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Evaluating State Anxiety Levels in Nursing Students

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Author Note

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Abstract

Anxiety, dependent upon the frequency and severity, can be a serious problem that reduces physical, cognitive, and clinical performance. Nursing students have been found to experience especially high levels of state and trait anxiety which, according to Dorothea Orem's self-care deficit theory, causes a deficit in health promotion and the health of oneself. There is little evidence available about how progression through a baccalaureate nursing program in the United States impacts anxiety. This research investigates anxiety in baccalaureate nursing students and how progression through the program influences self-reported anxiety levels. A descriptive cross-sectional study was performed on a convenience sample at a Midwestern public university in the United States via an online survey, which included both demographic questions and the Generalized Anxiety Disorder 7-item scale (GAD-7). It was determined statistically significant that sophomore students have a higher level of anxiety compared to junior and senior year nursing students. There is also a positive correlation between GPA and GAD-7 scores. Education for sophomore nursing students focused on improved familiarity with the program is discussed as a possible solution for high anxiety levels in this cohort.

Evaluating State Anxiety Levels in Nursing Students

While there is a notable amount of research on the subject of anxiety, there is little research looking at state anxiety among nursing students, specifically with an emphasis on the differences between the nursing program year cohorts (often, but not necessarily, defined as sophomores, juniors, and seniors) and levels of self-reported anxiety. As such, this research will examine if there is a difference in self-reported anxiety levels using the Generalized Anxiety Disorder 7-Item Scale (GAD-7) amongst the three cohorts in an undergraduate nursing program. An additional goal of this research will be to determine what, if any, correlation exists between self-reported GPA and GAD-7 scores.

State anxiety is a temporary emotional state that results from “exposure to a specific situation or stimulus” (Fernandez-Castillo & Caurcel, 2014, p. 265). This emotional state is often accompanied by physical and/or mental manifestations. These manifestations may be, but are not limited to, nausea, sweating, increased heart rate, increased blood pressure, and an increase in the amount of illnesses throughout one’s life (Öngel et al., 2015). State anxiety is seen in a variety of settings, especially academic settings. Alvarez, Aguilar and Lorenzo (2012) found that 35% of students in higher education showed high or very high levels of anxiety during exams. In general, high levels of anxiety have been found to have a negative impact on attention and concentration, lowering both. This impact is even more significant when compared to those with low and medium levels of anxiety (Fernandez-Castillo & Caurcel, 2014). Gass and Curiel (2011) found strong evidence that a link between high levels of anxiety and decreased cognitive performance exists.

In a review of literature regarding stress and anxiety among nursing students, Patterson (2016) discovered that common sources of stress are often related to coursework requirements,

new experiences in the clinical setting, a deficit in support from staff, and grades. Additionally, Wedgeworth (2016) demonstrated that 119 pre-nursing, early nursing, and late nursing students surveyed experienced significantly higher state and trait anxiety than the general college student population, with alarmingly high anxiety levels around the time nursing students started clinical classes, as was reflected by their State-Trait Anxiety Inventory (STAI) scores. In the STAI, mild anxiety is a score between twenty and forty, moderate anxiety is a score between forty and sixty, and severe anxiety is a score between sixty and eighty (Bayoumi et al., 2012). In 43 early nursing students, Wedgeworth (2016) found that the mean STAI for state anxiety was 51.1667 and the mean STAI for trait anxiety to be 48.8095. The findings from the study show moderate levels of anxiety in the nursing student cohort. When the effects of anxiety were applied to nursing students in the clinical setting, it was found that high levels were found to interrupt student care of patients and clinical learning (Hollenbach, 2016). A small Iraqi study found that anxiety levels increased with progression through the academic nursing program as measured by the Beck Anxiety Inventory at the commencement of students' academic years (Abas, 2017). Additionally, a study in Hong Kong used the Depression, Anxiety and Stress Scale 21 to examine the mental health of Chinese baccalaureate nursing students (Cheung et al., 2016). This study found that male nursing students had the most depression and anxiety, and sophomore nursing students had the most anxiety (Cheung et al., 2016).

In spite of the research indicating that nursing students experience anxiety, there is a gap in the literature regarding variances in anxiety levels among nursing students in the United States according to nursing program year, as defined as sophomore, junior, and senior. The purpose of this study is to determine the differences in the level of self-reported anxiety between sophomore, junior, and senior nursing students as recorded by the GAD-7. The research

questions, “Is there a difference in self-reported anxiety levels in baccalaureate nursing students based on program progression (year in program)?” and “Is there a relationship between GPA and GAD-7 scores?” will be answered in the analysis of this study.

Review of Literature

A review of the literature was done to find the effects and prevalence of state anxiety in undergraduate nursing students and how it relates to nursing student performance. There were several objectives for the review of literature: (1) to define state anxiety and identify manifestations and discern how it affects the body, (2) to assess how common state anxiety is among university students, in general, and nursing students, specifically, and (3) to determine the effects that state anxiety has on nursing student performance. In order to find the targeted topics, the search was restricted to the following terms: state anxiety, nursing students, undergraduate students, university students, anxiety, and effects of anxiety. The databases CINAHL, ZipSearch, and EBSCOhost were utilized to find relevant articles. Articles between the years 2012 and 2017 were primarily examined; however, as there was an insufficient number of articles on this subject between the initial period of time, the search was expanded to the year 1992.

