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Three-Year Assessment of One Pre-Licensure Cohort of Baccalaureate Nursing Students Genomic Knowledge, Attitude, and Comfort

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Purpose:
This 3-year convenience sample study explored one pre-licensure cohort of baccalaureate nursing students, from a large diverse urban school of nursing (SON) in the United States, who completed a pre-class assessment survey prior to the beginning of the stand-alone required genetics course in their sophomore year [2nd year of nursing school], followed by a post-class assessment survey at the completion of that course. The mechanism was identical for data collection, utilizing the Genetics/Genomics Literacy Assessment (GGLA), which was again administered at the beginning of their junior year [3rd year] and again as seniors [4th year] to assess their retained genomic knowledge.

Methods:
Two analyses were of interest, utilizing the same survey instrument, Genetics/Genomics Literacy Assessment (GGLA): 1) Comparison of pre vs. post intervention on the sophomore [2nd year] class and 2) Retention of the information through junior [3rd year] and senior year [4th year]. Study conducted from 2014-2016.

Results:
For the total score variable [retention of genomic knowledge over time] data was sophomore vs junior vs senior means of 7.1 vs 6.9 vs 8.7, p<0.001 showing maintenance from sophomore (post-class assessment) to junior year with an increase in the senior year score for the cohort of students. Comparison of pre-class vs post-class on the sophomore class resulted in statistically significant differences demonstrating higher knowledge after class. Enhancement of confidence, perceptions and attitude regarding genomics was evident with comparison of pre-class vs post-class and overtime after taking foundational course. Overall, data showed that students felt that nurse educators need more confidence in teaching and explaining. Patient advocacy requires that nurses’ exhibit knowledge of ethical and legal understanding as it relates to genomics.

Conclusion:
Promoting knowledge and practice integration of universal genomic health promotion requires healthcare professionals and students be knowledgeable and cognizant of their participation to advance client health outcomes. The genomic era impacts nursing education and practice in a multitude of ways. The nursing profession must meet the challenge to prepare future practitioners by incorporating genomic content continuously through-out the curricula and clinical experiences. With the advancements occurring in genomic health care, genetics is becoming more important in understanding individuals’ risks and best treatment options for different conditions.

Title:
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Comfort level, Attitude and Perceptions, Genomic knowledge and Pre-Licensure

References:


Abstract Summary:
One pre-licensure cohort of baccalaureate nursing students were asked to participate in a 3-year study that explored their genomic knowledge, perception/attitude and comfort level. Utilizing the same survey instrument, Genetics/Genomics Literacy Assessment, comparison of pre-class vs. post-class intervention [second year] and retention of knowledge through third and fourth years.

Content Outline:

1. Introduction - One pre-licensure cohort of baccalaureate nursing students were asked to participate in a 3-year study that explored their genomic knowledge, perception/attitude and comfort level. With the emergence of the genomic era, all healthcare professionals are expected to be knowledgeable of genomic content, be able to integrate this knowledge into their practice and effectively participate in inter-disciplinary dialogue. Pre-licensure nursing curricula integration of genomic content should be able to provide core concepts leading to an informed future workforce utilizing precision evidence-based applied knowledge educating, explaining and effectively participating in the clinical care of patients and families with personalized attention. Brief
overview of core essential genomic competencies for practicing nurses to continue to provide maximum evidence-based personalized care, nurses need to maintain the minimum standard of knowledge in this required competency, assuring safety, professional accountability and responsibility.

