**Original Research**

# Prior Work and Educational Experience Are Not Associated With Successful Completion of a Master's-Level, Distance Education Midwifery Program

Nancy A. Niemczyk, CNM, PhD (iD), Alison Cutts, CNM, MS, Dana B. Perlman, CNM, MSN

**Introduction:** In order to increase and diversify the midwifery workforce, admissions criteria for midwifery education programs must not contain unnecessary barriers to entry. Once accepted, students need to successfully complete the program. Many admissions criteria commonly used in midwifery education programs in the United States are not evidence based and could be unnecessary barriers to education. The primary objective of this study was to identify factors known during the admission process that were related to successful completion or failure to complete a midwifery program educating both student nurse-midwives (SNMs) and student midwives (SMs); a secondary objective was to quantify reasons for program noncompletion.

**Methods:** This master's-level, distance education program educates a diverse group of both SNMs and SMs. A pilot, retrospective cohort study examined all students matriculating at the program from fall 2012 on and scheduled to graduate by summer 2016 (N = 58). Demographic information, admissions information, academic records, and advising notes were reviewed. Reasons for noncompletion were identified, and characteristics were compared between students who did and did not complete the program.

**Results:** Program completion was not significantly associated with students' status as nurses prior to admission, labor and delivery nursing experience, length of nursing experience, nursing degree held, presence of children at home, working while in school, or undergraduate grade point average.

**Discussion:** Being a nurse, years of nursing experience, type of nursing degree, or labor and delivery nursing experience were not associated with completion of this midwifery program.

J Midwifery Womens Health 2018;00:1–7 © 2018 by the American College of Nurse-Midwives.

*Keywords:* education, graduate, midwives/education, nursing, school admission criteria

## INTRODUCTION

Midwifery in the United States faces 2 major workforce challenges: increasing the number of midwives and diversifying the profession. More midwives are needed to care for women in the nearly 50% of US counties that lack a maternity care provider,[1] and a more diverse group of midwives is needed to care for and address disparities in health outcomes for the increasing number of women of color.[2] However, as of January 4, 2017, there were only 37 Accreditation Commission for Midwifery Education- (ACME-) accredited and preaccredited midwifery education programs in the United States that were accepting new students. These had approximately 100 unfilled spaces for students per year, 89% of which were in programs that required a nursing degree.[3] Increasing the number and diversity of midwives requires 1) that schools admit a larger and more diverse group of students; and 2) that students, once enrolled, successfully complete their education programs and pass their certification examinations. In order to achieve these goals, admissions criteria must be evidence based and not contain unnecessary barriers to entry to the profession.

There is little research to determine which admissions requirements are associated with successful completion of graduate health education programs, including those in midwifery or nursing.[4,5] Research has largely centered on the predictive abilities of the Graduate Record Examinations (GRE) and undergraduate grade point average (GPA).[6–9] Consistently, undergraduate GPA has been found to be associated with academic success in nurse practitioner programs.[5,6] Results differ on whether GRE scores are associated with success, but in studies that showed that they were, the correlation was weak,[6,8] and GPA was more strongly associated.[6,10] The research does suggest that emphasis on GRE scores and GPA is detrimental to increasing minority representation in graduate programs.[11] The only study to explore the relationship between other factors and success in nurse practitioner programs found that nurses with 6 or more years of experience were significantly less likely than others to graduate within 4 years of entry; type of nursing degree was unrelated to success; and compared to white students, black and Asian students were significantly less likely to graduate within 4 years and had lower GPAs.[5] No literature has explored the relationship between factors such as working during school and the presence of children in the home with academic success in nurse practitioner or midwifery programs in the United States.

Most midwifery education programs have admissions requirements that have not been rigorously evaluated. Of the

ACME- accredited programs accepting new students as of January 4, 2017, 35 require a nursing license for admission or prepare students for nurse licensure during the course of the program; 11 require and 11 prefer nursing experience; and 2 require and 19 prefer labor and delivery nursing experience. These requirements may serve as barriers to people entering the profession.