The area with the greatest research was found to address our first and second objectives, which were the clinical definition of state anxiety and its prevalence among general university students. State anxiety can be defined as a temporary emotional state subject to a certain situation or a specific stimulus, often noted by mental and or physical changes (Fernandez-Castillo & Caurcel, 2014). Limited information was obtained regarding the extensiveness of state anxiety in nursing students specifically. For senior nursing students (n=92), researchers in Sri Lanka found that the students have increased anxiety due to the hefty workload, the pressure to pass all tests, the need to complete all assignments by a deadline, and the need to find a job and prepare for a

change in role after graduation (Rathnayake & Ekanayaka, 2016). They also found that anxiety increases as one progresses through the nursing program. For sophomore and junior nursing students the sources of anxiety are comparable, but may not necessarily include the anxiety caused by the need to find a job or the preparation for a change in role after graduation. Additionally, Patterson (2016) found that a common source of anxiety for students, as well as new graduates, is a feeling of a lack of preparation for emergency situations.

Fernandez-Castillo and Caurcel (2014) found the level of state anxiety to be high in students attending universities. In terms of the amount of university students experiencing state anxiety, Aguilar and Lorenzo (2012) found that 35% of those students demonstrate high or very high levels of state anxiety. In a study conducted in Saudi Arabia, researchers showed that 53.3% of nursing students at King Khalid University had mild or moderate anxiety levels (Bayoumi, Elbasuny, Mofereh, Assiri, & Fesal, 2012).

Similarly, in a small US study of two groups, the first with 32 students and the second with 36 students, concluded that nursing students had high levels of state anxiety, per the STAI, prior to simulations and clinical experiences (Hollenbach, 2016). The first group, enrolled in an obstetrics rotation, scored 40.90 before the simulation and 42.78 before the clinical experience, and the second group, enrolled in a pediatrics rotation, scored 38.92 prior to simulation and 42.50 prior to clinical experience. Both groups had STAI scores indicating moderate to severe anxiety which infers heightened state anxiety prior to the clinical experience as well as the simulation, though 38.92 is very close to the normal range of state anxiety as defined by the STAI, which is 36-38 (Hollenbach, 2016). Although Hollenbach (2016) found simulation to be helpful in decreasing anxiety (as the scores decreased to low levels of anxiety post-simulation),

even moderately high levels of state anxiety prior to clinical experiences are a concern due to the effects of anxiety on performance and may indicate a need for intervention to decrease them.

Anxiety was found to have varying, generally negative, effects on the body. The effects include physical symptoms such as nausea and sweating, as well as an increase in blood pressure and heart rate (Öngel et al., 2015). State anxiety was also found to have an impact on attention, with high levels of anxiety having a negative impact on one's attention (Fernandez-Castillo & Caurcel, 2014). A study conducted in Saudi Arabia by Bayoumi, Elbasuny, Mofereh, Assiri & Fesal (2012) showed that 56.7% of nursing students reported feeling sick to their stomach or nauseated between their clinical experiences and nursing classes which demonstrates that anxiety is highly prevalent, resulting in physical symptoms among those experiencing anxiety. Another physical effect on the body by state anxiety is increased cortisol levels which can lead to an array of other physical problems and stressors such as a decreased immune system, insomnia, and weight gain in cases of chronic anxiety. Anxiety also has the ability to impact quality of sleep which, in turn, increases anxiety (Lei, Jin, Shen, Li, & Gu, 2015).

State anxiety, whether a result of coursework, grades, or a lack of staff support, was found to impact nursing student performance (Patterson, 2016). A common theme in the literature, as was mentioned by Patterson (2016), Bayoumi (2012), and Cheung (2016), is that anxiety causes impaired overall performance in nursing students. The presence of moderate and severe state anxiety results in decreased learning which, in turn, has a negative effect on clinical performance of the students (Hollenbach, 2016). Although simulation has been recommended as a way to minimize stress in clinical experiences, Watson et al. (2008) found that students continue to experience anxiety that remains among new nurses post-graduation. Research also showed that during simulation based learning, the more people present during a simulation

performance, the more anxiety experienced by the nursing student. Nursing students had much higher simulation performance scores when only one instructor observed them versus multiple instructors and other students (Mills, Carter, Rudd, Claxton, & O'Brien, 2016).

