ABSTRACT

NURSING TRANSITIONS INTO PRACTICE: A COMPARISON
OF PROFESSIONAL ROLE BEHAVIOR OUTCOMES

Transitioning from student nurse to professional nurse can be challenging for the newly licensed registered nurse (NLRN). The benefits of a transition to practice program (TTP) on developing the novice nurse are widely acknowledged. This study evaluated for a difference in essential professional role behavior development between an incremental orientation model (IMO) and a tiered skills acquisition model (TSAM). In this context, essential professional role behaviors are defined as the individual behaviors and skills vital to the nursing professional's success, including confidence, autonomy, critical thinking, clinical judgment, communication, collaboration, organization, prioritization, delegation, and technical skills attainment.

An online survey was distributed to NLRN's on two inpatient units at two rural acute care hospitals. Respondents were divided into two conditions (incremental and tiered) and asked to respond to questions about their perceptions of the orientation process. Responses were analyzed using an independent t-test. The results showed a significant effect in the opposite direction hypothesized. Overall total confidence levels in developing essential professional behaviors were higher in nurses oriented by the incremental orientation model. Limitations include the sample size of n=32 and limited generalizability.

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NURSING TRANSITIONS INTO PRACTICE: A COMPARISON

OF PROFESSIONAL ROLE BEHAVIOR OUTCOMES

by

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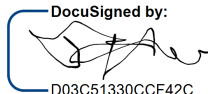Doctor of Nursing Practice

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APPROVED

For the California State University, Fresno
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We, the undersigned, certify that the project of the following student
meets the required standards of scholarship, format, and style of the
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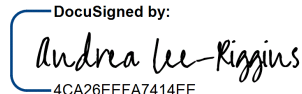awarding of the master's degree.

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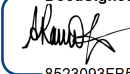
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CHAPTER 1: INTRODUCTION

According to the National Council of State Boards of Nursing (2019), 25% of newly licensed nurses (NLRN) will resign within their first year of practice because of their inability to transition into practice successfully. The novice must assimilate a new role, safely translate theory into clinical practice, and care for acutely ill clients with multiple health conditions. The NLRN must also socialize into a culturally and generationally diverse profession while mastering a vast range of technology. Often new nurses experience frustration and feelings of being overwhelmed during the first year of clinical practice. Among the challenges are increased job-related stress, lack of mentors, and workplace bullying, leading to fatigue and burnout (Hofler, 2016).

The lack of trained mentors to facilitate the transition is known to trigger the novice nurse to resign. Angela McBride, the author of *The Growth and Development of Nurse Leaders*, speaks of a two-fold issue. "People didn't think of mentoring before. Instead, many of them had an attitude that if they went through hell, so should you."(American Nurse Association, 2013). The second contributing factor McBride discusses relates to staffing turnover rates. According to Becker's Review, 2017, a survey including 852 participants showed:

- Hospitals replace almost half of their staff every five years and lose employees faster than replace them.
- The lack of permanent employees continues to widen the knowledge gap in hospital staff. Approximately 43% of survey participants indicate they have been with the hospital for fewer than two years. Sixty-seven percent of respondents revealed they have been with the hospital for fewer than five years. Over 37% of the survey

participants plan to leave within the next two years, 68.6% plan to depart in five years (Becker's Hospital Review, 2017).

Several factors contribute to staff turnover, for example, hospital environment, advancement opportunities, compensation, and retirement. According to Becker's Review, approximately 27.4% of survey respondents resigned for better advancement opportunities and 14.4% for payment. The remaining 58.2% resigned for job dissatisfaction due to long work hours, frustration, and burnout. Almost half of the healthcare worker (HCW) population indicated they would retire within the next ten years. Twenty-two percent of HCWs expected to retire in five years (Becker's Hospital Review, 2017).

Inability to Form Professional Relationships

The "reality shock" NLRN's experience as they reconcile the gaps in theory and clinical practice leads to stress, early burnout, job dissatisfaction, and eventually resignation (Joswiak, 2018). In a 2018 study, NLRN's self-identified they struggle with developing professional relationships and consequently do not feel a part of the team. Upon entry into the new role, they expect to adapt quickly. When they fail to do so, they experience increased frustration and become hesitant to communicate with the interprofessional team and family members. They soon become discouraged from their lack of confidence and poor performance. Relationships further deteriorate when organizations do not address the bullying culture within the nursing profession. Ultimately, when new nurses do not feel supported, they leave (Wong et al., 2018).

Thomas et al. (2012) identified similar central themes as to why new graduate nurses exit within the first year.

1. NLRNs experience frustration and feelings of being overwhelmed during the transition.
2. The new nurse lacks ongoing support from leadership and preceptors.
3. The new nurses lack ongoing feedback during orientation.
4. Negative emotions are compounded by fear and anxiety when they cannot navigate the cynical professional relationships that develop among healthcare professionals, especially those between nurse to nurse and nurse to the physician (Thomas, 2012).

While there is a high demand for healthcare workers, a concurrent increase in nursing attrition rates reached a record high at 17.2% in 2018. The average cost per nurse is $52,000 and ranges from $40,300 - $64,000 (Opperman et al., 2016). Each percent change in nursing attrition will potentially cost or save the average hospital an additional $328,400 (Nursing Solutions, Inc, 2019).

According to the National Council of State Boards 2014, organizations with an established TTP transition the novice nurse into practice more successfully than organizations without a TTP. Nurses in organizations with TTP programs make fewer errors, have less harmful safety practices, and report higher competence ratings. As a result, they experience less job-related stress, socialize into the environment successfully, report higher overall job satisfaction making them less likely to leave. Institutions that invest in their new graduates by developing TTP's can facilitate nurses' professional development that appropriately manages work-related stress while minimizing turnover rates.

Problem Statement

GAP Analysis

Before June 2018, FHSH used an incremental productivity model of orientation (IMO). The IMO's is a familiar nurse training model. The new nurse is paired with a preceptor and given a modified assignment. For example, they would manage three patients instead of four patients. The preceptor is responsible for the care for two patients, while the orientee delivers care for one patient. As the orientee progresses on orientation, patients are added incrementally to the orientee's assignment (Joswiak, 2018).

This model of orientation presented several challenges to the FHSH leadership team. The staff development team identified several gaps in the process.

1. A decrease in productivity as the preceptor and orientee took a modified patient assignment. An extra nurse came in to provide care for the remaining patients excluded from the modified patient assignment.
2. As NLRN's transitioned off orientation, they lacked essential professional role behaviors.
3. Their peers reported a noticeable lack of confidence in managing their team and communicating with the interdisciplinary team.
4. During post-orientation follow-up, the NLRNs, self-reported a perceived lack of clinical judgment and critical thinking.

These findings, coupled with a shortage of trained preceptors and increased attrition rates, triggered a rapid cycle revision of the onboarding process. Research revealed a promising solution, the tiered skills acquisition model, developed by Ellen Joswiak, Clinical Nurse Specialist of the Mayo Clinic, Minnesota. The

TSAM orientation model flips the incremental orientation dichotomy. The preceptor and orientee take a complete patient assignment. The orientee focuses on a specific set of core nursing concepts, competencies on each tier while observing their nurse preceptor role models professional nursing. The orientee progresses from simple to complex skills throughout the orientation process. Rather than incrementally adding patients to the orientee's assignment, core nursing skills are added incrementally to the new employee's assignment (Nelson & Joswiak, 2018).