The primary objective of this pilot study was to identify factors known during the admission process that were related to successful completion or failure to complete a distance midwifery program educating both student nurse-midwives (SNMs) and student midwives (SMs); the secondary objective was to quantify reasons for noncompletion from the program. The goal was to enable faculty during the admissions process to better select students likely to succeed, guide improvement in supports for students once enrolled, and provide data to help inform midwifery admissions nationally. The hypotheses were that registered nurses with labor and delivery experience are not more likely to succeed than midwifery students educated in disciplines other than nursing; that part-time, working students may be at particular risk of academic failure; and that many students who did not complete the program were hindered by unavoidable personal issues.

## METHODS

### Study Design, Setting, and Population

This was a pilot, retrospective cohort study that reviewed academic records of former students at an ACME- accredited, distance education midwifery program that educates both SNMs and SMs, and grants the master of science degree in midwifery. The mission of the program includes educating students who reflect the racial, ethnic, and cultural diversity of the country and making midwifery education accessible to those who might not otherwise have access to graduate education. In order to achieve this social justice mission, faculty consider diverse measures of an applicant's potential, not only GPA or standardized test scores. Applicants must hold a baccalaureate degree or higher in any field and have a minimum GPA of 3.0. Exceptions to the GPA may be made based on demonstrated academic growth or indicators of potential to succeed. Neither the GRE nor nursing experience is required, although the majority of applicants are registered

nurses. Applicants are required to have taken 2 semesters of anatomy and physiology with a laboratory component, general biology, microbiology, general chemistry, pathophysiology, nutrition, sociology, general and developmental psychology, and statistics prior to applying to the program. With the exception of statistics, these requirements are waived for applicants who are registered nurses. The first semester consists of course work in basic health care skills with a laboratory component, environments of health care, and concepts of health and illness in clinical practice. This course work is also waived for registered nurses. Students then continue or, if registered nurses, enter the midwifery program in either a full-time 2-year or part-time 3-year progression.

Instruction in this program is designed to be accessible to working students with families. It is largely asynchronous and conducted online with synchronous small group learning spaced throughout each term of study. Problem-based learning is a central pedagogical technique threaded throughout the curriculum.[12] Students attend 2 week-long on-campus intensives during the midwifery program. The maximum class size is 18 students. Proactive academic advising, in which advisors meet frequently with students and reach out to them before problems are identified, is practiced, and extensive advising notes are kept.[13]

Included in this study were all students who matriculated at the program in the fall of 2012 or later and who were scheduled to graduate by summer of 2016. This time period was chosen because major curriculum revisions were put into place for the class entering in 2012, which were designed to aid the transition into midwifery of students with backgrounds other than nursing and better integrate master's competencies, formerly taught as a completion program, seamlessly into basic midwifery education. All students had signed an informed consent form when they accepted admission allowing their deidentified academic records and personal information to be used for research purposes. The study was approved by the Philadelphia University Institutional Review Board.

Information on the admissions requirements of midwifery programs was gathered by a student research assistant. She examined the websites of all ACME- accredited programs listed on the American College of Nurse-Midwives website as accepting new students as of January 4, 2017. If admissions requirements were not clearly stated on the website, she

| Table 1. | Composite Case Studies—Complexity of Factors Leading to Program Noncompletion |
|---|---|

**Academic reasons for noncompletion**

Dinah[a] held a bachelor of arts degree, an associate's degree in nursing, and a bachelor of science degree in nursing, with cumulative GPA of 3.49. International experience and the births of her children inspired her to midwifery. Dinah was in the part-time program, studying on weekdays while her children were in school, and working three 12-hour shifts on weekends. During her second term, her car and texts were stolen. She could not afford new texts and was embarrassed to tell her advisor. Subsequently, she failed an examination. When she did notify her advisor of the theft, she had already failed a second examination and missed the deadline to withdraw, failing the class. Despite the urging of her advisor, Dinah declined a leave of absence prior to course failure, entered into a learning plan for improved communications, and successfully repeated the course the following semester. Subsequently, her son suffered a concussion, requiring a substantial amount of Dinah's care. Despite encouragement to do so, Dinah did not seek a leave of absence, extensions, nor writing support prior to submitting 2 written assignments, and earned a C on both. Dinah and her advisor made a schedule for the rest of the term and followed up by phone regularly. Dinah's next 2 assignments were improved. At the end of the term, a mandatory overtime shift caused her to submit a final assignment without input from the writing tutors, and she did not request an extension. She earned an F due to failure to answer all parts of the assignment and substantial plagiarism of another student's paper. She was dismissed from the program for a second course failure per university policy.