In summary, a review of the literature revealed that state anxiety is pervasive among university students in general, as well as nursing students specifically, yet there is little research on the topic. When a study was conducted about pre-simulation and pre-clinical anxiety, specifically in nursing students, state anxiety appears to be a prevalent problem in the nursing student cohort (Wedgeworth, 2016). The sources of anxiety for nursing students can be anything from clinical experiences to course work or grades (Mills, Carter, Rudd, Claxton, & O'Brien, 2016; Patterson, 2016). A study about general university students conducted by Álvarez, Aguilar and Lorenzo found that levels of state anxiety were high or very high in 35% of students (as cited in Fernandez-Castillo & Caurcel, 2014). Similarly, evaluations of state anxiety in nursing students found that a large percentage, specifically 53%, of students experience mild to moderate anxiety (Bayoumi, Elbasuny, Mofereh, Assiri & Fesal, 2012). Additionally, when the state anxiety levels of nursing students in response to simulation and clinical experience were evaluated using the STAI, levels were found to be high (Hollenbach, 2016). The presence of state anxiety prior to and during the clinical experience specifically is also supported by the findings of Mills, Carter, Rudd, Claxton, and O'Brien (2016), who found that 56.7% of students displayed physical manifestations, such as nausea, prior to clinical experiences.

From the literature, it can be concluded that such levels of anxiety will have a variety of effects on the body, from decreased sleep quality (that, in turn, leads to increased anxiety levels), to weight gain, to a negative impact on attention (Bayoumi, Elbasuny, Mofereh, Assiri, & Fesal, 2012; Fernandez-Castillo & Caurcel, 2014; Lei, Jin, Shen, Li & Gu, 2015). When this is applied

to nursing students, a study conducted by Patterson (2016) and another by Hollenbach (2016) found that learning is impaired by state anxiety and that, as a result, the student's clinical performance is negatively impacted.

Theoretical Framework

Individuals can advocate for their own health by understanding how things impact their mental state, including anxiety level. If given this information, one may be able to intervene by making healthy choices. Dorothea E. Orem's Self-Care Deficit Theory addresses self-care and the benefits of being an effective advocate for one's own health (Petiprin, 2016). This theory has been applied in numerous studies across a variety of nursing care settings (Kumar, 2007; Manzini & Simonetti, 2009; Phillips & Morrow, 1998). One of Orem's major assumptions is that knowledge of possible health problems is necessary in order to promote self-care behavior (Petiprin, 2016). Self-care itself is described as any practice intended to benefit the individual (Manzini & Simonetti, 2009). Orem's self-care theory promotes activities that bring about a healthy life (Kumar, 2007). The "self-care agency" was described by Orem as one's capability to engage in self-care promoting behaviors (Kumar, 2007).

Orem's self-care theory was used expertly by Phillips and Morrow (1998) to describe nursing care of clients with HIV-related anxiety. Phillips and Morrow (1998) argued that self-care is essential for survival, and people want to practice self-care. As such, these authors contended that those who are unable to practice self-care behaviors are good candidates for nursing care. In their application of Orem's model, Phillips and Morrow (1998) asked how patients were able to perform self-care activities to manage anxiety. Nursing interventions such as education about deep breathing, relaxation, anxiolytics, the importance of family, as well as correcting misconceptions about the HIV virus could be incorporated to help patients manage

anxiety (Phillips & Morrow). Our research explores how advancement in nursing school predisposes one to anxiety. Application of Orem's model would begin with anticipation of a heightened anxiety level accompanying factors at each level of the program, followed by planning and implementation of self-care activities to reduce anxiety. By identifying the potential adverse impact nursing education may have on mental health, self-care behaviors might be enhanced and therapeutic intervention can be implemented appropriately. See Appendix A for an illustration of Orem's Self-Care Deficit Theory (Gonzalo, 2011).

Methods

Design

The design for this experiment was a descriptive cross-sectional study. A descriptive cross sectional study analyzes the prevalence of a health problem that occurs in a chosen population while at one specific data collection point (Alexander, Lopes, Ricchetti-Masterson, & Yeatts, 2015). In this research study, state anxiety levels that occurred in the population of sophomores, junior, and senior traditional baccalaureate nursing students at a public university in the Midwest were analyzed. This type of design showed us the extent and distribution of anxiety among these nursing students.

Sample

The convenience sample population for this study was students enrolled in a Bachelor of Science of Nursing (BSN) program at a large, urban public university in the Midwest United States. The total number of students at this university for 2017 was 25,177. The number of students enrolled in the school of nursing in 2013 was approximately 1,000 students including undergraduate and graduate. There were approximately 400 graduate students in the nursing program, which included MSN, PhD, CRNA, and DNP programs. The undergraduate students

made up the other 600 students and the undergraduate programs included the traditional BSN, RN to BSN, accelerated, and LPN to BSN. At the time of this study, there were 468 students enrolled in the BSN program. The sample included sophomore, junior, and senior students who were already enrolled in the nursing program. The students had a varied background as some students were enrolled in the four year program, some in the five year program, and some were honors students. Only traditional baccalaureate nursing students were included in this study.

Exclusion criteria were: 1) accelerated students were excluded from this study because they may have more state anxiety associated with the rapid rate at which the program moves in order to complete the degree in a shorter period of time, and 2) RN to BSN and LPN to BSN students. These individuals had a nursing degree at the start and, as a result, had more clinical experience than a traditional student, likely leading to lower state anxiety levels. These students could have skewed the final results so they were excluded in this study. The sampling frame was a list of currently enrolled students retrieved from the nursing department.

