

Internal and External Data Needs

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### Internal and External Data Needs

The world's population continues to grow older, especially in the United States as those born in what is considered the baby boom years are now entering their golden years. This has had a great impact on healthcare, from those who are retiring from professions like nursing to others needing more care health wise or requiring more skilled nursing care. According to Sofer (2018), the number of people over the age of 65 by 2030 will be over 70 million, and over one million registered nurses will have retired. Additionally, studies show that the rate of chronic conditions such as high blood pressure, heart disease, diabetes, stroke, and lung disease continue to rise within the elderly population. Due to this, more and more nurses are needed to care for the elderly.

Unfortunately, many of the new graduate nurses today are choosing to go into other fields, ones they view as more exciting and where they will be able to use their skills more such as the critical care field. According to a survey completed by the National Student Nurses' Association in 2017, 84% of new graduate nurses are working in the acute care setting (Kennedy, 2018). Nurses are certainly needed in acute care areas, but other fields will be impacted if a large majority select inpatient care. This will include caring for the elderly in skilled nursing facilities and transitional care units.

Looming concerns arise from this, such as who will care for the geriatric patient and what may be keeping new graduate nurses from selecting a field in which they would care for the elderly patient. Furthermore, the curriculum for graduate nurses should be reviewed to identify whether or not a gerontology course is beneficial to nursing students. This is important to not only identify whether graduate nurses feel knowledgeable in caring for the older adult to select a field within geriatric nursing, but also are prepared to care for the elderly in acute care settings.

### PICO QUESTION

An inquiry into these concerns can be completed using the steps of the steps of evidence-based practice (EBP) process. As Melnyk and Fineout-Overholt (2019) described, EBP implementation helps generate “the highest quality of care and the best patient outcomes” (p. 41). By investigating whether or not graduate nurses received adequate education on caring for the elderly client, the findings will improve the care those patients receive, allowing for the best possible outcomes. This is necessary because of the aging population as more elderly patients will be requiring care by nurses. Additionally, assessing whether or not the educational preparation of new graduate nurses in the geriatric field will allow them to feel more empowered, especially if ways are implemented to do so (Melnyk & Fineout-Overholt, 2019). Having the proper education in this particular case will increase nursing knowledge and understanding of how to care for elderly patients, allowing for high quality care. Thus, job satisfaction will also be increased, which is important for the new nurse graduate (Melnyk & Fineout-Overholt, 2019).

Evidence-based practice is a problem-solving approach that needs to occur long-term to help integrate systemic searches and critical appraisal of the best research, referred to as external evidence, along with a person’s own clinical expertise, known as internal evidence (Melnyk & Fineout-Overholt, 2019). The first step in the EBP process is to develop a clinical question using the PICO framework (patient population, the issue of interest, comparison intervention or group, and outcome) format (Melnyk & Fineout-Overholt, 2019). Melnyk and Fineout-Overholt (2019) explained that by doing so, the best and most relevant evidence can be determined from the literature that currently exists. Taking into consideration the inquiry of whether or not taking a

gerontology course, as a nursing student can improve the knowledge of caring for the elderly patient, the PICO question was developed as follows:

*Among BSN students, does completion of a gerontology course compared with not completing a gerontology course increase self-reported knowledge about geriatric care?*

This paper seeks to examine the internal and external data needs that are necessary in addressing that inquiry. Investigating this further may help prepare graduate nurses to better care for the older adult, increase the comfort level in caring for geriatric patients due to adequate knowledge and preparation, and allow student nurses to gain experience in fields that care for the elderly.