**Personal reasons for noncompletion**

Eleanor[a] earned a BSN with a GPA of 3.51 and has been both a mother-infant and public health nurse. After taking Advanced Physical Assessment and Advanced Physiology/Pathophysiology for Primary Care, Eleanor found she enjoyed primary care very much and did well in the courses. In her third term of study, Eleanor found herself facing a divorce. She had 2 school-age children. She decided that a family nurse practitioner course of study was a better fit both for her interests and for her lifestyle as a single parent and withdrew from the midwifery program.

[a] Not real name.

contacted program staff either by telephone or email for clarification.

## Completion and Noncompletion

A student graduate assistant, faculty member, and the program director reviewed demographic information, admissions materials, academic records, and advising notes for all study participants. Records of students matriculated at the time of data collection were reviewed by faculty only. Data were collected on a standardized form including only a study-specific identification number and then entered into a database from that deidentified form. The key to the identification number is kept locked in the primary investigator's private office. The primary outcome was whether or not the student successfully completed the program and was determined by review of advising notes and transcripts. Reasons for noncompletion were classified as either academic or personal, as they are reported to ACME, based on review of advising notes. Many reasons were convoluted, reflecting the complexity of women's lives and the lives of students who choose distance education (See Table 1 for composite examples of academic and personal reasons for noncompletion). Decisions about whether noncompletion was due primarily to personal or academic reasons in complex cases were made by consensus of the study team.

Passage of the certification examination was determined by documentation of certification on the American Midwifery Certification Board (AMCB) website. Individual-level data on first-time passing rates were not available because AMCB does not provide these data to education programs.

## Demographic, Academic, and Personal Measures

Risk factors for noncompletion were chosen based on the results of an internal examination of 2 years of data done as part of the ACME reaccreditation process. This analysis found that all students who left the program for academic reasons were nurses educated at least at the BSN level who worked while in school. More than half had a science GPA below 3.5, were part-time students, had labor and delivery nursing experience, and had been nurses for more than 5 years. That analysis also identified the courses most frequently failed by students leaving for academic reasons.

For the current pilot study, information about previous educational background was obtained from resumes and academic transcripts submitted as part of the admissions process. Previous work history was determined from resumes. Program entry (SNM vs SM) and progression (2-year vs 3-year) were determined by review of the student's individualized program plan. Undergraduate GPA was calculated as the GPAs for all undergraduate work weighted by number of credits found on transcripts submitted as part of the admissions process. Undergraduate science GPA was calculated as the weighted average by number of credits for undergraduate anatomy and physiology, general biology, microbiology, pathophysiology, nutrition, and statistics courses. When no pathophysiology course was present on the transcript, the grade for medical/surgical nursing, if present, was substituted. GPA in the program and grades in specific courses were determined by review of transcripts.

Researchers reviewed information volunteered on admissions materials including interviews and advising notes with

| Table 2. Demographic Characteristics of 58 Midwifery Students | |
|---|---|
| Characteristic | Value |
| **Age at application, median (IQR), y** | 34.5 (29-38) |
| **Women, n (%)** | 57 (98.3) |
| **Self-identified race, n (%)**[a] | |
| White | 45 (83.2) |
| Black or African American | 7 (13.0) |
| Other and multiracial | 2 (3.8) |
| **Hispanic ethnicity, n (%)** | 4 (7.3) |
| **Credits paid for by students who did not** | 8 (6-18), 6 |
| **complete the program, median (IQR), mode**[b,c] | |

Abbreviations: IQR, interquartile range.
[a]N = 54.
[b]N = 24.
[c]Total credits for program = 62.

a tool to collect data on whether or not the student had children at home and worked while in school. Work was defined as any paid work. The ratings from professional recommendations and the recommendations of program faculty members performing interviews were obtained from the admissions materials.

Information on race and ethnicity based on self-identification was collected and analyzed for internal use but is presented here only in aggregate because small numbers make it impossible to present results for students who did and did not complete the program while maintaining student confidentiality.