Sampling and Data Collection Procedures

The online data collection process began in the fall semester of 2018. The data was collected during one eight week rotation in order to capture as many participants as possible and to ensure that all nursing students were addressed before the transition to a new nursing rotation. This study received Institutional Review Board (IRB) approval (exempt status) from the university prior to data collection. The participants were informed via email that the proposed online survey was anonymous and contained no identifying characteristics. They were also informed that it was not mandatory to take the survey and they cannot be penalized for not completing it.

Qualtrics is the electronic survey software that hosted the questionnaire and made the questionnaire accessible via email, and organized the results for interpretation. The data collected via the online survey did not contain any identifiable student characteristics. Qualtrics obtained all the completed questionnaire data. The results were reported in aggregate only, so no individual respondents can be identified.

After retrieving a list of all traditional baccalaureate nursing students, we emailed basic information and a request to participate to all sophomore, junior, and senior traditional baccalaureate nursing students. Included in the email was a link to Qualtrics, the online survey that contains the seven item Generalized Anxiety Disorder (GAD-7) scale. The Qualtrics survey contained an informed consent letter explaining the study and any risks (see Appendix B). Students reviewed and gave implied consent by proceeding to the next step. Before administration of the GAD-7, demographic questions were asked of the students (see Appendix D). Demographic questions helped exclude certain students from the survey, determined what factors could be contributing to high and low levels of anxiety, and determined which cohort the nursing students were currently in for the data analysis. Following the demographic data, students were asked to respond to the Generalized Anxiety Disorder 7-item scale (GAD-7). We also sent follow up reminders in three waves of emails in an attempt to increase responses.

Measures

The GAD-7 was used to obtain data from nursing students (see Appendix C). The GAD-7 consists of seven items that help determine the severity of anxiety in the student. Students ranked seven different symptoms of anxiety on a scale of zero to three, with zero being not at all, one being several days, two being more than half the days, and three being nearly every day in a 2-week period. Each column was added up and the total yields the level of anxiety experienced

by the nursing student. A score of 0-4 is minimal anxiety, 5-9 is mild anxiety, 10-14 is moderate anxiety and 15-21 is severe anxiety.

The scale had been determined to be both highly reliable and valid. The GAD-7 had a Cronbach alpha = 0.92, indicating the scale was very reliable. A test-retest was also performed in which those surveyed took the GAD-7 initially, then a professional administered the GAD-7 to them within one week. Results were very similar with an intraclass correlation of 0.83. There was also good validity in this scale. Using convergent validity, the GAD-7, the Beck Anxiety Inventory, and Anxiety Subscale of the Symptom Checklist-90 compared the results of their tests which measured depression and anxiety. All three tests yielded similar results between the results of their test and the likelihood of depression and anxiety which shows good convergent validity. The GAD-7 also shows a sensitivity of 89% and a specificity of 82%. The GAD-7 demonstrates valid, reliable, sensitive and specific results similar to other anxiety scales (Spitzer, Kroenke & Williams, 2006).

Data Analysis Plan

After receiving the survey responses, Qualtrics organized results to help determine which year of nursing students and what factors contributed to the highest state anxiety levels. An independent samples t-test was conducted to identify differences in levels of state anxiety between the three different cohorts (sophomore, junior, senior) of nursing students. When analyzing the data, the number of students in each academic year who have state anxiety, as well as the level of state anxiety those students are experiencing was examined. The demographic questions also helped organize responses so that it could be determined if a certain demographic factor contributed to higher or lower state anxiety levels. Factors that affected outcomes such as small sample size, inconsistent responses between the different academic year of nursing

students, the specific course they are enrolled in, whether or not they had an upcoming tests or had just completed a test, and any other limitations were also analyzed within this study.

Results

Analysis

The online Qualtrics survey received 259 responses, comprised of sophomore students (n=123), junior students (n=64), and senior students (n=72). Survey respondents were excluded from analysis using the GAD-7 instrument if they failed to complete any portion of the GAD-7 instrument, identified themselves as having a diagnosed anxiety disorder, or if they identified themselves as not being in the traditional BSN program. 169 GAD-7 scores were completed and included in a comparison of GAD-7 anxiety score versus grade level in the clinical nursing program. The mean GAD-7 score was determined from the responses of sophomore (n=78 or 46%), junior (n=44 or 26%), and senior (n=47 or 28%) year students. The standard deviation was calculated for each cohort of students. By cohort, sophomores had a standard deviation of 5.57; juniors had a standard deviation of 4.28; and seniors had a standard deviation of 4.93.

Independent t-tests were run to examine the significance of the relationship between the nursing students' cohort and GAD-7 scores. This method was utilized because statistical assumptions for ANOVA could not be met due to unequal variances. For the relationship between the clinical year and average GAD-7 score, statistical significance was determined if the p-value was < 0.017 ($0.05 \div 3$ cohorts). Between sophomore students (n=72) and junior students (n=44), a statistical significance was found ($t(109) = 4.029$, $p = 0.000$). Between sophomore students (n=72) and senior students (n=46), a statistical significance was found ($t(105) = 2.935$, $p = 0.004$). However, between junior students (n=44) and senior students (n= 46), no statistical significance was found ($t(88) = -0.852$, $p = 0.397$).