### **Data Types**

Various forms of data can help inform this PICO question, like others, further. It is important to search for the best available evidence when seeking to answer a PICO question (Melnyk & Fineout-Overholt, 2019). Both internal and external data sources should be used when seeking resources. External evidence comes from sources such as research, theories that are evidence-based, opinion leaders and experts of the area being researched, while internal evidence is based upon clinical experiences through sources like quality improvement projects or patient assessments and evaluations (Melnyk & Fineout-Overholt, 2019). Specific sources of external evidence come from research and may be obtained through textbooks and journal articles that reflect on subject material based on systemic reviews and randomized control trials as well best practice and clinical practice guidelines (Melnyk & Fineout-Overholt, 2019). Internal evidence sources are generated through outcomes within health care institutions that are based clinical expertise, quality improvement projects, and initiatives to manage outcomes (Melnyk & Fineout-Overholt, 2019). The following will look at the application of each of these

data types to the PICO question that seeks to identify whether or not a gerontology course is beneficial to BSN students for increasing their knowledge of caring for the elderly patient.

### **Internal Data**

Internal evidence is viewed as the data and evidence that is internal to the relationship of client and healthcare provider (Tomlin & Dougherty, 2014). As previously mentioned, internal evidence sources include those which come from clinical expertise, quality improvement (QI) projects, and initiatives to manage outcomes, all of which have a goal of improving patient outcomes (Ginex, 2017). According to Ginex (2017), QI projects, for instance, seek to improve processes of workflow, improve efficiencies, reduce care variations, and address any problems clinically, administratively or educationally. Internal evidence influences external evidence as internal evidence is oftentimes collected as part of the research that is competed to generate external evidence that results from research studies (Tomlin & Dougherty, 2014). It is important to recognize that relationship to help identify what internal evidence may be available when it is thought about as aiding research and eventually being used within external evidence.

In looking at the PICO inquiry regarding the influence of a gerontology course as part of a baccalaureate nursing program, the internal evidence is sought through both healthcare organizations and educational institutions. For instance, it is necessary to identify and measure the success of nursing students who have taken a gerontology course. Educational institutions review performances as such as it is important in helping to evaluate performance and whether or not target goals are being met (McCormick, Kinzie, & Korkmaz, 2011). Another internal evidence that is beneficial would be reviewing the curriculum of BSN students. Some BSN programs may have specific gerontology courses, while others may have it incorporated into other courses, so it is important to identify the exposure BSN students are having to that type of

education. Lastly, by looking at data within healthcare facilities that care specifically for the elderly, it could be identified as to whether or not new graduate nurses are choosing those facilities and determine the retention rates of new graduate nurses. Table 1 identifies internal sources of data and evidence, along with what special considerations are necessary and sources of the data.

Table 1

*Proposed Internal Sources of Data and Evidence*

Data Need	Special Considerations	Source
Success rate in completion of a gerontological undergraduate nursing course	Pass rates of the course, average grades, number of students who drop the course	Department head of nursing, registrar's office
Curriculum of BSN program	If no gerontological class is offered, need to identify whether or not other courses include education on caring for the elderly or pathophysiological differences seen in in the older adult, pharmacological considerations in the older adult	Nursing instructors of courses, department head or chair of nursing program
Number of new graduate nurses employed full time within skilled nursing facilities and those that care mainly for geriatric patients	Is the new graduate working at the facility because he/she was unable to obtain employment elsewhere? Is this a way to obtain experience in order to go into another field? Full	Human resources, chief nursing officer of the facility

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	time status equals a minimum of 32 hours per pay period.	
Retention rate of new graduate nurses within facilities caring for the geriatric patient	Retention rates of over 2 years of employment working a minimum of 32 hours per pay period.	Human resources, chief nursing officer

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### External Data

External data evidence is a significant source for EBP research. Published literature is an external data source and is helpful in informing a researcher on potentially effective and ineffective ways intervention could impact an issue (Tomlin & Dougherty, 2014). External data sources that are beneficial to the PICO inquiry of whether or not a gerontology course increases the knowledge of BSN students would include research studies. Textbooks as a source of data to address this question would not be a good source as they are generally used to refresh or increase new knowledge on a topic, and resources to address this need requires more specialized knowledge that is current and more complete than a textbook may provide (Melnyk & Fineout-Overholt, 2019). Thus, the best evidence to use in this case as a starting point is from journal articles. Additionally, original studies, published as research articles, form the base of a pyramid framework, which is a consolidation of information sources that is essential to making evidence-based decisions (Melnyk & Fineout-Overholt, 2019). The materials gathered for this foundation are collected from databases that have indexed original research articles, defined by Melnyk and Fineout-Overholt (2019) as the gateways to finding a body of evidence. The databases also will provide resources for the pyramid's middle section, reviews of evidence,

which includes systemic reviews, practice guidelines, topic summaries, and synopses of articles.