The TSAM pilot went live on June 1, 2018, at FHSH. The most notable improvement was the optimum productivity. Concurrent to implementing this program, a sister unit at CRMC was "hemorrhaging" nursing staff. Voluntary nursing resignation reached a high of 27.9% in 2018. In 2019, the voluntary resignation continued to climb to 28.4%. The situation reached a concerning low when an NLRN resigned on the spot, the day orientation concluded. Upon further investigation, the staff development team learned that the sister unit used an IMO without a modified assignment and an orientation length cap of six weeks for NLRN's.

The clinical staff development team for the service line, gathered together by the service line director. The team developed a plan to expand the TSAM to the sister units. The project included the strategic training of preceptors to gain preceptor buy-in. The program pilot was expanded and went live on April 1, 2020, at CRMC.

Purpose

The purpose of this Doctor of Nursing Practice (DNP) project was to evaluate if there is a difference in the development of essential professional role

behavior in NLRN's participating in IMO training versus the TSAM. The researchers formulated the following hypothesis:

> There will be a difference in the professional role behavior outcomes between the IMO and TSAM model. After onboarding on the TSAM model, the orientee will increase confidence in employing professional role behaviors.

Definition of Terms

Some of the terms used in this research are defined below.

Essential professional role behaviors

Individual behaviors and skills essential to the nursing professional's success, including confidence, autonomy, critical thinking, clinical judgment, communication, collaboration, organization, prioritization, delegation, and technical skill attainment.

An incremental model of orientation (IMO)

Partial productivity model where the preceptor manages part of the patient assignment. The orientee directs the other part of the assignment. Patients are added to the orientee assignment on a fixed scale until the orientee manages the complete patient assignment's care.

Newly licensed Registered Nurse (NLRN)

A nurse who has received their first or basic Registered Nurse license by passing the NCLEX within the last 18 months is considered an NLRN (Pellico, C., & Kovner, 2009).

Onboarding

Onboarding is the process of assimilating a new employee into the health care organization with structured engagement (SHRM) as cited by (Sadler, 2017) 2017). This term is used interchangeably with orientation.

Tiered skills acquisition model (TSAM)

Phased, full productivity model where the preceptor and orientee work as one. Skills move from simple to complex. Preceptors can move orientees based on their demonstrated level of competence (Joswiak, 2018).

Transition to practice program (TTP)

A formal program of active learning implemented across all settings for NLRN's and licensed practical/vocation nurse [LPN/VNs] designed to support their progression from education to practice (National Council of State Boards of Nursing, 2019).

Theoretical Framework

Patricia Benner offers the framework guiding this project. Benner derived the Novice to Expert theory from distinguishing an experienced nurse from an inexperienced nurse. As well as meet the increasing demands of a complex healthcare system (Benner, 1982). Benner posited that the Dreyfus model of skills acquisition developed by Stuart and Hubert Dreyfus could be generalized to nursing as it considers experience and education in skill acquisition stages. The Dreyfus model asserts that one moves through five stages of skill acquisition.

- Novice
- Advanced Beginner
- Competence
- Proficiency

- Expertise

The brothers describe a phenomenon in which "a beginner calculates using rules and facts just like a heuristically programmed computer, but that with talent and a great deal of involved experience, the beginner develops into an expert who intuitively sees what to do without recourse to rules" (Benner, 1982). Similarly, Benner hypothesized that nurses also move from the reliance on abstract principles to the use of past concrete experience. Benner notes a change in the nurses' perception explicitly, shifting from seeing indiscriminate parts to a whole clinical picture (Benner, 1982). From her observations, Benner developed the concept "From Novice to Expert" theory describing how the nurse's knowledge, skills, and understanding develop over time because of education and personal clinical experiences (Petiprin, 2016).

Benner's Stages of Clinical Competence outlines five stages of proficiency with descriptive characteristics of each. In the first stage, the novice or beginner lacks clinical experience and relies heavily on the rules to determine actions and complete tasks. In the second stated, the advanced beginner demonstrates acceptable performance due to prior experience in clinical scenarios. They are efficient and skilled in areas of clinical practice requiring occasional cues as knowledge is developing. In the third stage, the nurse has 2 to 3 years of clinical practice and demonstrates competence in managing similar situations. The competent practitioner exhibits efficiency, coordination, and confidence in their actions. At this stage, the nurse can develop a plan considering deliberate, conceptual, and analytic reflection of the problem and executed it in an appropriate time frame (Benner, 1982).

In the fourth stage, the practitioner proficiently perceives the whole clinical situation rather than in its parts. They have learned from their experiences how

events will typically progress when to intervene and adapt in response. Their understanding of the holistic picture guides their decision-making with ease based on their perspective of the essential aspects of care. The expert clinician functions intuitively in the final stage, rapidly homing in on the correct problematic areas without considering an extensive range of unfruitful alternative diagnoses and solutions. They have a deep understanding of the whole picture and perform fluidly and at high proficiency using highly skilled analytics in new situations. Benner's research shows that expertise integrates knowledge and experience to analyze a situation (Benner, 1982) accurately.

Summary

New graduate nurses face a host of challenges when transitioning into their new roles. The orientation process has the potential to facilitate or be detrimental to the development of a new nurse. Providing adequate support and structure is vital in providing direction to millennial nurses. Socialization into the environment and with the team is critical for their success. Institutions that invest in their NLRN's will facilitate their professional development, help them appropriately manage work-related stress, and improve patient outcomes.

To provide additional support and develop essential professional behaviors in NLRN's a new orientation model was implemented. This DNP project aimed to evaluate if there is a difference in the essential professional role behavior development between the IMO and TSAM.

Dr. Benner's Novice to Expert theory distinguishes the experienced nurse from the inexperienced nurse, came about as Benner set out to validate the Dreyfus model in nursing (Benner, 1982). Benner conducted interviews and directly observed fifty-one experienced nurses, eleven new graduates, and five

senior nursing students in six different hospitals. Benner found no evidence to refuse using the Dreyfus Model of Skill Acquisition in clinical nursing practice (Benner, 1982). Subsequently, her model is the framework used for assessing nurses' needs at various stages of professional development.

CHAPTER 2: REVIEW OF THE LITERATURE

There is an abundance of literature to explain the benefit of nurse orientation programs on improving retention and nurse competency. This review will focus on Nurse Residency Programs (NRP), mentorship in a preceptorship, phased orientation models, and tiered skills acquisition models. Although the literature presents these themes in various contexts, this discussion will focus on their application to professional role behavior development.

Nurse Residency Programs

There are many names used for NRPs, including internship, externship, preceptorship, and mentorship. In general, the student nurse completes an internship or externship pre-licensure. In contrast, the NLRN enters a preceptorship and mentorship post-licensure. NRPs are programs entered into after graduation that is more formal or structured than a basic nursing orientation that occurs over a year designed to assist with transitioning into practice (Stokowski, 2015). The American Association of Colleges in Nursing (AACN) defines a postbaccalaureate NRP as a series of learning sessions and work experiences that occur continuously over 12 months to assist new employees as they transition to their first professional program (Stokowski, 2015).