Student responses were combined and placed into categories based on the level of anxiety that they fell under according to the GAD-7. The categories were those with minimal anxiety, a score between 0 and 4; mild anxiety, a score between 5 and 9; moderate anxiety, a score between 10 and 14; and severe anxiety, a score between 15 and 21. The percentage of students with minimal anxiety between all levels of nursing students who responded to the survey was 24.26%. The percentage of students overall with mild anxiety was 39.64%. The percentage of students with moderate anxiety was 17.75%. The overall percentage of students with severe anxiety was 18.34%. Sophomore year students (n=78) had a mean GAD-7 score of 10.51. Junior year students (n=44) were determined to have a mean GAD-7 score of 6.84. Those in the senior year of nursing school (n=47) were determined to have a mean GAD-7 score of 7.60. This data is reflected in Table 1-1. The overall mean GAD-7 score for all nursing students included in the analysis was 8.75.

Within the categories of minimal, mild, moderate and severe state anxiety (as determined by the GAD-7), the average GPA of each cohort was calculated and is reflected in Table 1-2. For those with GAD-7 scores reflecting minimal anxiety (n=40), the average GPA was found to be 3.51. The students with GAD-7 scores reflecting mild anxiety (n=65) were found to have a mean GPA of 3.56. The average GPA of those who scored under the moderate anxiety category (n=27) and the severe anxiety category (n=29) was 3.6. Using a Pearson's correlation coefficient test to examine the GAD-7 score and GPA of these students (n=162), a correlation of 0.208 was calculated. The correlation between GPA and GAD-7 is considered only slightly significant.