### Statistical Analysis

Descriptive statistics are presented as means, medians, modes, or percentages as appropriate. Fisher's exact tests and 2-sample $t$ tests were used to compare characteristics between students who did and did not successfully complete the program. Statistical analyses were performed using SAS statistical software release 9.4 (SAS Institute, Cary, NC).

### RESULTS

Fifty-eight students matriculated into the midwifery program in the fall of 2012 or later and were scheduled to graduate by summer 2016. Demographic characteristics are presented in Table 2; 24.1% of students identified as being black or African American, Hispanic white, Asian, or of multiple races. All students who graduated became certified by AMCB. The first-time pass rate for the program after the new curriculum was fully implemented was 95% in 2015 and 89% in 2016.

Characteristics of students who did and did not successfully complete the program are presented in Table 3. Program completion was not significantly associated with any of the factors related to previous nursing experience, including whether or not the students were registered nurses or had labor and delivery nursing experience, years of nursing practice, or nursing degree held. There were no significant differences in academic factors known to the admissions committee when making admissions decisions, including ratings on recommendations, ratings by the interviewer, or

having earned a previous advanced degree or mean undergraduate and mean undergraduate science GPAs. Compared to students who successfully completed the program, students who did not complete the program were more likely to have undergraduate GPAs less than 3.0 (33.3% vs 24.2%, $P = .55$) and undergraduate science GPAs less than 3.0 (29.2% vs 18.2%, $P = .65$), but these differences were not statistically significant. Failure of the first writing-intensive course was significantly associated with failure to complete the program. Personal characteristics such as working while in school or having children at home did not differ between groups, but students who did not complete the program were more likely to be students in the part-time 3-year progression rather than in the full-time 2-year progression (50.0% vs 26.5%, $P = .10$); yet here, too, the difference was not statistically significant.

During the time frame of this study, 24 students did not complete the program; excluding 3 students who left the program within days of enrollment when they were not awarded a competitive federal traineeship, 21 students (38%) who began coursework did not complete. Students who did not complete the program typically left early; the median number of credits paid for by students who did not complete was 8, and the modal number was 6, out of a total of 62 credits. Of the students who did not complete the program, reasons were primarily academic for 15 (62.5%) as opposed to primarily personal for 9 (37.5%); however, this difference was not statistically significant ($P = .22$). Examples of academic reasons for attrition included dismissal for failing 2 courses, dismissal for plagiarism, and withdrawal pending dismissal for course failures. Examples of personal reasons for leaving the program included unplanned pregnancy, divorce, competing demands on time (such as work, young children, or elderly parents), personal or family illness, and decisions not to become a midwife or to pursue other career options.

### DISCUSSION

As hypothesized, registered nurses with labor and delivery experience were not more likely to successfully complete this midwifery education program than other midwifery students, including those who are not nurses, and who enter the program with an educational background in other fields. Type of nursing degree and years of practice were also not associated with successful program completion. These findings are consistent with other US studies that have found number of years of nursing experience is not associated with a student's success in graduate nursing programs,[5,14,15] although this study is the first to include student midwives who do not have a nursing degree prior to admission. An evaluation of the first 2 years of the certified midwife program at the State University of New York Health Science Center at Brooklyn found that no student midwives withdrew or were dismissed from the program.[16] Studies that have evaluated nurse practitioner students similarly found that type of nursing preparation and whether or not a student had a previous advanced degree were not related to student success.[5]

Students attending the program part time were twice as likely not to complete it when compared to full-time students, although that difference was not statistically significant. Students who choose a part-time path, just like students