2. Main Points: Background:
   1. Numerous studies have explored pre-licensure self-reported/perceived genomic knowledge and comfort level of faculty and students
      1. Having students rate their knowledge, attitude and comfort level of genomics demonstrated findings that expressed minimal to moderate knowledge as well as comfort levels, while expressing the need to know this knowledge as a practicing nurse
      2. Actual knowledge of genomics of pre-licensure nursing students and practicing nurses is extremely limited
   2. Nursing faculty and practicing nurses continue to demonstrate limited foundational genomic knowledge
      1. The inadequacy to appropriately applying genomic advancements to meet the needs of the patient and family facing a genomic health compromise depicts the unpreparedness of the nursing profession
      2. The continued relevance of genomic knowledge translation to clinical practice requires practicing nurses’ incorporating and promoting personalized efficient and effective nursing care
3. Design, Recruitment and Data Collection
   1. Descriptive comparison of one pre-licensure cohort of baccalaureate nursing students’ genomic knowledge was explored
      1. Pre-class assessment data was obtained prior to the beginning of the sophomore level [2nd year] students’ required genetic course in 2014 with post-class assessment at the conclusion of course
      2. Same cohort of students, as juniors [3rd year], were asked to retake the same survey in 2015 and again in 2016, as seniors [4th year].
   2. Instrument/Analysis of Genomic Knowledge
      1. Genetics/Genomics Literacy Assessment (GGLA) comprised 30 questions
      2. The three components of the survey (item score/correct response [with no cut-off points]; perceptions and attitudes about genomic merging into nursing curricula and comfort level about genomics) were analyzed using analysis of variance (ANOVA) tests
3. Results
   1. Comparison of survey item scores and correct responses for sophomore pre-class vs post-class assessment yielded similar results with maintenance from sophomore to junior year and an increase in the senior year
      ▪ Perception, attitude and comfort level about genomics, by all three cohort groups, continues to demonstrate the importance of genomic health awareness
   2. Comparison of survey item scores and correct responses for sophomore pre-class vs post-class assessment yielded similar results
      7. Item score for pre-class was $7.3 \pm 2.05$ (mean ± SD; N=72) while the post-class was $7.1 \pm 2.44$ (N=69) with p-value 0.54
      8. Correct responses also yielded comparable findings with pre-class $0.5 \pm 0.14$ and post-class $0.5 \pm 0.16$ with a p-value also 0.54
9. Comparison of pre-class vs post-class in their perception and attitude about genomics integration into nursing curricula resulted in statistical differences for several variables.
10. For the five comfort level variables (collecting, sharing, requesting, explaining and teaching), the scores also went down significantly from pre-class to post-class indicating higher comfort post intervention.

2. Retention of Information Overtime (Junior [3rd] and Senior [4th] years)
7. Data demonstrate maintenance from sophomore to junior year with an increase in item score and correct responses in the senior year.
8. Perceptions and attitude about genomics integration into nursing curricula, significant changes in information were found over time.
9. For the comfort level variables (collecting, sharing, requesting, explaining and teaching), collecting variables showed results went down during the junior year but then increased as seniors while explaining increased in the junior year and then decreased in the senior year to comfort level related to sophomore year.

- Conclusion

1. Having students rate their knowledge, attitude and comfort level of genomics demonstrated findings that expressed minimal to moderate knowledge as well as comfort levels, while expressing the need to know this knowledge as a practicing nurses.
2. Data has continued to suggest that understanding educational concepts confirms the need for genomic education inclusion into curricula.
3. Nursing faculty and practicing nurses continue to demonstrate limited foundational genomic knowledge, which unfortunately corresponds to students’ knowledge preparation.
4. The continued relevance of genomic knowledge translation to clinical practice requires practicing nurses’ incorporating and promoting personalized efficient and effective nursing care.

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Professional Experience: Leighsa Sharoff is an experienced educator, practitioner, nurse leader, mentor and researcher with numerous publications, presentations, invited lectures, and funded research grants and projects to her credit. Dr. Sharoff is a national and international speaker at nursing and educational conferences, has presented lectures and research findings to nursing and multidisciplinary audiences, including presentations in Hong Kong, the United Kingdom, Dublin Ireland and the Netherlands. She has authored multiple peer-reviewed articles, is a peer-reviewer for numerous high-impact nursing and medical journals and is an Associate Editor for the Journal of Holistic Nursing [JHN]. Recently one of her articles was a finalist in the JHN Excellence in Writing Awards: Practice and Education. She is a member of many professional organizations and has served in numerous leadership positions. Dr. Sharoff is a Fellow in the New York Academy of Medicine.

Author Summary: Dr. Leighsa Sharoff is an Associate Professor and Simulation Coordinator at Hunter College in New York City. She has presented nationally and internationally on integrating concepts of holistic nursing, simulation, technology and genetics in nursing curricula, from baccalaureate to doctoral programs.