There are multiple databases that may be searched to obtain research. Selecting which database or databases to use is dependent upon using those that will produce evidence in synthesized, preappraised sources, and having those articles available in full text versions will promote the best use of time in regards to decision making (Melnyk & Fineout-Overholt, 2019). Some examples of such databases given by Melnyk and Fineout-Overholt (2019) included the Cochrane Database of Systemic Reviews (CDSR), Evidence-Based Nursing, CINAHL, MEDLINE, as well as others. For the purpose of searching external sources for this PICO inquiry, *CINAHL*, *Nursing Reference Center*, and *Health Source: Nursing/Academic Edition* were used.

How researchers use these databases to search impacts what results will be found on a topic and how each database is searched should be consistent. Consistency ensures that missing steps within the strategy is minimized and allow the ability each database to be searched uniformly for the best possible results (Melnyk & Fineout-Overholt, 2019). Melnyk and Fineout-Overholt (2019) described three strategies to use when searching databases, which included using keyword, subject heading, and title searches. The keyword search is the first strategy to use, but researchers need to also decide if it will be separate or combined with a subject heading search, though individual searches are recommended per Melnyk and Fineout-Overholt (2019) as this produces a hit count for a specific term. Synonyms are to then be connected using what is referred to as the Boolean connector “OR” and those searches then should be combined using the Boolean connector “AND” in order to determine the number of viable hits within a database (Melnyk & Fineout-Overholt, 2019). It is imperative that



all synonyms, plurals, and alternate spellings of each keyword are used to provide the most in-depth search results that yields all evidence (Melnyk & Fineout-Overholt, 2019). The search terms used for this particular inquiry are illustrated in Table 2, which includes the databases used and number of hits per database using the terms.

Table 2

*External Data Search Results*

<b>Search Terms</b>	<b><i>CINAHL</i></b>	<b><i>Nursing Reference Center</i></b>	<b><i>Health Source: Nursing/Academic Edition</i></b>
1. Undergraduate nursing curriculum	227	4,429	1
2. Caring for the elderly	448	13,077	7
3. Undergraduate gerontology course	16	724	5
4. Increased nursing knowledge	69	46,566	1
5. 1 and 2	7,080	289	20
6. 1 and 3	545	144	24
7. 3 and 4	615	192	47

*Note:* The numbers indicate how many hits were yielded when using the indicated search terms for each of the listed databases.

Within nursing research, it is important to seek current evidence. However, as Melnyk and Fineout-Overholt (2019) pointed out, a five year limit may not be a wide enough window to discover evidence that can address the issue. This was the situation in this search, so material

was only limited to the past 15 years to help decrease the amount of articles to produce but yet still find ample evidence surrounding the issue. No other limitations were placed on search results. Table 3 provides an in-depth look at five of the highest quality resources found for external data sources that resulted from the search.

