reading, coding, categorizing and thematically organizing the raw data of the study findings. Based on the emerging themes and the fact that consequences of attrition do not only affect the discontinued students (micro-system) but the institution (meso-system) and ultimately the nursing profession and society as a whole (macro-system), it was decided that the Micro-meso-macro System Framework of Evolutionary Economics⁽¹⁷⁾ will be utilized. The following are the narrative synthesis of the factors of attrition from the eight studies reviewed.

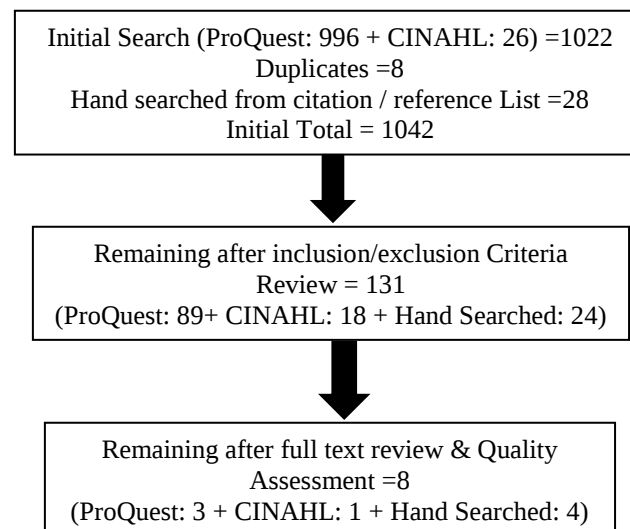


Figure 1. Summary of Literature Search Process

Table 1. Summary of Studies Included in Review

Author, Date and Country of Study	Study Purpose	Study Design & Theoretical Framework	Sample Population	Significant Findings
Harvey & McMurray 1997 ⁽¹⁸⁾ Australia	Examine perceptions of continuing and non-completing students about their nursing experiences and pre-course expectations to identify areas for potential intervention to reduce attrition	Descriptive cross-sectional design	Tertiary college student nurses :168 ,35% had withdrawn with 45.7% response rate from withdrawn students	Reported nursing content differ from what they expected. Major area of conflict was the scientific component in nursing knowledge. The groups did not differ concerning potential stressors' influence on decisions to leave.
White, Williams & Green, 1999 ⁽¹⁹⁾ United Kingdom	Determine how cohorts of student nurses perceive the various reasons for leaving the common foundation programs (CFP) and to compare their opinions with the actual leaving reasons of the students who had left course since implementation of Project 2000.	Descriptive Design	Exit questionnaire sent to the 188 students who were discontinued, 70 (37%) students returned the questionnaire	Responses show course-based problems, identified as prime leaving reasons. The attitudes of participating and discontinued students to theory, clinical and pastoral components of the CFP are not dissimilar. Some trends in attrition rate relate significantly to student category.
Glossop, 2002 ⁽²⁰⁾ United Kingdom	Establish baseline data on the reasons why students discontinued; identify and begin to explore interrelationships between leaving reasons	Descriptive study	Students who discontinued from all cohorts between April 1996 and April 1999. All students who left up to September 1999 were included. Total number of students discontinued: 105.	Academic difficulties and wrong career choice were among the most commonly reported reasons. Family, health and financial difficulties emerge as equally important categories. The exit form facilitated the recording of multiple leaving reasons for each student, an innovative approach in attrition research.