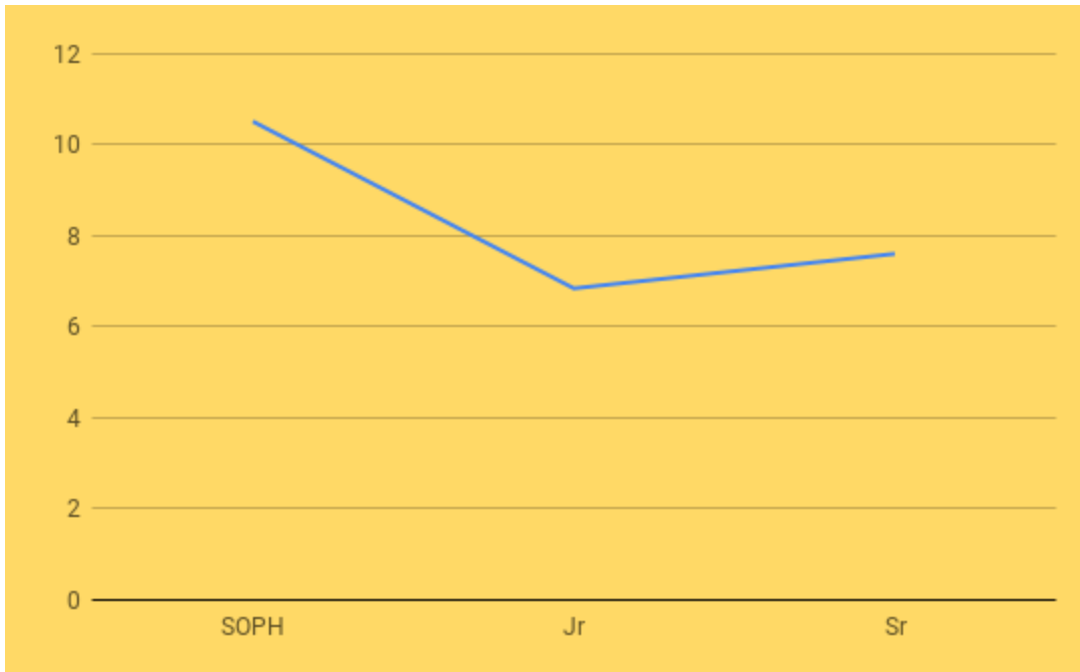


Table 1-1. Mean GAD-7 score between each level of nursing students

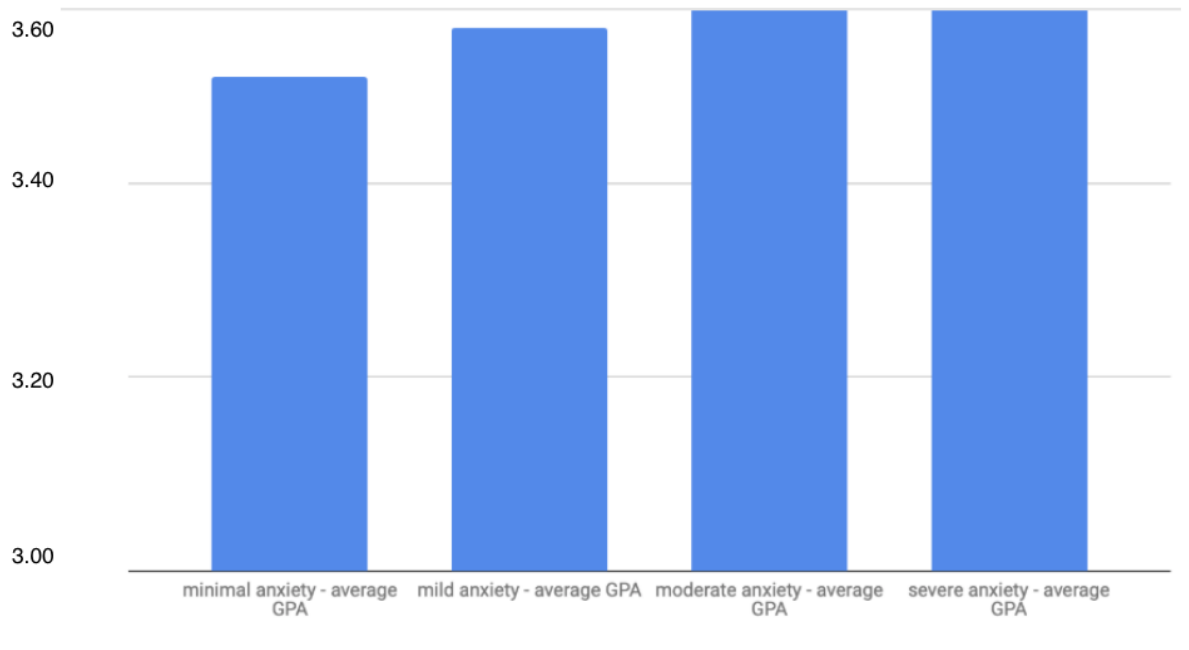


Table 1-2. Average GPA (between 3.0 - 4.0) by level of anxiety

Discussion

The results support the conclusion that sophomore nursing students experience anxiety at higher levels than do nursing students in their junior and senior years of the program. While a variety of inferences could be made to explain this observation, one likely contributing factor could be the sophomores' lack of familiarity with the clinical settings, course expectations, and application-based test question format. In addition, higher-level students may have existing relationships with faculty or have additional opportunities for clinical experience while working at local hospitals in nursing assistant roles. It can be speculated that the stress of not being prepared for clinical situations, as well as the nature of the courses assigned to sophomore nursing students could also contribute to their anxiety levels. It should be noted that sophomore nursing courses such as pathophysiology, pharmacology, and health assessment are frequently noted by nursing students as being some of the most challenging aspects of the curriculum. Table 1-1 reflects that sophomore students have significantly higher levels of anxiety overall, providing a visual representation of the findings discussed.

Students experiencing anxiety at more than a mild level may benefit from early interventions throughout the nursing program to alleviate stress and promote overall health. An intervention that could be implemented to alleviate the anxiety of unfamiliarity with clinical settings and faculty is providing the incoming nursing students with opportunities to familiarize themselves with clinical sites and nursing faculty. Nursing students could be familiarized with the clinical sites through tours of hospitals guided by faculty members who teach a variety of courses in different years of the nursing program, in order to promote positive student-faculty relationships early on. In addition, this will allow nursing students the opportunity to interact with the staff of the local hospitals who can give specific details about the different nursing care settings, how to obtain a nursing assistant job, and helpful tips for clinicals. Interactions with

current juniors and seniors in the nursing program may also help alleviate anxiety for sophomore students because experienced nursing students can provide knowledge ahead of time about course expectations, methods of studying that they found beneficial for the application-based exam questions, and helpful tips for preparing for the clinical setting. Nursing student mentor groups would be a great addition to all nursing schools to allow development of professional relationships between different years of nursing students. Low cost tutoring programs are also another intervention that should be encouraged for sophomore students who are struggling to understand concepts in the difficult courses during their sophomore year of the program. The implementation of interventions could potentially alleviate anxiety and allow promotion of the health of nursing students that would be beneficial to all nursing programs.

The results accrued by calculating the mean GPA for each level of anxiety, appears antithetical to the general consensus of studies referenced in the review of literature, which found that higher levels of anxiety in students leads to poor academic performance (Fernandez-Castillo & Caurcel, 2014; Hollenbach, 2016). In this case, those who reported having moderate and severe levels of anxiety had higher reported GPAs on average than those with minimal or mild levels of anxiety. The results seem to reflect that the higher anxiety levels a person has, the higher their GPA will be, on average. The lowest mean GPA was for those in the minimal anxiety group at 3.5. Those who were determined to have mild anxiety had the next lowest mean GPA at 3.56. A difference in average GPA between those with moderate anxiety and those with severe anxiety was not found, as both levels had a 3.6 GPA. When comparing the significance of the correlation between GPA and GAD-7 scores, it was found that it was rather weak at 0.208, however, somewhat counterintuitively, it was determined that the nursing students who reported the lowest levels of anxiety had the lowest GPAs as well.

Limitations

This study has multiple limitations. This study utilized a convenience sample from a single university, likely creating a bias and generating results that will be less applicable to general BSN student populations. Additionally, data was collected via the GAD-7, a general tool that is not specific to state anxiety. The GAD-7 is used as a generalized anxiety tool and does measure general anxiety, however, it cannot measure state anxiety specifically. The Spielberger STAI is more state anxiety specific but it could not be obtained for research due to permission and funding restrictions. As a result of this, those who responded “yes” when asked whether or not they had been diagnosed with an anxiety disorder were excluded from the final result interpretation. Another limitation is that, although the demographics questionnaire asked if students had an exam in the previous or future week, aggregate analysis prevented correlating those who responded “yes” with their GAD-7 score (whether higher or lower); thus, the impact of specific program-related events on state anxiety cannot be determined. In addition, there are other confounding variables that could impact the students’ state anxiety level (i.e. personal stressors or crises, physical illness, amount of study time) that were not controlled for in this study.