Table 3

*Literature Matrix Grid*

APA Citation	Research Purpose	Study Design	Sample (Setting)	Data Collection/ Measures	Analysis/ Outcome	Strengths/ Limitations	Joanna Briggs Level of Evidence	Study Quality
Leung, A. Y., Chan, S. S., Kwan, C. W., Cheung, M. K., Leung, S. S., & Fong, D. Y. (2011). Service learning in medical and nursing training: a randomized controlled trial. <i>Advances in Health Sciences Education, 17</i> , 529-545. <a href="http://dx.doi.org/10.1007/s10459-011-9329-9">http://dx.doi.org/10.1007/s10459-011-9329-9</a>	This study looked to explore the long term effect of a service learning project on medical and nursing students' knowledge in aging and their attitudes toward the elderly.	Randomized controlled trial with pre-and-post-intervention measurements	Students from the University of Hong Kong's Bachelor of Medicine and Bachelor of Surgery (MBBS) program and the Bachelor of Nursing (BSN) program. A total of 124 participants were recruited and then randomized into an intervention group and a control group equally.	Demographic information on the students was collected. Their knowledge about aging was measured using the modified 70-question Palmore's Facts on Aging Quiz (PFAQ), while their attitudes were measured using the Kogan's Old People Scale (KOPS). Each of the measures was completed before and after the intervention.	Data was analyzed using the Statistical Package for the Social Sciences (SPSS), with descriptive statistics being used to compare the characteristics of the two groups. Any differences were analyzed using chi-square statistics for categorical variables, and t-tests for continuous ones. ANOVAs with repeated measures were also used. Before the intervention took place, there were no significant differences when looking at the PFAQ between the two groups. Other than a significant interactive effect being present between the group and type of student, there were no other significant differences between the two groups with the KOPS measurement tool. After the intervention, there were significant differences between the groups using both scales of measurement. The intervention group had a significant increase in overall knowledge of aging, as well as an increased positive attitude towards aging.	The findings by this study were consistent with a systemic review that looked at the involvement of real patients within medical education as involving patients, or such in this study's care elderly mentors, the learning is stimulating and helps improve knowledge. Research has also shown that service learning leaves students with insight and better understanding of vulnerable groups such as the elderly. The findings clearly demonstrate that with appropriate educational strategies that are innovative and interactive, better outcomes will be achieved regarding learning and appreciation of the material. Limitations of this study included the fact that the KOPS tool may lack the sensitivity needed to measure within the Chinese culture in which this study took place. The sample size of the study was small, and a majority of the participants in the study were female and BSN students. Because one of the instruments used to measure was a self-reported questionnaire, there is also concern that the answers given were not	Level 2	High