**Table 3.** Factors Associated With Successful Program Completion Among 58 Midwifery Students

| Factor | Did Not Successfully Complete Program (n = 24) | Successfully Completed Program (n = 34) | P[a] |
|---|---|---|---|
| **Prior academic factors** | | | |
| Registered nurse, n (%) | 21 (87.5) | 31 (91.2) | .68 |
| BSN, n (%) | 16 (66.7) | 22 (64.7) | .99 |
| Previous advanced degree, n (%) | 4 (16.7) | 7 (20.6) | .99 |
| Advanced placement, n (%) | 3 (12.5) | 4 (11.8) | .99 |
| Science GPA < 3.0, n (%)[b] | 7 (29.2) | 6 (18.2) | .36 |
| Undergrad GPA < 3.0, n (%)[b] | 8 (33.3) | 8 (24.2) | .55 |
| Mean science GPA, mean (SD)[b] | 3.25 (0.56) | 3.25 (0.47) | .99 |
| Mean undergrad GPA, mean (SD)[b] | 3.24 (0.37) | 3.29 (0.37) | .65 |
| **Admissions factors** | | | |
| Highly recommended on interview, n (%)[c] | 18 (81.8) | 25 (75.8) | .74 |
| Recommendations rate above average, n (%)[d] | 24 (100) | 31 (96.9) | .99 |
| **Academic factors at the program** | | | |
| 3-year progression (part-time), n (%) | 12 (50.0) | 9 (26.5) | .10 |
| Failure or withdrawal in first writing-intensive graduate course, n (%)[e] | 6 (54.6) | 0 (0.0) | <.001 |
| Failure or withdrawal in first physiology-intensive graduate course, n (%)[f] | 2 (12.5) | 0 (0.0) | .10 |
| Program GPA < 3, n (%) | 10 (41.7) | 0 (0.0) | <.001 |
| **Work experience** | | | |
| Labor and delivery nursing experience, n (%) | 13 (54.2) | 17 (50.0) | .79 |
| 5 or more years as RN, n (%) | 15 (62.5) | 20 (58.8) | .99 |
| **Social factors** | | | |
| Children at home, n (%) | 15 (62.5) | 28 (82.4) | .13 |
| Working while in school, n (%) | 23 (95.8) | 27 (79.4) | .12 |

Abbreviations: BSN, bachelor of science in nursing; GPA, grade point average; RN, registered nurse.
[a] P values from Fisher's exact test or 2-sample t test as appropriate.
[b] n = 57; 24 did not complete and 33 did complete.
[c] n = 55; 22 did not complete and 33 did complete.
[d] n = 56; 24 did not complete and 32 did complete.
[e] n = 45; 11 did not complete and 34 did complete.
[f] n = 50; 16 did not complete and 34 did complete.

who choose distance education, may have complex lives with competing responsibilities and hope that part-time, distance education will allow them to achieve their educational goals while also fulfilling their personal responsibilities.[17,18] They may have more complicated lives than students choosing full-time study and thus may be less likely to be able to balance the competing demands. Alternately, compared to a 2-year education program, 3 years may simply provide a 50% greater opportunity for unexpected illnesses, births, or deaths to occur, making it more difficult for students to complete their education. Uniquely, we explored working while in school and presence of children at home, and found that these were not associated with successful program completion. Future research should include whether there are measures of work (eg, maximum number of hours, timing of shifts) or parenthood (type of child care, age of children) that are associated with academic success.

Similar percentages of students left the program for academic and personal reasons, although these were often intertwined. International studies have also found that many students leave midwifery programs for personal reasons. A study of noncompletion from an Ontario midwifery program found that health concerns and births were leading reasons for withdrawal from midwifery school.[19] Similarly to our study, a British study found that a major reason for noncompletion from midwifery programs was deciding that midwifery was the wrong career,[20] and a study of reasons for withdrawing from distance education programs in nursing and health studies found that personal reasons included life circumstances, work commitments, learning style, and evolving career aspirations.[18]

The 62% completion rate by students who began coursework is consistent with rates of 50% to 80% reported by other graduate, health, distance education programs and likely reflects the realities of students who seek distance education.[17,18] Across disciplines, on-site programs tend to have higher completion rates than distance education programs.[18,21,22] It is thought that students choosing distance education may think they cannot succeed in traditional programs because of their complex lives involving obligations to children, aging parents, employment, and mortgages.[18] Reliable information on completion of midwifery and

nurse-practitioner programs is not publicly available for easy comparison, and comparison of program completion between institutions is hindered by lack of standardized definitions for terms such as attrition, retention, persistence, graduation rate, and student return. Completion was chosen as the most relevant measure, but noncompletion is higher than the more frequently cited attrition, making comparison difficult.[23] A study of factors related to completion of one institution's on-site nurse practitioner programs found that while 77% of students overall graduated within 4 years, only 44% of African American students did, suggesting that subgroups of students are more likely not to complete graduate health programs.[5]

This study is the first to our knowledge to explore factors associated with success in a US distance education midwifery program and one of the first to explore how personal factors such as having children at home affect completion in a distance education program. Our study is limited by a relatively small sample size and by having been conducted in a single institution, although it includes complete information on several cohorts of students.