Author, Date and Country of Study	Study Purpose	Study Design & Theoretical Framework	Sample Population	Significant Findings
Wells, 2007 ⁽²¹⁾ United States of America	Examine the reasons that a sample of undergraduate baccalaureate nursing students withdrew from their nursing programs.	Qualitative study using grounded theory. Tinto's Model of student departure	Eleven nursing students who left generic baccalaureate nursing programs located in an urban area of a southeastern state.	Themes: disillusionment on program practices & profession, lack of support from faculty and nursing staff, disillusionment on campus life & environment, and stressors in external environment. Cumulative effect of multiple stressors.
Andrew et al, 2008 ⁽²²⁾ Australia	Explore whether students who leave a nursing course in the first semester leave for the same or different reasons than students who leave in the second semester of study.	Qualitative study	Seventeen students who had left the course: seven in the first semester and ten in the second.	First semester discontinued students consider themselves unprepared for university, have competing roles outside university and develop a strong dislike of the nursing course. Second semester discontinued students preferred to stay but life crisis caused them to no longer cope with university studies.
O'Donnell, 2009 ⁽²³⁾ Australia	Identify the reasons for voluntary attrition in pre-registration nursing students.	Qualitative Research utilizing a case study design Tinto's Model of student departure	Fifteen individuals who voluntarily withdrew from pre-registration nursing programs during the period of 2004 – 2007.	A complex range of problems responsible for decisions to leave. Academic demands having a negative effect on health and wellbeing and deterioration of relationships with loved ones. Describes emotions and gradual disengagement which precede formal withdrawal.
O'Donnell, 2011 ⁽²⁴⁾ Australia	To develop a theoretical understanding of the reasons why nursing students voluntarily leave pre-registration nursing programs.	Qualitative study using a single case study design Model of Voluntary attrition by O'Donnell (2009)	Fifteen students who had previously voluntarily withdrawn from pre-registration Nursing programs.	Significant incongruence was found to exist between student expectations of pre-registration nursing programs and the reality of these programs following entry.
Kukkonen, Suhonen, & Salminen 2016 ⁽⁸⁾ Finland	To describe who is a discontinued student in nursing education and the students' own experiences of reasons for leaving a nursing school.	Descriptive design and qualitative approach Ministry of Education Statistic grouping	Twenty-five nursing students who had discontinued their studies in nursing education program during a single academic year, 2009 -2010.	Four different types of discontinued nursing students were identified: those who moved to another school, those who faced a life crisis, those who made the wrong career choice and those who lived 'busy years'.

RESULTS

Personal Student Factors (Micro-system)

The personal factors were grouped into two main themes: involuntary and voluntary. There were two sub-themes that emerged under involuntary and six sub-themes under the voluntary group. Involuntary attrition factors are related mainly to the inability to meet the academic demands of the course or program^(19, 20) that resulted in

temporary or permanent attrition depending on program curriculum. Both studies did not specify whether these students were able to eventually finish. Two of the eight studies mentioned conduct issues.^(19, 20) Among the two, one did not specify details related to the conduct issue and the other was related to student attendance. Upon reading of verbatim excerpts, the attendance issue can be attributed to the disengagement process as a reaction to the compounding stress of the program that lead to involuntary attrition due to failure to meet required hours to pass the course.

Voluntary factors comprise a majority of the attrition factors experienced or perceived by the students. Six sub-themes emerged from the analysis : Unrealistic expectations about the demands of the course or program,^(18,19,20,21,22,23,24) personal-family-social-academic conflicts,^(8,19,20,21,22,23) ineffective coping/disengagement defense mechanisms,^(20,21,22,23,24) financial difficulties,^(18,19,20,22) travel and relocation difficulties,^(8,18,20,22) and wrong career choice.^(8,19,20,22)

Unrealistic expectations about the demands of the course^(18, 19,20, 21, 22, 23, 24) ranked the highest among the voluntary reasons for attrition. Seven out of the eight studies mentioned this factor. Similar findings in other early attrition studies considered the relationship between student expectation of nursing and the reality of the nursing course as an explanation of later attrition.^(25,26) The majority of the studies discussed the discontinued students' perception of higher than expected academic demands^(18,21,22) of preparatory and major nursing courses that also contributed to the time needed to study for the course.^(18,22,23,24) The studies mentioned the unique set of study skills needed to do well in these courses.⁽²⁰⁾

Personal-family-social-academic conflicts^(8, 19, 20, 21, 22,23) theme was mentioned in six out of the eight studies. The conflicts between the multiple demands of school that the students did not expect from nursing school placed a stress on family relationships as well as on the other life roles that these students have (e.g. parenting,⁽²¹⁾ and needing to work to make ends meet⁽²²⁾). Other compounding issues include situational crisis occurring during their time in the program (e.g. personal health issues^(15,20,22), illness among family members^(8,20,26), and pregnancy⁽⁸⁾). Time management and commitment concerns become more evident as the courses become more complex and the program progresses. This coincides with previous studies done about the effect of situational factors such as stress on student attrition.^(27,28,29,30)