						necessarily the truth, but instead socially desirable answers. The PFAQ used has also been questioned by some researchers in its reliability to be used in pre-test/post-test situations, though at the time of the study, there was no other reliable measurement tool of knowledge about the elderly.		
Koehler, A. R., Susan, D., Linda, S. R., Hooks, T., Schanke, H., Loeffler, A., ... Ratzlaff, N. (2016). Impact of a stand-alone course in gerontological nursing on undergraduate nursing students' perceptions of working with older adults: A Quasi-experimental study. <i>Nurse Education Today</i> , 46, 17-23. <a href="http://dx.doi.org/10.1016/j.nedt.2016.06.015">http://dx.doi.org/10.1016/j.nedt.2016.06.015</a>	The purpose of this study was to examine the impact of a stand-alone course in gerontological nursing on undergraduate nursing students' perceptions of working with older adults and career intentions.	Quasi-experimental	Medium-sized state university in the Midwestern United States. The data was collected from three student cohorts, spring semester of 2012, 2013, and 2014, with the numbers of each being 98, 80, and 88 respectively for a total of 266 participants, with an average response rate of 85%.	An instrument of survey was used and given via Qualtrics to students prior to and following the completion of the course.	There was an overall significant increase (p = 0.000) in positive perceptions of working with older adults among nursing students following completion of the course. Student preferences for working with different age groups suggested an overall increase in preference for working with older adults following the course. There was some evidence that students changed their preferences of working with different age groups in favor of working with older adults.	Level 3	Fair-High	
Potter, G., Clarke, T., Hackett, S., & Little, M. (2013). Nursing students and geriatric care: The influence of specific knowledge on evolving values, attitudes, and actions. <i>Nurse Education in Practice</i> , 13(5), 449-453. <a href="http://dx.doi.org/10.1016/j.nepr.2013.02.007">http://dx.doi.org/10.1016/j.nepr.2013.02.007</a>	This study explored what influence specific geriatric knowledge had on second and third year nursing students' provision of care to older adults.	Qualitative exploratory descriptive study	Focus groups were structured to collect data from separate participants who were in their second and third year prior to attending a one hour teaching session on SPICES and BPI assessment tools. Those students then participated in a six week Consolidated Practice Experience (CPE) caring for older adults in various settings. Following that, another focus group was held with each group to collect their impressions about how they were able to implement the assessment tools. A total of 57 students were invited to participate from the two cohorts, though only 19 chose to participate in the first focus group and 11 in the second.	Since two facilitators were used, efforts were made to standardize the process. Thus, the data collected was done using structured interview questions, which were expanded upon as needed during the groups. The facilitators also made an effort to be aware of their own biases regarding the older adult and aging process. In collecting student responses, the students were recorded during the focus groups, and the conversations were then transcribed verbatim by a transcriptionist. The data, placed into a Word document per four different sets, was analyzed to identify patterns and any unique perspectives that arose from the questions.	From the findings of the four different focus groups, four themes emerged, which included beliefs, knowledge, attitudes and application, which was found to be suggestive of how the geriatric knowledge of the students' and their attitudes evolved. From their experiences, they developed a more personal meaning in caring for the older adult.	Findings from this study correlated with others in how increased knowledge increases comfort and confidence of nursing students within the clinical setting and emphasizing the importance of assessment tools specific to geriatric adults optimizes the care provided to the older adult. Limitations included not being able to identify the progression of growth from second to third year students due to the design of the study, and the differing practice models, notably that the second year students had more direct supervision from instructors versus the third year students working more directly with staff preceptors. Some of the initial participants did not attend the post-CPE focus groups as their placement was not within one that had an elderly	Level 6	Fair