It is not known how comparable the student body in this program is to the general population of midwifery students; a slightly higher percentage of students were racially or ethnically diverse (not non-Hispanic white) compared to midwifery students nationally (24.1% for this program, 19.3% nationally in 2013, and 21.9% nationally in 2014).[3] As part of the program's mission to diversify the midwifery profession, the curriculum is designed to be accessible to students with educational backgrounds not limited to nursing and with a variety of types of work experience, as is consistent with the International Confederation of Midwives Global Standards for Midwifery Education.[24] Students entering midwifery directly may not be as successful in other programs, which may not be designed to meet their learning needs. Yet the results of this pilot study demonstrate that it is possible to educate individuals who have a variety of backgrounds to be midwives in the United States, with equal chance of success.

An additional limitation is that only one possible measure of student success, program completion, was measured. It is plausible that students with labor and delivery nursing experience may have higher GPAs while in midwifery school or be able to spend less time studying. Studies of graduate health programs have found undergraduate GPA to be associated with graduate GPA.[5,6,9,25] Program completion was chosen as the outcome because midwifery education is competency based, and all students who graduate have demonstrated competence in midwifery.

The study also has the inherent limitations of the retrospective cohort design, including being limited to only data that were collected for other purposes. Future work should include prospective data collection with tools specifically designed for the purpose and collect data such as more detail about hours worked during the program, family responsibilities, disabilities, first language, and ease of entry into clinicals.

Program faculty are using these data to explore issues around the specific courses for which failure is associated with program noncompletion and whether admissions interviews and recommendations can be tailored to better predict successful students. Since life circumstances were so often related to both academic failures and withdrawal from the program for personal reasons, the faculty are exploring use of a social-determinants-of-health tool after students have been accepted to identify at-risk students who may benefit from early outreach from their advisor so they can see advisors as approachable advocates. Additionally, the academic success center at the university piloted and has adopted online, synchronous video writing tutor support for students in graduate health programs.

Admissions requirements for graduate health programs have often been based on expert opinion and commonly used requirements for test scores or type of degree or work experience may differentially limit admission of qualified minority students.[4,11] A commitment to increasing and diversifying the midwifery profession requires careful scrutiny of admissions requirements for midwifery education programs and exploration of effective methods to support students through personally and academically demanding education.

## CONCLUSION

We found no evidence that being a nurse, years of nursing experience, type of nursing degree, or labor and delivery nursing experience were associated with successful completion of this master's-level, distance education midwifery program. With 100 unfilled midwifery education program seats nationally, and significant racial disparities in maternal and newborn health outcomes, results of this pilot study suggest that there needs to be rigorous scrutiny of admissions requirements for student midwives to ensure that there are no unnecessary barriers to education, which might include requirements for specific nursing degrees or experience, which might limit the size and diversity of the profession.

## AUTHORS

Nancy A. Niemczyk, CNM, PhD, is director of the Nurse-Midwifery Program at the University of Pittsburgh, School of Nursing, and midwife emeritus, the Midwife Center for Birth and Women's Health, both in Pittsburgh, Pennsylvania.

Alison Cutts, CNM, MS, attends births at home and in hospital in private practice in southeastern Pennsylvania.

Dana B. Perlman, CNM, MSN, FACNM, is director of the Midwifery Institute at Jefferson in Philadelphia, Pennsylvania.