In (2010) *The Future of Nursing: Leading Change, Advancing Health*, the Institute of Medicine (IOM) made several recommendations to transform the healthcare system with the passing of the Affordable Care Act. The suggestions served as a guide to ensure nurses can practice to the full extent of their education and training, improve nursing education, provide leadership opportunities as full partners in the health system redesign, and improve data collection for workforce planning and policymaking. The IOM recommended a call for accrediting bodies

to support the implementation of nurse residency programs (Institute of Medicine (US) Committee on the Robert Wood Johnson Foundation Initiative on the Future of Nursing, at the Institute of Medicine, 2011).

The Commission on Collegiate Nursing Education has provided standards for TTP's since 2008. The American Nurses Credentialing Center (ANCC) released standards for implementing NRPs in 2014 (Windey, 2017). Health organizations typically absorb the cost of implementing NRPs or use external grants to fund the programs. NRPs are generally an adjunct to the orientation process and offer great support for NLRNs (Stokowski, 2015).

Pittman, Bass, Hargraves, Herrera, and Thompson (2015) did a comparison study evaluating the implementation of IOM 2010 report recommendations. As part of the study, the authors completed a cross-comparative evaluation of required training programs by setting, comparing 2011 versus 2013. They found that more hospitals had implemented a required NRP in addition to a new nurse orientation to prepare nurses to function to the full extent of their education and meet the growing demands of healthcare (Pittman et al., 2015). This study is relevant because as NRPs have a significant impact on retention and have proven key to developing essential role behaviors by supporting the NLRN over their first year of practice.

Mentorship in Preceptorship

Mentoring is widely recognized in the business world and has gained footing in the nursing arena more recently (Shermont et al., 2019). Scott and Smith (2008) developed a successful transition and retention (STAR) program. The STAR program used a feasible, economical, and practical mentoring model to improve NLRN satisfaction and retention. The critical component was providing

the NLRN a mentor relationship in addition to the preceptor relationship. The preceptor focused on developing the technical skills of the NLRN, while the mentor concentrates on developing professional relationships. The mentor relationship also provided a professional connection in which the NLRN could share frustrations, disillusionments, and fears.

Shermont and colleagues (2019) implemented a transition mentoring education program pilot (TMEPP) that mentors new employees during the first two years of practice. The program successfully bridged knowledge-based gaps in training, enhancing clinical confidence, critical thinking, developing reflective practice, and personal and professional development of NLRNs (Shermont et al., 2019). Most noteworthy in the study was the long-term relationships built as the NLRN transitioned into practice (Shermont et al., 2019). It is widely recognized in healthcare that mentoring relationships support healthy work environments. Mentoring enhances communication among the healthcare team and fosters collaboration.

Phased Orientation

Other researchers have documented the benefits of phased orientation to meet the evolving needs of nurse orientation. In 2011, Rivera et al. developed and implemented a phased training that incorporated incrementally adding patients determined by the patient acuity or degree of illness. The program included three foundational levels. Each level had predefined criteria for the patient acuity and specific competencies for the NLRN to master. The NLRN followed an IMO on each level of orientation. This model met with success in improving NLRN's confidence and competency development (Rivera et al., 2015).

In 2014 the Mayo Foundation for Medical Education and Research, Rochester, Minnesota, began the journey developing and implementing a TSAM to transform clinical orientation from a productivity-based orientation model to that of competency-based tiers. With the TSAM, both parties, preceptor, and orientee, are present for everything related to providing and managing client care. The orientee focuses on developing a skill set by repeatedly completing it for each client while simultaneously learning by observing the preceptor. They role model time management and prioritize the client team's complete care. Through role-modeling, the newly licensed nurse is repeatedly exposed to multiple clinical experiences optimizing their mastery of the skills on the tier (Nelson & Joswiak, 2018).

Gaps in the Literature

The TSAM findings yielded significant results in developing technical skills, professional role development of the NLRN, and return on investment. However, researchers have not documented this model and how it compares to other models. This literature review yielded one result evaluating the TSAM outside of the original body of work. Beamer et al. (2019) developed an orientation model that combined the TSAM, Donna Wright competency model, and the entrustable professional activities (EPA) medical education paradigm. They report successful streamlining of the orientation process, facilitating more opportunities for orientees to prioritize a whole assignment, and cost savings related to orientation (Beamer et al., 2019). However, it is unclear how the authors determined these conclusions, as they focus on integrating TSAM and EPA versus the orientation outcomes.

Summary

The terminology around transition-to-practice programs falls into several categories that overlap in clinical orientation pre and post-licensure. NRPs are programs that NLRNs complete concurrent to new orientation and extend into the first year of clinical practice. The term "onboarding" or "orientation" will be used when referring to the NLRN transition to clinical practice to not confuse this process with TTP or NRP. Mentoring builds solid professional relationships need for adequate socialization of the NLRN. Phased orientation models have successfully been used to orient NLRN's and develop competency. Evidence is lacking on the effectiveness of the TSAM in comparison to other models. This comparative analysis aimed to inform the field of staff development of strategies to best support NLRNs.

CHAPTER 3: METHODS

Project Design

The onboarding process can have a positive or negative impact on an NLRN's transition into practice. This study examined the NLRN's perceptions of their confidence in applying essential professional role behaviors in their clinical practice and compared the responses among the two orientation models. To further explore NLRN's perceptions, the researcher used a retrospective survey design and cross-comparative analysis.

Setting

Community Medical Centers (CMC) is a comprehensive health system located in the central valley of California. There are three main campuses: Clovis Community Medical Center (CCMC), CRMC, and FHSH. CCMC currently has over 200 inpatient beds and is expanding. CRMC has over 600 beds and serves the community as a level 1 Trauma and Burn Center. FHSH is a 57-bed acute care cardiac specialty hospital and Bariatric Center of Excellence. The DNP facilitator surveyed the CRMC and FHSH campuses. The facilitator distributed the survey on a 66-bed inpatient cardiac progressive care (CPCU), a 49-bed inpatient medical CPCU, and two 24-bed inpatient acute care units.

Population and Sample

The target population was NLRN's on the four inpatient acute care units participating in the TSAM pilot. Participants must have completed orientation in one of the specialty areas within the last four years to meet the study's inclusion criteria. These criteria determined the cohorts. Cohort 1 included nurses oriented via IMO, and Cohort 2 had nurses trained via TSAM.

The year for cohort placement varied between the units. Responses from acute care units at CRMC, with a hire date before April 1, 2020, were placed in cohort 1. The researchers included responses after this hire date in cohort 2. Participants from FHSH hired before June 1, 2018, were placed in cohort 1. The investigators contained replies after June 1, 2018, in the second cohort and excluded nurse responses with a hire date before 2017.

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Implementation Strategy

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Step 1 Approval Process

The investigators went through the CMC approval process. The Vice President of Nursing, the service line Director, the Institutional Review Board (IRB) reviewed and approved the project. Then the investigators presented the project to the California State University, Fresno (CSUF), which CSUF approved. The DNP facilitator used the Casey-Fink Graduate Nurse Experience survey instrument (Appendix A) with permission from the authors (Appendix B).

Step 2 Instrument Preparation

The investigators digitally reformatted the survey instrument in the SurveyMonkey surveillance platform as optional responses. The DNP facilitator added one additional required response to the survey, the informed consent. Finally, the surveyor designed the survey responses to be destroyed unless the participant selected the final "submit" button.