<p>Williams, B., Anderson, M. C., &amp; Day, R. (2007). <i>U</i> Comparison of context-based learning and a traditional. <a href="https://search-ebcshost-com.ezproxy.unary.edu/log">https://search-ebcshost-com.ezproxy.unary.edu/log</a></p>	<p>This study investigated the knowledge and attitude towards older adults held by nursing students who were in their first and fourth year of a baccalaureate program who either had a context-based learning (CBL) curriculum or a traditional, lecture-based baccalaureate program.</p>	<p>Longitudinal comparative, cross-sectional study</p>	<p>Students enrolled in a baccalaureate program in a large, publicly funded Canadian University. An initial longitudinal sample of 81 students who were registered in the first year of the CBL nursing program, followed by another sample of those same group of students in their graduating term that had thus been augmented by a group of 54 students from a CBL collaborative site that had block transferred during their third year. The cross-sectional sample was a group of fourth year students enrolled in a traditional program, surveyed in their last term with the data compared to that of the final term CBL students.</p>	<p>Four instruments were completed by the students in both the cross-sectional and longitudinal samples: 1. Personal Details Questionnaire  2. Facts on Aging Quiz (FAQ) - used to assess knowledge 3. Aging Semantic Differential (ASD) - used to assess attitudes towards aging related to social influences 4. Reaction to Aging Questionnaire (RAQ) - used to examine students' attitudes toward personal aging. Time within class was allotted to the students to complete the questionnaires, and a researcher who was not a teacher for the students explained the study, distributed an informational letter, and coded the questionnaires numerically. Responses were kept anonymous, which was identified to the students. The first year students were re-tested three and a half years later, and those students that had transferred into the program were also invited to participate in the second testing.</p>	<p>The data was analyzed using descriptive statistics for the demographic data. For the longitudinal data, both first year and fourth year data collections, a dependent group t test was used to help identify any significant differences in the means of knowledge and attitudes towards aging. The cross-sectional data was analyzed using an independent group t test. To make correlations among the ASD, FAQ, and RAQ along with any selected demographic data was done using the Pearson correlation. Reliability of instrumentation was determined using Cronbach's alpha. While there was differences in the knowledge and attitudes between the fourth year students in the CBL verses those in the traditional program, the differences were not significant. However, a positive increase in CBL students' attitudes towards personal aging was significant when comparing the results from when they took it as first year students verses as fourth year students, suggesting that CBL learning helps to foster inner maturity towards aging.</p>	<p>What was found in this study was supported by another completed by Gething, who found that there is a significant correlation as well between the RAQ and ASD, validating the close relationship that exists between personal and social attitudes in regards to aging. Limitations indicated were that the paired sample was small, meaning that the possibility of detecting any change over time was limited. Randomization of the students into the two groups was also not feasible, thus, it was not possible to determine if the CBL curriculum influenced the change in attitude towards aging or if another variable was present.</p>	<p>Level 4</p>	<p>Fair</p>
<p>Mattos, M., Jiang, Y., Seaman, J. B., Nilsen, M., Chasens, E. R., &amp; Novosel, L. M. (2015). Baccalaureate nursing students' knowledge of and attitudes toward older adults. <i>Journal of Gerontological Nursing, 41</i>(7), 46-56. <a href="http://dx.doi.org/10.3928/00989134-20150429-01">http://dx.doi.org/10.3928/00989134-20150429-01</a></p>	<p>This study explored baccalaureate nursing (BSN) students' knowledge and attitudes about older adults, addressing three questions: 1. What are BSN students' knowledge of aging and attitudes toward older adults?  2. Is there a difference in the knowledge, attitudes, and work plans between BSN students who are and are not enrolled in a stand-alone geriatric course? 3. How do BSN students perceive their experience of interactions and interviews with community-dwelling older adults?</p>	<p>Mixed-method study using a concurrent nested design</p>	<p>Participants included junior BSN students and second-degree, accelerated BSN students at a Western Pennsylvania nursing school. Of those who agreed to participate, 85 had already completed a gerontological course, while 47 had not yet enrolled in one.</p>	<p>Quantitative - three instruments were used for this portion of the study: 1. Demographic collection  2. The Facts of Aging-Form 2 (FAQ2) - to measure knowledge 3. Geriatric Attitudes Scale (GAS) - to measure attitudes Qualitative - for this portion, written reflections completed as part of the gerontological nursing course were analyzed. A total of 72 reflections were reviewed.</p>	<p>Quantitative - Data from the instruments used in the study was entered by undergraduate student research assistants into SPSS, and verified by two members of the research team. The scores of the FAQ-2 were computed by summing the number of correct responses. Independent sample <i>t</i>-tests were used to help identify if there was any correlation between incorrect responses. The mean of the GAS values was also determined, but the sum was divided by 14 due to an outlier and two students who did not answer the GAS. Based on the mean scores, the gerontological students scored significantly higher on the FAQ2 than those who had not yet taken the course. Looking</p>	<p>The findings of students who have had a gerontology course verses those who have not indicated that those who have, scored significantly higher on the FAQ2, which has been found in previous studies looking at undergraduate students. While the FAQ2 had limited internal reliability in one of the groups, it was consistent with previously reported low Cronbach's alpha values for FAQ2. In reviewing the analysis of the reflections to the findings of the qualitative portion of this study, those who had taken a gerontology course had positive attitudes towards the elderly, which</p>	<p>Level 6</p>	<p>Fair</p>

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<p>at the GAS, the mean value was neutral as there was no significant difference between the two groups. Qualitative - The reflections written by the students were de-identified before being distributed to four of the investigators and were each analyzed using a structured process. Any discrepancies were resolved by a consensus review. The analysis of the reflections suggested that the students experienced a change in their perceptions of older adults, even if not identified in the GAS.</p>	<p>correlated with the quantitative results.</p> <p>Limitations of the study include that the study was a non-experimental one, so no casual relationships can be inferred. The sample size of the BSN students is small and homogenous, limiting the ability to generalize it to other nursing programs. Another limitation included the instrumentation, as the FAQ2 results indicated substantial variability among correct answers for both groups.</p>
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## Conclusion

In reviewing both internal and external data sources, each are necessary pieces in completing research that is based upon EBP. The first step of the EBP process insures the proper development of a PICO inquiry, which further drives the search for supporting evidence on the issue it looks to identify and research. Applying internal and external data sources allow proper strategies to be identified to help determine if changes need to be made and what changes are possible.