Ineffective coping/disengagement defense mechanisms^(20, 21, 22, 23, 24) theme was mentioned in five out of the eight studies. Ineffective coping and eventual disengagement defense mechanism was identified as the reality of nursing school sinks in and the compounding strain it places on the student's family and social life. The progressive disengagement and feelings of being a failure⁽²²⁾ lead to missing classes and not seeking available support. Some discontinued students mentioned these unconscious actions eventually lead to conduct issues of attendance, an involuntary factor of attrition discussed earlier. Some discontinued students decided to withdraw from the program quickly as the stress experienced with the multiple demands were having a negative effect on their health and well-being.⁽²³⁾ This concurs with the results of the study about student persistence and stress and its increased risk for student attrition.^(27,28,29,30)

Financial difficulties^(18,19,20,22) were mentioned in four out of the eight studies, which played a factor in the other sub-themes. Most of the students who left had to take on more work hours to earn money, which took away time that they could have used to address the increasing academic demands of the courses or to spend more time with family and other aspects of their social life.

Travel and relocation difficulties^(8, 18, 20, 22) theme was indicated in four out of the eight studies. The studies talked about the burden of having to travel far to get to clinical sites that could have been used for studying and spending time with family. One of the studies did mention that this factor may not be as reliable since some of the discontinued students may not have had enough time or exposure in clinical for this to be statistically significant⁽¹⁸⁾. Relocation which was clustered with this sub-theme was due to the underlying distance the student would have undertaken if the student persisted in the program after moving to a different locale since starting the program.⁽⁸⁾ This finding is similar to several studies that investigated the factor of clinical placement as a factor contributing to attrition.^(8,22,31)

Wrong career choice^(8, 19, 20, 21, 22) theme is mentioned by four out of the eight studies. The students felt that nursing was not the right choice and eventually transferred to other majors. Ironical feelings were expressed related to this sub-theme. Some of the discontinued students felt that the decision to leave made them feel better, since realizing that nursing was not a good fit.⁽²³⁾ While other discontinued students felt miserable and took longer to decide to leave, related to feelings of being a failure or embarrassment.^(22, 23) This coincides with the finding that attrition causes negative psychological effects on the part of the students.^(1, 8, 9, 10, 11, 12, 13, 22, 23)

Institutional and Program Factors (Meso-system)

The institutional and program factors from the eight attrition studies are very limited, compared to the personal factors identified. The three themes that emerged under the meso-system are: course content and classroom management issues^(19, 20, 21), faculty and staff issues,^(18, 20, 21) and clinical placement issues.^(8, 19, 22)

Course content and classroom management issues ^(18, 19, 20, 21,22) were a common theme in five of the eight studies. Exemplars under this theme included: unexpected lecture cancellations, ⁽¹⁹⁾ the perception of “too much science”, irrelevant content, ⁽¹⁹⁾ having “too much work for time allowed “, ⁽¹⁹⁾ unclear student and staff expectations, feelings of competition in the classroom with peers, ⁽²¹⁾ and lack of knowledge about university processes. ^(18,22) The exemplars under this theme illustrate the need for better communication about student expectations and responsibilities; clear explanation of the curriculum design; concrete directions on how to utilize program and university resources (e.g. peer or faculty tutoring) and consistency in classroom management related to unexpected class cancellations. These meso-system factors were rarely the primary reason for attrition, but were secondary or additional reasons stated by the discontinued students during exit interviews and study questionnaires.

Faculty and staff issues ^(19, 21, 22) theme ranks second under the meso-system issues. Exemplars under this theme ranged from: perceived favoritism of faculty among students ⁽²¹⁾ and perceived lack of support related to staff being dismissive and unhelpful. ^(19, 21, 22) A number of discontinued students left the program without discussing their issues or used available resources to help manage the multiple difficulties they were facing in the program. ^(8,20) This theme conveys a need for continued faculty and staff development training in dealing with varied student populations to avoid perceptions of favoritism. Other topics of faculty and staff training can include cultural awareness and sensitivity to the diverse needs of the new generation of nursing students that do not only come from different cultures but also include issues of multi-generational students that may affect individual needs and priorities.