Further, students could control when they wanted to take the survey. Since the GAD-7 covers a two-week period of time, the students may have considered upcoming and recent past exams in their responses. However, it is likely that those agreeing to do the survey took it at a time convenient to them, perhaps a time when they were feeling less stress and anxiety. As such, results may not accurately capture state anxieties directly related to nursing program events, such as exams.

Conclusion

Based on the evidence collected in this study, it can be concluded that sophomore students had statistically significant higher levels of anxiety than both the junior and senior year nursing students at the time of this survey. The additional research analyzing the correlation between GPA and GAD-7 scores indicated that, indeed, the values are correlated positively, however, with only a small significance. Dorothea E. Orem's Self Care Deficit Theory emphasizes the importance of self-care. The information concluded by this study can help future nursing students to expect higher or lower levels of stress depending on their year in nursing school. Furthermore, this expectation can aid nursing students in implementing interventions that will improve their own self-care and health promotion, which can lower levels of anxiety. Interventions can also be made by the nursing program itself to benefit the mental health of its own students.

Further research is needed in different geographical locations, with larger sample populations and different screening tools. Although the GAD-7 yields sensitive, specific, reliable and valid results of data, it is a general anxiety tool, not a state anxiety tool. Additional qualitative research should be conducted to help determine the reasons for higher anxiety in sophomore students and why anxiety levels decrease in the junior and senior year of nursing school. In addition, more research examining the positive correlation between GPA and GAD-7, using a larger sample size with a focus on the reason for the correlation would lead to increased knowledge on the mental health of nursing students in a traditional baccalaureate nursing program.

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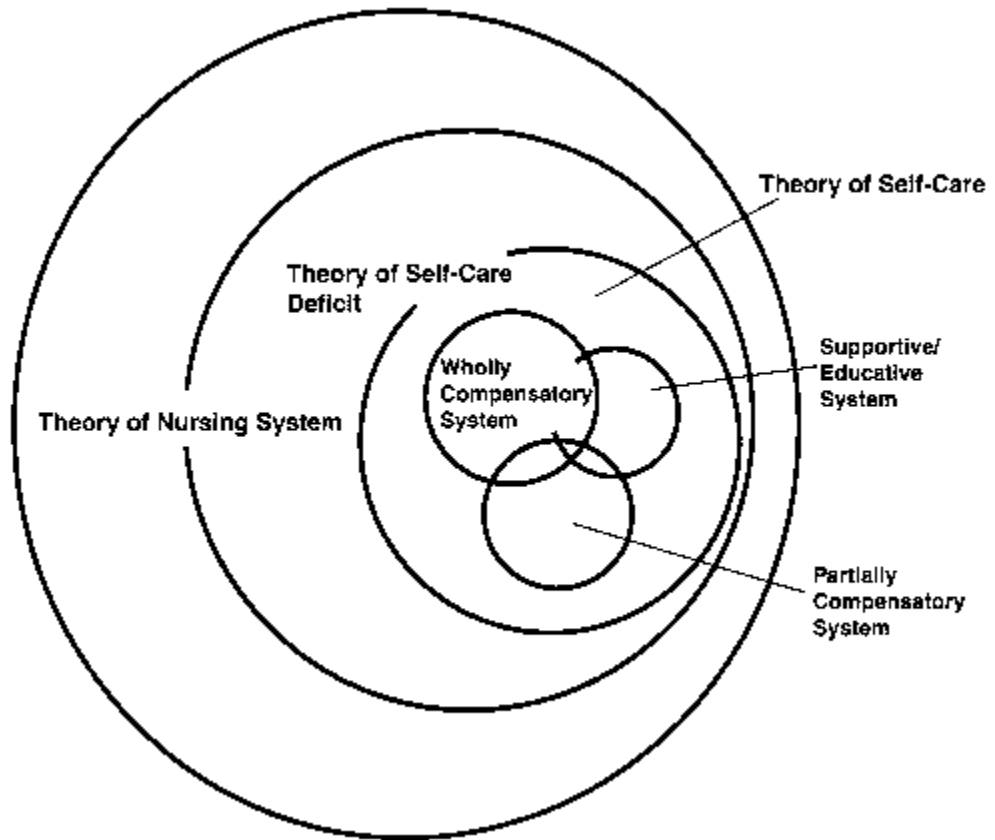
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Appendix A

Dorothea E. Orem's Self-Care Deficit Theory



(Gonzalo, 2011)

Appendix B

Title of Study: Evaluating State Anxiety Levels among BSN nursing students at The University of Akron

Introduction: You are invited to participate in a research project being conducted by Tyler Blake, Rachel Nussbaum, and Rachel Stevens, nursing students in the College of Health Professions, School of Nursing at The University of Akron.