Step 3 Survey Dissemination

This facilitator emailed the survey to the registered nursing staff, informing the purpose of the study and recruiting volunteer participants (Appendix C). The email included a survey link and QR code to access the survey. Flyers were posted

in nursing common and huddled each week for the duration of the study. The researchers sent email reminders every Monday for four weeks (Appendix D). To further incentivize survey participation, the entire department with the highest percentage of participation was given five-dollar gift cards to a local coffee shop, not to exceed $300.

Step 4 Data Analysis

The researchers collected the responses, aggregated, and analyzed the data. Specific tests discussed under data analysis.

Instrumentation

The Casey-Fink Graduate Nurse Experience survey (Casey et al., 2004) was initially developed in 1999 and has undergone two revisions. The survey developers used this instrument to survey over 250 nurses in the hospital settings in the Denver metropolitan area. They further validated the tool by studying over 10,000 graduate nurse residents participating in the University Health System Consortium/AACN Post Baccalaureate Residency program. The survey consists of five sections:

1. Skills and procedures the NLRN were uncomfortable performing independently.
2. Comfort and confidence of NLRN with professional expectations.
3. Job satisfaction questions.
4. Open-ended questions.
5. Demographic data questions.

Data Collection

The survey tool was digitally formatted using SurveyMonkey. Data collected was then exported to Microsoft Excel spreadsheet software. The DNP facilitator manually coded the data in the comfort and confidence section as the focus of this study. The facilitator exported the data to IBM® *SPSS® software* for further data aggregation.

Data Analysis

In sections one, four, and five, the responses were based on the participants' perspectives and provided qualitative data about the NLRN's perceptions. For this study, the researcher did frequency testing of the demographic data using SPSS. Sections 2 and 3 of the Casey-Fink survey ask questions on a 4-point balanced Likert-scale formatted from strongly disagree to strongly agree. The DNP facilitator coded questions from section two; the scores were summed and averaged for the subcategories for each cohort. An independent samples t-test was performed to cross-compare the means of the total confidence levels between the cohorts. The study facilitator conducted an independent samples t-test for the subcategories across the comfort and confidence section between the cohorts.

Ethical Consideration (Human Subject Protections)

This project received an "exempt certification" and "minimal risk" status from CMC's and CSUF's IRB. The survey was de-identified and posed no risk for revealing personal information about the subjects, and had no effect on performance evaluations. Informed consent (Appendix E) was provided at the start of the survey and was the only question that was required. Participation in the survey was on a volunteer basis. Respondents to the study were kept confidential

and anonymous. The respondents were able to withdraw from the study at any time without penalty.

Summary

With IRB approval, the DNP project facilitator conducted a retrospective survey of inpatient nursing staff at two rural acute care hospitals. The survey was emailed to registered nurses on a 66-bed inpatient acute care unit, 49-bed acute care inpatient unit, and two 24-bed inpatient acute care units. The survey instrument used was the valid and reliable Casey-Fink Graduate Nurse Experience Survey. The tool collected data on nurse perceptions of comfort and confidence in developing essential professional role behaviors.

The survey was given online through the SurveyMonkey platform and implemented over four weeks. Strategies used to encourage participation were reminders via email, huddle, and posted flyers. The was no identifiable information collected, and participation was voluntary. The survey contained one required question, the informed consent to participation. The respondents could withdraw from the study at any time, without penalty, destroying recorded results.

The researchers exported the data to Excel and defined the cohorts based on hire date and specialty. They used an independent samples t-test to analyze and cross-compare the data. The discussion of survey results is in the next section.

CHAPTER 4: RESULTS

Demographics

A total of 55 registered nurses agreed to participate in the study. The study excluded twenty-three participants because they did not meet the inclusion criterion. Of the respondents included in the survey (N=32), there were seven male and 25 female participants (Appendix F). There were 9 participants (28.1%) of Caucasian descent, 3 participants (9.4%) of African American descent, 7 participants (21.9%) of Hispanic descent, 10 participants (31.3%) of Asian descent, 1 participant (2%) replied other for ethnicity, and 2 participants (6.3%) declined to indicate their race (Appendix G).

The survey results included nurse representation from each area of specialty. There were two respondents from the medical-surgical specialty, four respondents from the telemetry specialty, 20 respondents from the medical CPCU, and six respondents from the CPCU (Appendix H). There were 15 respondents placed into the IMO cohort and 17 respondents in the TSAM cohort (Appendix I).

When surveyed about prior work experience overall, 15 participants had some previous volunteer or work experience in the hospital. Occupations included nursing assistant, medical assistant, unit secretary, emergency medical technician, or student externship. Overall, 17 participants had no prior healthcare work experience. Of note, 22% were participants in the organization's extern program. There were eight nurses with prior healthcare experience in the IMO cohort, while seven nurses had no previous healthcare work experience. Additionally, there were seven healthcare experience and ten without among the TSAM cohort (Appendix J).

Approximately 47% of the participants had an associate degree, 53% had a baccalaureate, and 2% had a master's degree. The degrees received among the cohorts include two masters prepared, nine baccalaureates prepared, and four associate prepared respondents in the IMO. While there were no masters prepared, eight baccalaureates prepared, and nine associate prepared respondents in the TSAM cohort (Appendix K). The IMO had the most frequency of orientation periods, less than eight weeks, while the TSAM had the most frequency of orientation, 9-12 weeks (Appendix L).

Overall Total Confidence Scores

An independent-samples t-test compared the total mean confidence levels for IMO and TSAM orientation models. The dependent variable was the respondent's total confidence score. The independent variable was the two orientation models. The scores for the incremental model (N= 15, M=36.4, SD = 3.7). The scores for the TSAM model (N= 17, M= 31.0, SD = 4.1). A Levene's Test for homogeneity of variance score was 0.186 with a significance score of 0.669, indicating the variance across the two groups was equal. The t-test for assumed equal variance was $t(30) = 3.857$, $p = 0.001$ indicate a significant difference in the total confidence levels (Appendix M).

Professional Role Behavior Sub-Scores

An independent samples t-test compared the individual means of specific professional role behaviors, including physician communication, team delegation, comfort with asking questions, prioritization, comfort with patient responsibilities, patient communication, time management, team collaboration, comfort with knowledge, and comfort with developing confidence (Appendix N). The independent variable for these subcategories was the two orientation models

(Appendix O). Levene's test statistic for all categories except job responsibilities and organization ranged from 0.116 to 2.840 with significance scores greater than alpha of 0.05, indicating the variance across both groups was the same (Appendix P). Levene's test showed that the variances for job responsibilities and organization were not equal. The job responsibilities $F_{(28.37)}, = 18.021, p = 0.001$ while the organization showed $F_{(16\ )}= 45.350, p \leq 0.001$.

An independent samples t-test indicated there was a significant difference in the asking for help scores for the incremental model (n= 15, M=3.8, SD = .41) and TSAM (n= 17, M=3.1, SD = .75) model; $t_{(30)} = 3.403, p = .002$. Additionally, there is a significant difference in confidence with RN responsibilities scores for the incremental model (n= 15, M=3.1, SD = .35) and TSAM (n= 17, M=2.5, SD = .51) conditions; $t_{(30)} = 3.436, p = .002$. Finally, there is a significant difference in developing confidence scores for the incremental model (n= 15, M = 3.7, SD = .0.49) and TSAM (n= 17, M=3.1, SD = .48) models; $t_{(30)} = 3.186, p = 0.003$ (Appendix Q). Interpretation of results will be discussed in the next section.