Clinical placement issues ^(8, 19, 20, 22) theme also appeared under the meso-system level. Aside from the factors discussed under the micro-system level, this issue is related to the lack of suitable clinical placement ⁽⁸⁾, the “realities of clinical experiences” secondary to problematic interactions with nursing staff ^(7,8,19,22,26,31) and the need for better placement preparation and organization. ⁽¹⁹⁾ These exemplars were grouped under the meso-system as well since the excerpts of the verbatim expressions of the discontinued students did not only pertain to intra-personal issues associated with clinical placements but also inter-personal issues encountered in clinical placement related to dealing with patients, family and other staff. ^(8,19,20,22) Just like the other issues under institutional and program factors, these were just contributory and not the primary factor for the discontinued students from leaving the program.

Professional and Societal Factors (Macro-System)

Among the eight studies – no actual factor related to the profession of nursing as a whole was expressed by the discontinued students beyond the institutional or program level. Professional and societal factors of attrition were indirectly gathered from some of the factors identified in the personal factors, specifically how the student leavers’ expectation of nursing was different from their actual experience. This can be attributed to a professional level of how nursing has been portrayed in the past that influenced the students into entering the nursing profession. ^(20, 32, 33, 34) The image of nursing, as portrayed in the media and literature as being more of a practical or vocational career rather than being a science-based profession. The classic image of nurses as helpers of the physicians and not equal partners in the healthcare team, may have also had a negative effect on the image of the nursing profession. ^(8, 18, 29, 32, 33, 34) That in turn may have contributed to the disillusioned image of student applicants prior to entering nursing school. Another indirect factor that can be derived from the meso-system level are related to faculty issues ^(19,21,22) and clinical placement issues ^(7,8,19,22,26,31) discussed earlier. Since faculty and clinical nurses are representative of nursing as a profession, negative experiences, interactions and observations between students, faculty and clinical nurses can contribute to prospective students not choosing nursing as a career or later attrition for current nursing students.

DISCUSSION

The resulting themes of attrition from the personal (micro-system), institutional and professional (meso-system) level highlight the complexity of the students’ decision to leave. ^(7, 8, 22, 25, 32) As evident in all eight studies reviewed, often more than one reason for leaving was given. The factors in each level also showed bi-directional relationship from the bottom up and vice-versa as each factor had a compounding effect on the different levels of the micro-meso-macro systems and its eventual effect to the current nursing shortage and the projected worsening shortage of nurses worldwide. Majority of the attrition studies concentrated on the micro-system level factors but sparsely on the level of the institution or the profession as a whole, as evidenced by the declining factors of attrition attributed to the meso-system and macro-system factors. A top to bottom approach may benefit all systems by establishing a unified definition of attrition and standardize the way to compute it. Achieving a unified definition can help in creating a more specific model of screening for at-risk students prior to actual discontinuation and a defined process of the referrals and resources that can be deployed to follow-up and rescue temporarily discontinued students who still wants to continue with the program once reasons for attrition has been resolved.

The profession as a whole has made strides in the recent years in educating the public on the realities of the nursing profession through the help of the Robert Wood Johnson Foundation that have provided a range of investments focused on nursing-related leadership, policy, advocacy and practice.⁽³⁵⁾ Stakeholders in healthcare such as hospital employers are providing incentives for prospective students to pursue nursing as a profession through scholarships and tuition reimbursements, nurse residency programs, career fairs, and advertisements about the joys of being a nurse. Legislations have been passed to support the welfare of not only nursing students but promote the succession and retention of nursing faculty and staff to create a safe workplace and encourage prospective nursing students to pursue nursing as a career. The Health Care Reform of 2010 is a landmark legislation that includes provisions in promoting nursing education and advancement of nursing faculty to help address the issue of the nursing shortage.⁽³⁶⁾