Purpose: The purpose of this project is to evaluate which level of nursing students experience the most anxiety and what factors could be contributing to increased anxiety levels.

Procedures: If you volunteer to participate in this study, you will be asked to complete a short, online survey in which you rank some feelings and attitudes on a scale of 0-3 depending on whether or not you are experiencing it. It will take less than 5 minutes to complete the survey. Additionally, you will be asked to give some information about your age, gender, ethnicity, marital status, grade point average, job, credit hours enrolled in, and what year of the program you are currently enrolled in. You will not be asked to give any identifying information at any time.

You are eligible to participate in the study if you are enrolled in traditional undergraduate nursing program as a sophomore, junior, or senior and at least 18 years old. You are not eligible if you are an accelerated nursing student or a student in the RN/BSN, LPN/RN, or graduate nursing programs. No persons will be excluded based on gender, ethnicity, race, sexual orientation, marital status, or age as long as they are 18 years or older.

Benefits and Risks: You will receive no direct benefit from your participation in this study, but your participation may help us understand what factors contribute to anxiety levels and what level or levels of nursing students may benefit from some interventions in the undergraduate

program. This can benefit the University of Akron and many other nursing programs increase their understanding and development of nursing students' educational stresses so that they can develop programs that benefit nursing students. There are some possible risks involved in completing the survey because you are asked to answer questions about personal feelings and attitudes. And although we hope you respond to every item on the survey, whether or not you do is up to you! Because no identifying information is collected in the survey and because survey distribution and submission occur anonymously and online, there is very minimal risk of participant identification. You will complete the survey at your leisure and in a comfortable, secure, and private environment. In case you feel the need to talk with a counselors and health care provider after completing this survey, please contact: (1) The Counseling Center, Simmons Hall 306, Phone: 330-972-7082, Website: <http://www.uakron.edu/counseling/> and/or (2) Student Health Services, Student Recreation and Wellness Center, Suite 260, Phone: 330-972-7808 Website: <http://www.uakron.edu/healthservices/>

Right to refuse or withdraw: Participation is voluntary. Refusal to participate or withdraw from the study at any time will involve no penalty. Failure to participate in no way affects your academic standing.

Anonymous and Confidential Data Collection: No identifying information will be collected, and your anonymity is further protected by not asking you to sign and return the informed consent form.

Confidentiality of Records: Data are collected with an online survey. The survey is loaded into Qualtrics, an electronic survey software program. You will complete the survey electronically and at your own convenience. Electronic survey completion means that data are

automatically entered into a data set. Disconnecting participants from their surveys is also related to protection of human participants.

Who to Contact with Questions: If you have any questions about this study, you may contact Tyler Blake (tdb76@zips.uakron.edu), Rachel Nussbaum (ren17@zips.uakron.edu), Rachel Stevens (rns33@zips.uakron.edu), or Dr. Lori Kidd, PhD (Advisor) at kidd@uakron.edu. This project has been reviewed and approved by The University of Akron Institutional Review Board. If you have any questions about your rights as a research participant, you may call the IRB at (330) 972-7666.

Acceptance & Signature: I have read the information and voluntarily agree to participate in this study. My completion and submission of this survey will serve as my consent. I may print a copy of this consent statement for future reference.

Now, begin to complete the survey!

Appendix C

GAD-7 Anxiety

Over the <u>last two weeks</u> , how often have you been bothered by the following problems?	Not at all	Several days	More than half the days	Nearly every day
1. Feeling nervous, anxious, or on edge	0	1	2	3
2. Not being able to sleep or control worrying	0	1	2	3
3. Worrying too much about different things	0	1	2	3
4. Trouble relaxing	0	1	2	3
5. Being so restless that it is hard to sit still	0	1	2	3
6. Becoming easily annoyed or irritable	0	1	2	3
7. Feeling afraid, as if something awful might happen	0	1	2	3

Column totals _____ + _____ + _____ + _____ =

0–4: minimal anxiety

5–9: mild anxiety

10–14: moderate anxiety

15–21: severe anxiety

Total score _____

•seven-item scale (GAD-7) has shown reliability, validity, and adequate sensitivity (89%) and specificity (82%)

Appendix D

Demographic Questions:

1. Age ____ (type in response)
2. Marital Status (check box)
 - Single
 - Married
3. Do you have any children? (check box)
 - None
 - 1
 - 2
 - 3 or more
4. How many credit hours are you currently enrolled in? (check box)
 - Less than 12
 - 12-14
 - 15-16
 - 17-18
 - More than 18
5. What is your current Grade Point Average? ____ (type in response)
6. How many hours each week do you work on average? ____ (type in response)
7. What year of nursing school are you currently enrolled in? (check box)
 - Sophomore
 - Junior
 - Senior
8. Do you have an exam in the next 7 days? (check box)
 - Yes
 - No
9. Did you have an exam in the last 7 days? (check box)
 - Yes
 - No
10. Are you currently enrolled in a traditional Baccalaureate 4-year nursing program?
 - Yes
 - No
11. Have you ever been diagnosed with an anxiety disorder? (check box)
 - Yes
 - No