CHAPTER 5: DISCUSSION

Interpretation of Findings

An independent samples t-test indicated a significant difference in the total confidence levels between the IMO and TSAM models of orientation. On average, nurses oriented on the IMO had higher levels of total confidence than nurses trained on the TSAM. It is important to note that in the comparison of individual essential professional role behaviors, there was no statistically significant difference between the average confidence scores between the models in the following categories: physician communication, delegation, prioritization, patient communication, time management, team collaboration, and comfort with knowledge and experience.

However, in the essential professional role behavior categories of asking for help, knowing RN responsibilities, and developing confidence, there was a statistically significant difference between the orientation models. On average, nurses in the IMO were more confident asking questions, knowing their role as a Registered Nurse, and developing confidence than nurses oriented on the TSAM model. It is also important to note that for the subcategories of knowing the job responsibilities/expectations, and organization there was an unequal distribution of variance and could not be adequately compared between the models.

Limitations

Sample Limitations

The DNP facilitator identified several limitations for this DNP project. The DNP project facilitator was closely involved with implementing the TSAM model as an onboarding strategy; this may have led to some bias in the project. An

additional limitation was the sample sizes collected at each site. One of the four specialty areas surveyed routinely hires experienced nurses, limiting the sample of NLRN's. The limited sample size also limited the generalization of the results.

Program Implementation Limitations

This study was conducted during a surge of the Covid19 pandemic and necessitated surge orientation methods of the registry and permanent staff at all survey sites. The nurse educators collaborating with this DNP facilitator worked full-time as clinical staff during the pandemic and had limited oversight of the onboarding process. Additionally, the preceptor's adoption of the TSAM during the pandemic was difficult without guidance. The full impact of the pandemic is unknown for this DNP project.

Implications for Staff Development

Implementation of a standardized orientation process to streamline the transition from student to professional nurse is key to NLRN's orientation outcomes. The TSAM is a viable orientation model that builds technical skills but overall did not improve the novice nurse's essential professional role behaviors compared to the IMO. The DNP facilitator did not anticipate these results and completed this project with more questions than answers. The most important questions to be considered were:

1. Are we asking the right question?
2. Why are novice nurses leaving within the first year?
3. How do we engage the novice nurse on a level to encourage loyalty to the organization?

The information from this study was shared with leadership and generated meaningful discussion. The discussions have centered around these questions and have served as a launchpad for areas of future research.

Alignment with DNP Essentials

This project demonstrated mastery of the American Association of Colleges of Nursing's *The Essential of Doctoral Education for Advanced Practice Nursing* (American Association of Colleges of Nursing, 2006). The DNP investigator completed a comparative analysis of two onboarding programs to evaluate if there is a difference in professional role behavior development. This project also contributed to the body of knowledge on this subject.

Conclusion

In summary, this study showed overall, and nurses did not improve their total confidence between training modalities. There was no statistically significant difference in the average confidence levels in the professional role behavior subcategories between the models. However, there was a considerable difference in the confidence in asking for help & knowing their role. Nurses were more confident and understood their role in the IMO in comparison to the TSAM. This pilot study provided valuable data regarding current orientation models and served as a launchpad for future research of attrition causes.

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APPENDICES

APPENDIX A: CASEY-FINK GRADUATE NURSE
EXPERIENCE SURVEY

Casey-Fink Graduate Nurse Experience Survey (revised)

I. **List the top three skills/procedures you are *uncomfortable performing* independently at this time? (please select from the drop down list)** list is at the end of this document.

1. _____

2. _____

3. _____

4. _____ I am independent in all skills

II. **Please answer each of the following questions by placing a mark inside the circles:**

	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
1. I feel confident communicating with physicians.	O	O	O	O
2. I am comfortable knowing what to do for a dying patient.	O	O	O	O
3. I feel comfortable delegating tasks to the Nursing Assistant.	O	O	O	O
4. I feel at ease asking for help from other RNs on the unit.	O	O	O	O
5. I am having difficulty prioritizing patient care needs.	O	O	O	O
6. I feel my preceptor provides encouragement and feedback about my work.	O	O	O	O
7. I feel staff is available to me during new situations and procedures.	O	O	O	O
8. I feel overwhelmed by my patient care responsibilities and workload.	O	O	O	O
9. I feel supported by the nurses on my unit.	O	O	O	O
10. I have opportunities to practice skills and procedures more than once.	O	O	O	O
11. I feel comfortable communicating with patients and their families.	O	O	O	O

	STRONGLY DISAGREE	DISAGREE	AGREE	STRONGLY AGREE
12. I am able to complete my patient care assignment on time.	O	O	O	O
13. I feel the expectations of me in this job are realistic.	O	O	O	O
14. I feel prepared to complete my job responsibilities.	O	O	O	O
15. I feel comfortable making suggestions for changes to the nursing plan of care.	O	O	O	O
16. I am having difficulty organizing patient care needs.	O	O	O	O
17. I feel I may harm a patient due to my lack of knowledge and experience.	O	O	O	O
18. There are positive role models for me to observe on my unit.	O	O	O	O
19. My preceptor is helping me to develop confidence in my practice.	O	O	O	O
20. I am supported by my family/friends.	O	O	O	O
21. I am satisfied with my chosen nursing specialty.	O	O	O	O
22. I feel my work is exciting and challenging.	O	O	O	O
23. I feel my manager provides encouragement and feedback about my work.	O	O	O	O
24. I am experiencing stress in my personal life.	O	O	O	O

25. If you chose agree or strongly agree, to #24, please indicate what is causing your stress. (You may circle more than once choice.)

    a. Finances
    b. Child care
    c. Student loans
    d. Living situation
    e. Personal relationships
    f. Job performance
    g. Other _____

III. How *satisfied* are you with the following aspects of your job:

	VERY DISSATISFIED	MODERATELY DISSATISFIED	NEITHER SATISFIED NOR DISSATISFIED	MODERATELY SATISFIED	VERY SATISFIED
Salary	O	O	O	O	O
Vacation	O	O	O	O	O
Benefits package	O	O	O	O	O
Hours that you work	O	O	O	O	O
Weekends off per month	O	O	O	O	O
Your amount of responsibility	O	O	O	O	O
Opportunities for career advancement	O	O	O	O	O
Amount of encouragement and feedback	O	O	O	O	O
Opportunity for choosing shifts worked	O	O	O	O	O

IV. **Transition (please circle any or all that apply)**

1. **What difficulties, if any, are you currently experiencing with the transition from the *"student"* role to the *"RN"* role?**
   a. role expectations (e.g. autonomy, more responsibility, being a preceptor or in charge)
   b. lack of confidence (e.g. MD/PT communication skills, delegation, knowledge deficit, critical thinking)
   c. workload (e.g. organizing, prioritizing, feeling overwhelmed, ratios, patient acuity)
   d. fears (e.g. patient safety)
   e. orientation issues (e.g. unit familiarization, learning technology, relationship with multiple preceptors, information overload)