At the meso-system level, academic institutions should have a consistent method of evaluating curriculum and course content to meet the demands of the workplace. Having regular student satisfaction surveys allow students a means to give feedback on course content, course management and faculty expectations without fear of retaliation. Institutions should invest in continued faculty and staff development in dealing with the diverse population of nursing students. This can involve a cultural audit of the institution to identify barriers and facilitators to cultural sensitivity and student success.⁽¹²⁾ Institutions should develop objective screening criteria for identifying students that are at risk of attrition.⁽¹²⁾ Building and maintaining collaborative relationships with clinical sites is essential so students can have a safe and conducive environment for learning outside of the classrooms. It is crucial at the meso-system level to have a standardized orientation program regarding resources available for students to address the involuntary factors of attrition identified under the micro-system level (e.g. resources for childcare, peer tutoring services, career preparation, and financial aid to name a few). A good project is to invite current upper classmen to share their lived experiences to freshmen during the program orientation. Suggested topics that these upper classmen could talk about during orientation can include: explanation of how classes and clinical experiences are scheduled, effective study techniques that they might have utilized, realistic expectation of actual study time involved in academic success as well as travel and preclinical preparation time involved in clinical placement and tips on how to utilize and facilitate getting help from faculty and staff. These coincides with the findings of Jeffeys' Nursing Universal Retention and Success (NURS) Model where environmental variables more than academic variables influence academic achievement⁽³⁷⁾ and therefore conversely attrition.

At the micro-system level, prospective students must be provided with better career guidance at the high school level on the realities of the academic and clinical demands of nursing. A better nursing program orientation specially tailored for the non-traditional students that enter from previous careers is needed to address the unrealistic expectations that increase risk of attrition. Institutions need to take into consideration that these non-traditional students many of whom tend to be older, coming from previous career may have been away from school for a long time and may find it more difficult to establish study habits and time management skills that fit into their busier life having multiple roles to fill (e.g. work, marriage and parenting).

Limitations

Several study limitations were observed during this integrative review is evident in the size of sample populations, varied sampling methods and tools for data collection and the focus on mostly a single institution for most of the studies reviewed. This is acknowledged as limiting the generalizability of the findings to other nursing programs. Another limitation identified is the lack of definition of attrition and methods of computing its rate. Lastly is the limitation of the varied systems of education in each country that affects the length of each program which in turn can cause variation in rates of attrition.

CONCLUSION

This integrated review of literature on undergraduate nursing student attrition has highlighted the multi-dimensional nature of the problem which also requires concerted efforts on all stakeholders, not only the part of discontinued students but also on the institutional and professional levels. These findings can have an important impact on nursing education because they reveal the importance of evaluating multi-faceted factors of attrition in all levels to create a more cohesive plan of action. On the clinical practice side, results of this review remind nurses in clinical practice of their important part through role-modelling and mentoring these undergraduate students on how to manage the stresses of dealing not only with trying to learn during clinical placements but dealing with stressful patients, family members and other members of the healthcare team. As different levels of institutions of higher education continue to increase nursing student numbers to meet the demand for an expanded workforce and efforts to address the current shortage and the projected perfect storm of unique circumstances of retiring and aging population, faculty shortage and retention issues of current RNs, it is essential to identify factors which have the greatest impact on student progression and attrition. Implications for future and on-going studies

from each institution could be expanded to a larger extent (e.g. statewide and international) and would be advised to adopt a longitudinal prospective approach where factors likely to contribute to attrition are measured early and at multiple points in nursing programs to promote a pro-active rather than a reactive approach as seen in the studies included in this review.