## REFERENCES

1. Rayburn W, American Congress of Obstetricians and Gynecologists. *The Obstetrician-Gynecologist Workforce in the United States, Facts, Figures and Implications*. Washington, DC: American Congress of Obstetricians and Gynecologists; 2011.
2. Wren Serbin J, Donnelly E. The impact of racism and midwifery's lack of racial diversity: A literature review. *J Midwifery Womens Health*. 2016;61(6):694-706.
3. *Midwifery Education Trends Report 2015*. Silver Spring, MD: American College of Nurse-Midwives; 2015.
4. Crosby FE, Dunn JD, Fallacaro MD, Jozwiak-Shields C, MacIsaac AM. Preadmission characteristics of advanced practice nursing students. *J Am Acad Nurse Pract*. 2003;15(9):424-431.
5. El-Banna MM, Briggs LA, Leslie MS, et al. Does prior RN clinical experience predict academic success in graduate nurse practitioner programs? *J Nurse Educ*. 2015;54(5):276-280.
6. Auerhahn C. *Predictors of Success in Master's Level Nurse Practitioner Programs* [dissertation]. New York, NY: Columbia University, Teacher's College; 1996.
7. Cahn PS. Do health professions graduate programs increase diversity by not requiring the graduate record examination for admission? *J Allied Health*. 2015;44(1):51-56.
8. Katz JR, Chow C, Motzer SA, Woods SL. The Graduate Record Examination: help or hindrance in nursing graduate school admissions? *J Prof Nurs*. 2009;25(6):369-372.
9. Newton SE, Moore G. Undergraduate grade point average and Graduate Record Examination scores: the experience of one graduate nursing program. *Nurs Educ Perspect*. 2007;28:327-331.
10. Rhodes ML, Bullough B, Fulton J. The Graduate Record Examination as an admission requirement for the graduate nursing program. *J Prof Nurs*. 1994;10(5):289-296.
11. Heller CA, Rua SH, Mazumdar M, Moon JE, Bardes C, Gotto AM Jr. Diversity efforts, admissions, and national rankings: can we align priorities? *Teach Learn Med*. 2014;26(3):304-311.
12. Lobb DK, Inman DR, Butler RG. Problem-based learning in reproductive physiology. *J Midwifery Womens Health*. 2004;49(5):449-453.
13. Museus SD, Ravello JN. Characteristics of academic advising that contribute to racial and ethnic minority student success at predominantly white institutions. *NACADA Journal*. 2010;30(1):47-58.
14. Burns SM. Predicting academic progression for student registered nurse anesthetists. *AANA J*. 2011;79(3):193-201.
15. Locke T. *Predicting Acadmic Success in a Graduate Nursing Program: A Pilot Study* [master's thesis]. San Marcos, CA: California State University; 2014.
16. Fullerton JT, Shah MA, Schechter S, Muller JH. Integrating qualified nurses and non-nurses in midwifery education: the two-year experience of an ACNM DOA accredited program. *J Midwifery Womens Health*. 2000;45(1):45-54.
17. Park CL, Boman J, Care WD, Edwards M, Perry B. Persistence and attrition: what is being measured? *J Coll Stud Ret*. 2008;10(2):223-233.
18. Perry B, Boman, J., Care WD, Edwards M, Park C. Why do students withdraw from online graduate nursing and health studies education? *JEO*. 2008;5(1):1-17.
19. Wilson R, Eva K, Lobb DK. Student attrition in the Ontario midwifery education programme. *Midwifery*. 2013;29(6):579-584.
20. Hughes HA. Factors influencing attrition rates in midwifery students. *Nurs Stand*. 2013;27(26):42-48.
21. Hart C. Development of a persistence scale for online education in nursing. *Nurs Educ Perspect*. 2014;35(3):150-156.
22. Gilmore M, Lyons EM. NURSING 911: an orientation program to improve retention of online RN-BSN students. *Nurs Educ Perspect*. 2012;33(1):45-47.
23. Voigt L, Hundrieser J. *Student Success, Retention, and Graduation: Definitions, Theories, Practices, Patterns, and Trends*; 2008. Available at: http://www.stetson.edu/law/conferences/highered/archive/media/Student%20Success,%20Retention,%20and%20Graduation-%20Definitions,%20Theories,%20Practices,%20Patterns,%20and%20Trends.pdf. Accessed November 8, 2017.
24. Midwives ICo. *Global Standards for Midwifery Education (2010)*. Amended 2013. Available at: http://internationalmidwives.org/assets/uploads/documents/CoreDocuments/ICM%20Standards%20Guidelines_ammended2013.pdf. Accessed November, 8, 2017.
25. Ortega KH, Burns SM, Hussey LC, Schmidt J, Austin PN. Predicting success in nurse anesthesia programs: an evidence-based review of admission criteria. *AANA J*. 2013;81(3):183-189.