2. **What could be done to help you feel more supported or integrated into the unit?**
   a. improved orientation (e.g. preceptor support and consistency, orientation extension, unit specific skills practice)
   b. increased support (e.g. manager, RN, and educator feedback and support, mentorship)
   c. unit socialization (e.g. being introduced to staff and MDs, opportunities for staff socialization)
   d. improved work environment (e.g. gradual ratio changes, more assistance from unlicensed personnel, involvement in schedule and committee work)

3. **What aspects of your work environment are most satisfying?**
   a. peer support (e.g. belonging, team approach, helpful and friendly staff)
   b. patients and families (e.g. making a difference, positive feedback, patient satisfaction, patient interaction)

     c. ongoing learning (e.g. preceptors, unit role models, mentorship)
     d. professional nursing role (e.g. challenge, benefits, fast pace, critical thinking, empowerment)
     e. positive work environment (e.g. good ratios, available resources, great facility, up-to-date technology)

4. What aspects of your work environment are least satisfying?

     a. nursing work environment (e.g. unrealistic ratios, tough schedule, futility of care)
     b. system (e.g. outdated facilities and equipment, small workspace, charting, paperwork)
     c. interpersonal relationships (e.g.gossip, lack of recognition, lack of teamwork, politics)
     d. orientation (inconsistent preceptors, lack of feedback)

5. Please share any comments or concerns you have about your residency program:

_____

_____

V.   *Demographics:* Circle the response that represents the most accurate description of your individual professional profile.

1. Age: _____ years

2. Gender:
  a. Female
  b. Male

3. Ethnicity:
  a. Caucasian (white)
  b. Black
  c. Hispanic
  d. Asian
  e. Other
  f. I do not wish to include this information

4. Area of specialty:
  a. Adult Medical/Surgical
  b. Adult Critical Care
  c. OB/Post Partum
  d. NICU
  e. Pediatrics
  f. Emergency Department
  g. Oncology
  h. Transplant
  i. Rehabilitation
  j. OR/PACU
  k. Psychiatry
  l. Ambulatory Clinic
  m. Other: _____

5. **School of Nursing Attended (name, city, state located):** _____

6. **Date of Graduation:** _____

7. **Degree Received:**   AD: _____   Diploma: _____   BSN: _____   ND: _____

8. **Other Non-Nursing Degree (if applicable):** _____

9. **Date of Hire** *(as a Graduate Nurse)*: _____

10. **What previous health care work experience have you had:**
   a. Volunteer
   b. Nursing Assistant
   c. Medical Assistant
   d. Unit Secretary
   e. EMT
   f. Student Externship
   g. Other *(please specify)*: _____

11. **Have you functioned as a charge nurse?**
   a. Yes
   b. No

12. **Have you functioned as a preceptor?**
   a. Yes
   b. No

13. **What is your scheduled work pattern?**
   a. Straight days
   b. Straight evenings
   c. Straight nights
   d. Rotating days/evenings
   e. Rotating days/nights
   f. Other *(please specify)*: _____

14. **How long was your unit orientation?**
   a. Still ongoing
   b. ≤ 8 weeks
   c. 9 – 12 weeks
   d. 13 – 16 weeks
   e. 17 - 23 weeks
   f. ≥ 24 weeks

15. **How many *primary* preceptors have you had during your orientation?**
   _____ number of preceptors

16. **Today's date:** _____

Drop down list of skills

Assessment skills
Bladder catheter insertion/irrigation
Blood draw/venipuncture
Blood product administration/transfusion
Central line care (dressing change, blood draws, discontinuing)
Charting/documentation
Chest tube care (placement, pleurovac)
Code/Emergency Response
Death/Dying/End-of-Life Care
Nasogastric tube management
ECG/EKG/Telemetry care
Intravenous (IV) medication administration/pumps/PCAs
Intravenous (IV) starts
Medication administration
MD communication
Patient/family communication and teaching
Prioritization/time management
Tracheostomy care
Vent care/management
Wound care/dressing change/wound vac
Unit specific skills _____

APPENDIX B: PERMISSION TO USE CASEY-FINK SURVEY

June 2015

Dear Colleague:

Thank you for the inquiry regarding the *Casey-Fink Graduate Nurse Experience Survey©* (revised, 2006) instrument.

The survey was originally developed in the spring of 1999, initially revised in June 2002, and revised a second time in 2006. Since that time, it has been used to survey over 250 nurses in hospital settings in the Denver metropolitan area, and has been further validated by over 10,000 graduate nurse residents participating in the University Health System Consortium/AACN Post Baccalaureate Residency program and elsewhere nationally and internationally. Psychometric analysis has been done using these data and is reported in the summary included with this letter. We have published a report of the research we conducted in the development of this instrument:

Casey K, Fink R, Krugman M, Propst J: The graduate nurse experience. *Journal of Nursing Administration.* 2004; 34(6):303-311.

Fink RM, Krugman ME, Casey K, Goode CM. The Graduate Nurse Experience: Qualitative Residency Program Outcomes. *Journal of Nursing Administration.* 2008;38(7/8):341-348.

We are granting you permission to use this tool to assess the graduate nurse experience in your setting. Please note that this tool is copyrighted and should not be changed in any way. We have enclosed a copy for you to use for reproduction of the instrument.

We hope that our tool will be useful in your efforts to enhance the retention, professional development, and support of graduate nurses in your practice setting. Please email us if you have further questions. We would be interested in being informed as to your results or publications related to the use of our instrument.

Sincerely,

Kathy Casey, RN, MSN
Manager, Clinical Education Programs, Exempla Lutheran Medical Center
Adjunct Faculty, University of Colorado, College of Nursing
kathy.casey@sclhs.net

Regina Fink, RN, PhD, AOCN, FAAN
Associate Professor, University of Colorado College of Nursing
regina.fink@ucdenver.edu

APPENDIX C: SUBJECT RECRUITMENT MATERIAL-EMAIL SCRIPT

Subject Communication Material: Email Script

Greetings,

My name is Alexis Ramirez; I work in clinical staff development. I am looking for nurse. volunteers to evaluate if there is a difference in professional role behaviors in newly licensed nurses based on the method of orientation used in your department. You are being recruited, because you are a registered nurse and have previously been or are currently being oriented to your department. Your feedback is valuable and essential to the ongoing improvement of orientation methods that will support future employees.

Below you will find a link to a survey; it will take you about 15 minutes to complete, it is completely anonymous and kept confidential. Your participation will not have any impact on your performance evaluation, and you are under no obligation to answer any questions you do not want to. Responses to the survey are not saved until you submit at the end and are kept on a password protected computer; should you choose to withdraw your participation, simply exit out of the survey at any time.

The Institutional Review Board at Community Medical Centers has determined you're your participation in this study poses minimal risks to participants. If you have any questions or concerns about this project, please feel free to contact me at any time. My contact information is below.

Your participation in this study may inform the field of education and clinical staff development on how to better support newly licensed registered nurses' transition into clinical practice and is greatly appreciated.

To begin the survey, click here or scan the barcode.

Alexis Ramirez DNPc, MSN, RN-BC, CCRN, PCCN
Clinical Staff Development, Inpatient
Fresno Heart & Surgical Hospital
15 E. Audubon, Drive
E. aramirez@fresnoheartandsurgical.org
T. 559.433.8173
C. 559.250.2632

APPENDIX D: RESEARCH FLYER

Participate in a Research Study!