REFERENCES

1. National League for Nursing. Startling data from the NLN's comprehensive survey of all nursing programs evokes wake-up call. 2004. [updated 2004 Jan 10; cited 2017 Jun 6]. Available from: <http://www.nln.org.newsreleases/datarelease05.pdf>.
2. Buerhaus PI, Staiger DO, Auerbach DI. Implications of an aging registered nurse workforce. *JAMA* 2000 Jun 14;283(22):2948-54.
3. Harris R, Rosenberg L, Grace O'Rourke M. Addressing the Challenges of Nursing Student Attrition. *Journal Of Nursing Education* [serial on the Internet]. (2014, Jan), [cited August 11, 2018]; 53(1): 31-37. Available from: CINAHL Plus with Full Text.
4. Urwin S, Stanley R, Jones M, Gallagher A, Wainwright P, Perkins A. Understanding student nurse attrition: learning from the literature. *Nurse Education Today* [serial on the Internet]. (2010, Feb), [cited August 10, 2018]; 30(2): 202-207. Available from: CINAHL Plus with Full Text.
5. Gaynor L, Gallasch T, Yorkston E, Stewart S, Bogossian F, Turner C, et al. The future nursing workforce in Australia: baseline data for a prospective study of the profile, attrition rates and graduate outcomes in a contemporary cohort of undergraduates. *Australian Journal Of Advanced Nursing* [serial on the Internet]. (2007, Dec), [cited August 10, 2018]; 25(2): 11-20. Available from: CINAHL Plus with Full Text.
6. Destrobecq A, Destefani C, Sponton A. Abandonment of nursing courses: a survey regarding the motivations which lead the students to the abandonment of the nursing degree course. *Professioni Infermieristiche* [serial on the Internet]. (2008, Apr), [cited August 10, 2018]; 61(2): 80-86. Available from: CINAHL Plus with Full Text.
7. Eick S, Williamson G, Heath V. A systematic review of placement-related attrition in nurse education. *International Journal Of Nursing Studies* [serial on the Internet]. (2012, Oct), [cited August 11, 2018]; 49(10): 1299-1309. Available from: CINAHL Plus with Full Text.
8. Kukkonen P, Suhonen R, Salminen L. Discontinued students in nursing education - Who and why? *Nurse Education in Practice* 2016 03; 17:67-73.
9. Donnell W. A Correlational Study of a Reading Comprehension Program and Attrition Rates of ES L Nursing Students in Texas. *Nursing Education Perspectives (National League for Nursing)* [serial on the Internet]. (2015, Jan), [cited August 11, 2018]; 36(1): 16-21. Available from: CINAHL Plus with Full Text.
10. Cameron J, Roxburgh M, Taylor J, Lauder W. An integrative literature review of student retention in programs of nursing and midwifery education: why do students stay? *Journal Of Clinical Nursing* [serial on the Internet]. (2011, May), [cited August 12, 2018]; 20(9/10): 1372-1382. Available from: CINAHL Plus with Full Text.
11. Robshaw M, Smith J. Keeping afloat: student nurses' experiences following assignment referral. *Nurse Education Today* [serial on the Internet]. (2004, Oct), [cited August 12, 2018]; 24(7): 511-520. Available from: CINAHL Plus with Full Text.
12. Wells M. An epidemiologic approach to addressing student attrition in nursing programs. *Journal Of Professional Nursing* [serial on the Internet]. (2003, July), [cited August 12, 2018]; 19(4): 230-236. Available from: CINAHL Plus with Full Text.
13. McSherry W, Marland G. Student discontinuations: is the system failing?. *Nurse Education Today* [serial on the Internet]. (1999, Oct), [cited August 17, 2018]; 19(7): 578-585. Available from: CINAHL Plus with Full Text.
14. Whittemore R, Knafl K. The integrative review: updated methodology. *Journal Of Advanced Nursing* [serial on the Internet]. (2005, Dec), [cited August 10, 2018]; 52(5): 546-553. Available from: CINAHL Plus with Full Text.
15. Pitt V, Powis D, Levett-Jones T, Hunter S. Factors influencing nursing students' academic and clinical performance and attrition: An integrative literature review. *Nurse Education Today* [serial on the Internet]. (2012, Nov), [cited August 15, 2018]; 32(8): 903-913. Available from: CINAHL Plus with Full Text.
16. Pearson A. Balancing the evidence: incorporating the synthesis of qualitative data into systematic reviews. *JBIR Reports* [serial on the Internet]. (2004, Sep), [cited August 10, 2018]; 2(2): 45-64. Available from: CINAHL Plus with Full Text.
17. Dopfer K, Foster J, Potts J. Micro-meso-macro. *Journal of Evolutionary Economics* 2004 07;14(3):263-279.