## References

- Ginex, P. K. (2017, August 29). The difference between quality improvement, evidence-based practice, and research. *The Oncology Nursing Society*. Retrieved from <https://voice.ons.org/news-and-views/oncology-research-quality-improvement-evidence-based-practice>
- Kennedy, M. S. (2018). Nurses at the bedside - who will be left to care? *American Journal of Nursing*, *118*(2), 7. <http://dx.doi.org/10.1097/01.NAJ.0000530224.10340.d1>
- Koehler, A. R., Susan, D., Linda, S. R., Hooks, T., Schanke, H., Loeffler, A., ... Ratzlaff, N. (2016). Impact of a stand-alone course in gerontological nursing on undergraduate nursing students' perceptions of working with older adults: A Quasi-experimental study. *Nurse Education Today*, *46*, 17-23. <http://dx.doi.org/10.1016/j.nedt.2016.06.015>
- Leung, A. Y., Chan, S. S., Kwan, C. W., Cheung, M. K., Leung, S. S., & Fong, D. Y. (2011). Service learning in medical and nursing training: a randomized controlled trial. *Advances in Health Sciences Education*, *17*, 529-545. <http://dx.doi.org/10.1007/s10459-011-9329-9>
- Mattos, M., Jiang, Y., Seaman, J. B., Nilsen, M., Chasens, E. R., & Novosel, L. M. (2015). Baccalaureate nursing students' knowledge of and attitudes toward older adults. *Journal of Gerontological Nursing*, *41*(7), 46-56. <http://dx.doi.org/10.3928/00989134-20150429-01>
- McCormick, A. C., Kinzie, J., & Korkmaz, A. (2011). Understanding evidence-based improvement in higher education: The case of student engagement. Retrieved from [http://nsse.indiana.edu/pdf/nsse\\_institute/Evidence\\_based\\_improvement\\_AERA2011.pdf](http://nsse.indiana.edu/pdf/nsse_institute/Evidence_based_improvement_AERA2011.pdf)
- Melnyk, B., & Fineout-Overholt, E. (2019). *Evidence-based practice in nursing and healthcare: A guide to best practice* (4th ed.). Philadelphia, PA: Wolters Kluwer.

- Potter, G., Clarke, T., Hackett, S., & Little, M. (2013). Nursing students and geriatric care: The influence of specific knowledge on evolving values, attitudes, and actions. *Nurse Education in Practice, 13*(5), 449-453. <http://dx.doi.org/10.1016/j.nepr.2013.02.007>
- Sofer, D. (2018). Nurses pass the baton: Exit baby boomers, enter millennials. *American Journal of Nursing, 118*(2), 17-18. <http://dx.doi.org/10.1097/01.NAJ.0000530237.91521.ee>
- Tomlin, G. S., & Dougherty, D. (2014). Decision-Making and sources of evidence in occupational therapy and other health professions: Evidence-Informed practice. *International Journal of Health Professions, 1*(1), 13-19. <http://dx.doi.org/10.2478/ijhp-2014-0001>
- Williams, B., Anderson, M. C., & Day, R. (2007). Undergraduate nursing students' knowledge of and attitudes toward aging: Comparison of context-based learning and a traditional Program. *The Journal of Nursing Education, 46*(3), 115-120. Retrieved from <https://search-ebshost-com.ezproxy.umary.edu/login.aspx?direct=true&db=mnh&AN=17396550&site=nrc-live>