Alexis Ramirez in Clinical Staff Development is looking for nurse volunteers to participate in a research study to investigate how orientation during a pandemic affects professional role behavior outcomes.

- **You may participate if you:**
  - Are a Registered Nurse
  - Have completed orientation on one of the following units:
  - 8W CPCU CRMC
  - 4C/E CPCU CRMC
  - Telemetry FHSH
  - Med-Surge FHSH

Interested: Complete the survey by scanning the QR code or clicking here.

APPENDIX E: INFORMED CONSENT

Dear Participant,

This is a research project to evaluate if there is a difference in professional role development of registered nurses orienting on a new model of orientation during a pandemic. You are being asked to voluntarily participate in this study because you are a Registered Nurse who completed orientation in your department. You are asked to complete a 15 minute anonymous survey. There is no audio or video recording of the survey and you will not be asked for your name or any identifiable information at any point.

The Institutional Review Board at Community Medical Centers has determined that participation in this study poses minimal risks to participants. Your participation will not affect your employee performance evaluation in any way. All information obtained in this study is strictly confidential unless disclosure is required by law. All data is kept on a password-protected computer.
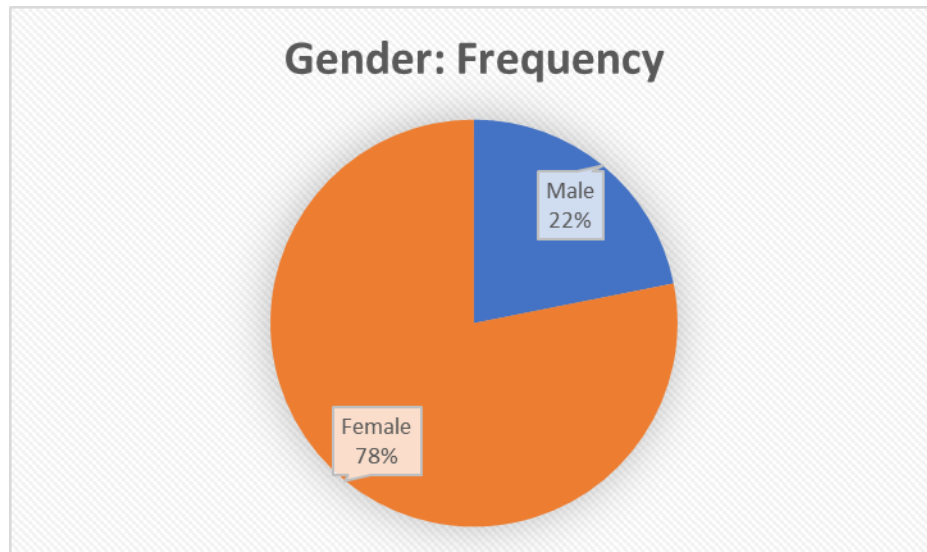
There are no direct benefits to participants in this study. Your participation in this study may inform the field of education and clinical staff development on how to support new employees as they transition into clinical practice; as well as assist educators in creating environments that best support orientation and residency programs.

There are no costs to you for participating in this study. You have the right to refuse to participate or withdraw at any time, without penalty. You can leave any questions you do not want to answer blank. If you withdraw from the survey, it will not affect you in any way. The data that you have entered on the survey will be destroyed if you withdraw before submitting the survey.
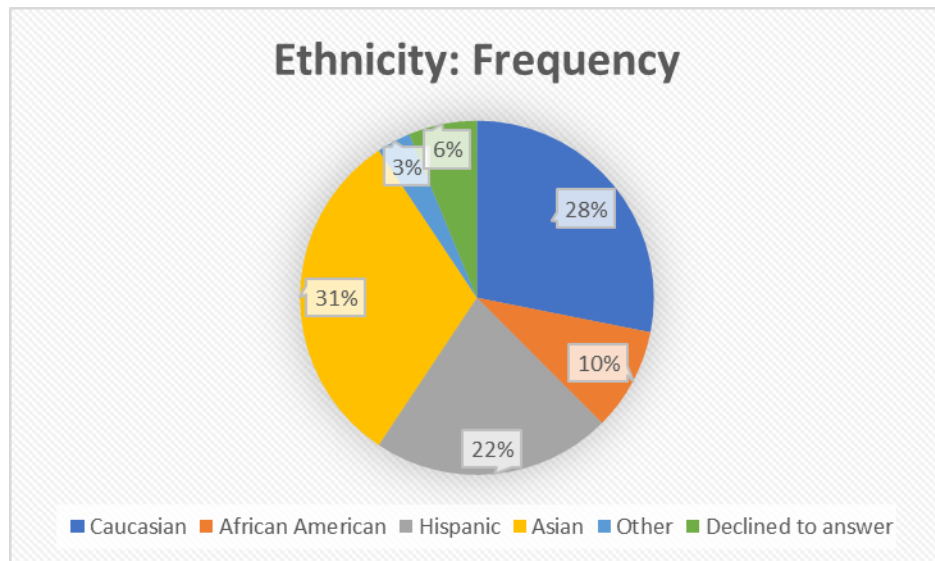
If significant new information relating to the study becomes available which may relate to your willingness to continue to participate, this information will be provided to you. Community Medical Centers nor the principal investigator will receive compensation for your participation. The principal investigator has no conflicts of interests to disclose related to this project and may be contacted at 559-433-8173 with any questions or concerns about this project.

☐ By checking this box, you are giving your consent to willingly participate in this study, that you read, or it has been read to you, and you fully understand the contents of this document. By checking this box, you are agreeing that you are 18 years of age or older and are agreeing to participate in this this study.
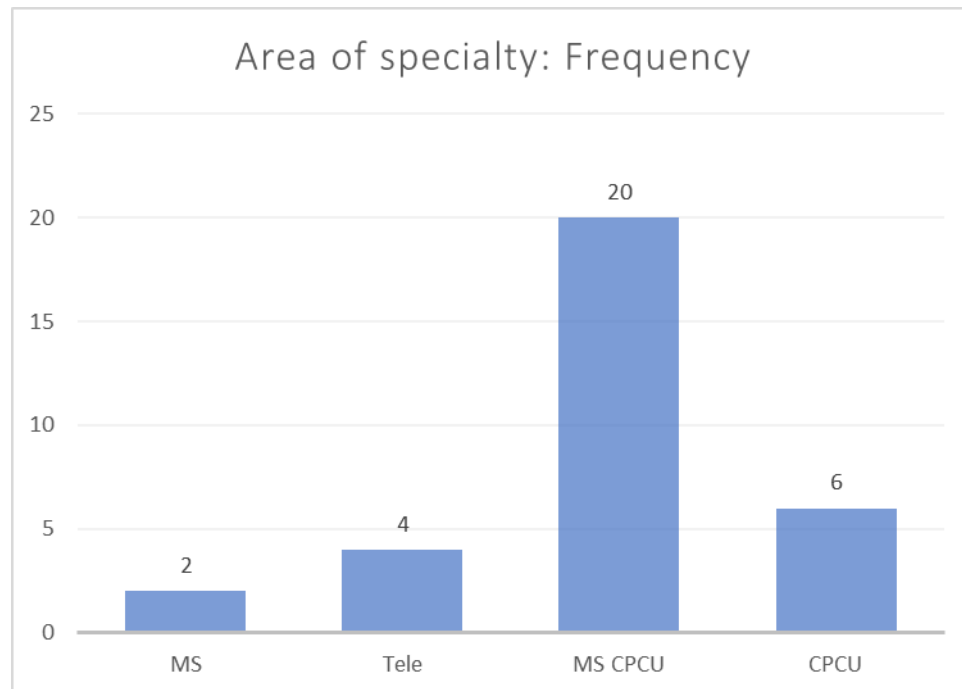
APPENDIX F: GENDER OF PARTICIPANTS