18. Harvey V, McMurray E. Students' perceptions of nursing: their relationship to attrition. *Journal Of Nursing Education* [serial on the Internet]. (1997, Oct), [cited August 10, 2018]; 36(8): 383-389. Available from: CINAHL Plus with Full Text.
19. White J, Williams W, Green B. Discontinuation, leaving reasons and course evaluation comments of students on the common foundation program. *Nurse Education Today* [serial on the Internet]. (1999, Feb), [cited August 10, 2018]; 19(2): 142-150. Available from: CINAHL Plus with Full Text.
20. Glossop C. Student nurse attrition: use of an exit-interview procedure to determine students' leaving reasons. *Nurse Education Today* [serial on the Internet]. (2002, July), [cited August 10, 2018]; 22(5): 375-386. Available from: CINAHL Plus with Full Text.
21. Wells MI. Dreams Deferred But not Deterred: A Qualitative Study on Undergraduate Nursing Student Attrition. *Journal of College Student Retention* 2007 06;8(4):439-456
22. Andrew S, Salamonson Y, Weaver R, Smith A, O'Reilly R, Taylor C. Hate the course or hate to go: semester differences in first year nursing attrition. *Nurse Education Today* [serial on the Internet]. (2008, Oct), [cited August 10, 2018]; 28(7): 865-872. Available from: CINAHL Plus with Full Text.
23. O'Donnell H. The emotional impact of nursing student attrition rates. *British Journal Of Nursing* [serial on the Internet]. (2009, June 25), [cited August 10, 2018]; 18(12): 745-754. Available from: CINAHL Plus with Full Text.
24. O'Donnell H. Expectations and voluntary attrition in nursing students. *Nurse Education In Practice* [serial on the Internet]. (2011, Jan), [cited August 10, 2018]; 11(1): 54-63. Available from: CINAHL Plus with Full Text.
25. Glossop C. Student nurse attrition from pre-registration courses: investigating methodological issues. *Nurse Education Today* [serial on the Internet]. (2001, Apr), [cited August 15, 2018]; 21(3): 170-180. Available from: CINAHL Plus with Full Text.
26. Bowden J. Why do nursing students who consider leaving stay on their courses? *Nurse Researcher* (through 2013) 2008;15(3):45-58.
27. Lindop E. Individual stress among nurses in training: why some leave while others stay. *Nurse Education Today* [serial on the Internet]. (1991, Apr), [cited August 16, 2018]; 11(2): 110-120. Available from: CINAHL Plus with Full Text.
28. Lindop E. Factors associated with student and pupil nurse wastage. *Journal Of Advanced Nursing* [serial on the Internet]. (1987, Nov), [cited August 16, 2018]; 12(6): 751-756. Available from: CINAHL Plus with Full Text.
29. Seago JA, Spetz J, Alvarado A, Keane D, al e. The Nursing Shortage: Is It Really About Image? *Journal of Healthcare Management* 2006 Mar;51(2):96-108; discussion 109-10.
30. Jones M, Johnston D. Distress, stress and coping in first-year student nurses. *Journal Of Advanced Nursing* [serial on the Internet]. (1997, Sep), [cited August 17, 2018]; 26(3): 475-482. Available from: CINAHL Plus with Full Text.
31. Hamshire C, Willgoss TG, Wibberley C. 'The placement was probably the tipping point' - The narratives of recently discontinued students. *Nurse Education in Practice* 2012 07;12(4):182-6.
32. Bultema J. Commentary on Effects of a participative intervention on high school students' image and valuation of nursing [original article by Drees NS et al appears in *J PROF NURS* 1993;9(1):41-9]. *Nursing Scan In Administration* [serial on the Internet]. (1993, July), [cited August 16, 2018]; 8(4): 13-14. Available from: CINAHL Plus with Full Text.
33. Karaoz S. Change in nursing students' perceptions of nursing during their education: the role of the introduction to nursing course in this change. *Nurse Education Today* [serial on the Internet]. (2004, Feb), [cited August 21, 2018]; 24(2): 128-135. Available from: CINAHL Plus with Full Text.
34. Sabin M. Student attrition and retention: Untangling the Gordian knot. *Nurse Education Today* [serial on the Internet]. (2012, May), [cited August 21, 2018]; 32(4): 337-338. Available from: CINAHL Plus with Full Text.
35. The future of nursing (Our Future): Leading change, advancing health. (2010). *Nursing Education Perspectives*, 31(6), 346. Retrieved from <https://search.proquest.com/docview/853723253?accountid=89121>
36. Health Care and Education Reconciliation Act of 2010 (P.L. 111- 152) White House Health Reform ;Retrieved from <http://www.gpo.gov/fdsys/pkg/PLAW-111publ152/pdf/PLAW-111publ152.pdf>;
37. Jeffreys MR. *Nursing Student Retention: Understanding the Process and Making a Difference*. New York: Springer Publishing Company; 2004.