Gender: Frequency

Male 22%

Female 78%

APPENDIX G: ETHNICITY OF PARTICIPANTS

Ethnicity: Frequency

- Caucasian — 28%
- African American — 10%
- Hispanic — 22%
- Asian — 31%
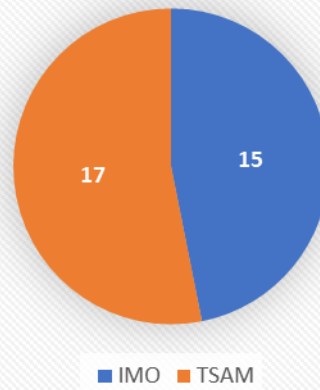- Other — 3%
- Declined to answer — 6%
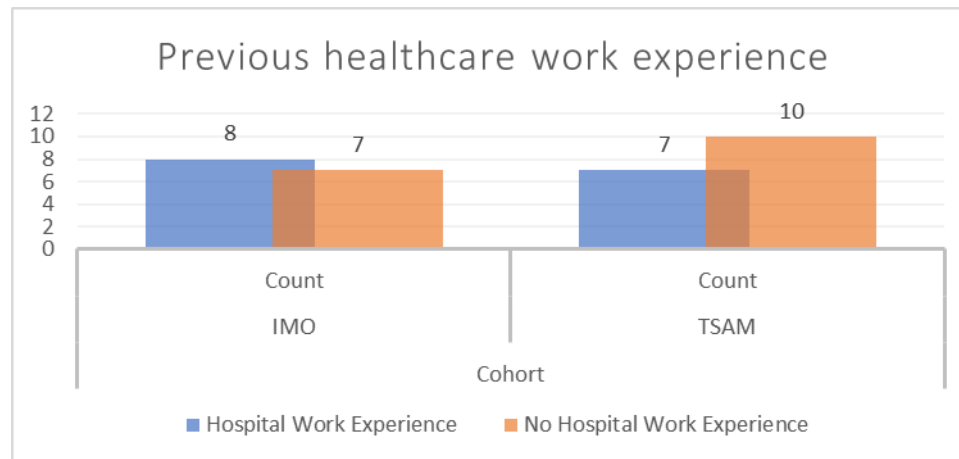
APPENDIX H: AREA OF SPECIALTY

Area of specialty: Frequency

APPENDIX I: COHORT BY DATE OF HIRE & AREA OF
SPECIALTY

Cohort based on date of hire and area of specialty

APPENDIX J: PREVIOUS HEALTHCARE WORK EXPERIENCE

Previous healthcare work experience

APPENDIX K: DEGREE RECEIVED BY COHORT

Degree received by cohort
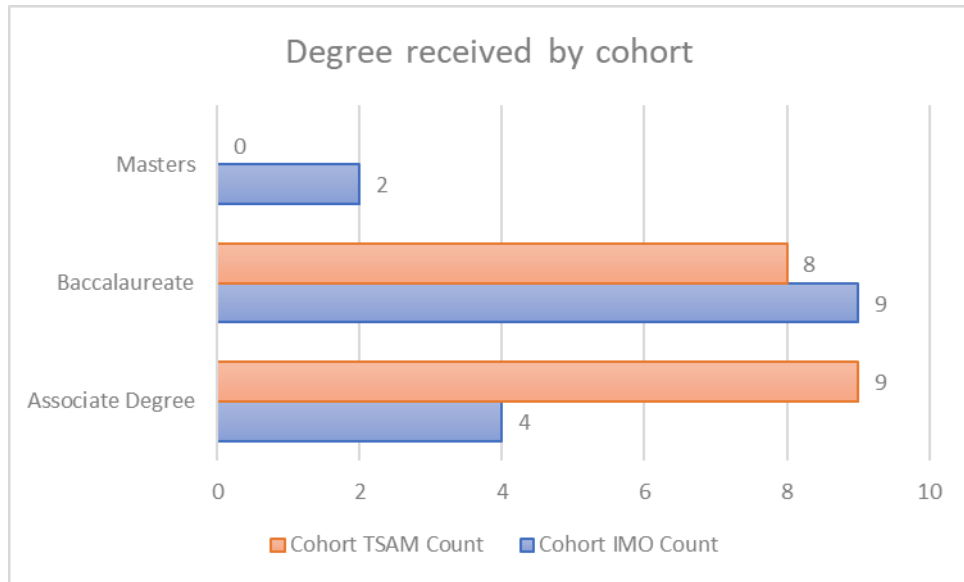
APPENDIX L: LENGTH OF ORIENTATION

Length of orientation by cohort
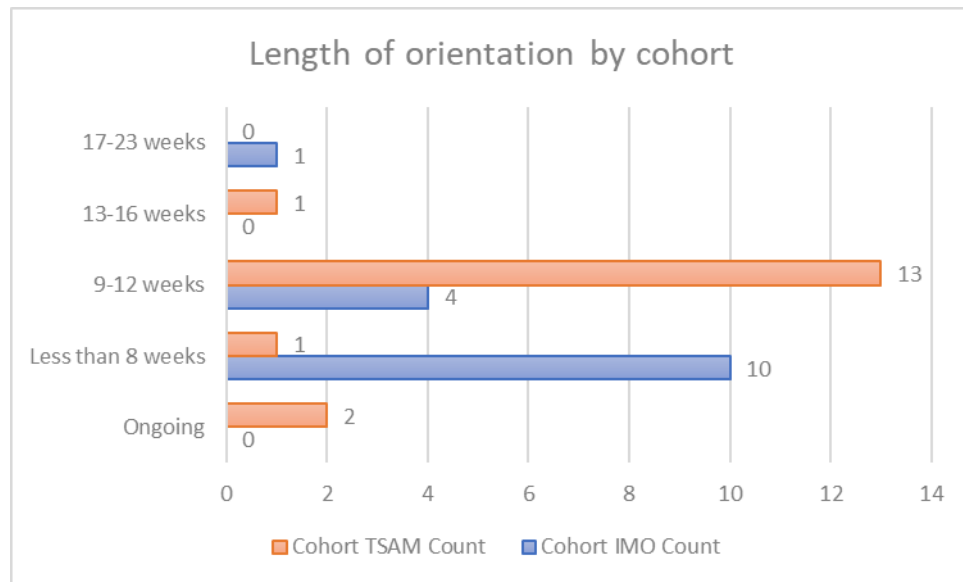
APPENDIX M: MEAN OF TOTAL CONFIDENCE BY COHORT

Simple Bar Mean of total confidence by Cohort
An independent samples t-test indicate there is not a significant difference in the scores for the incremental model (n= 15, M=36.4, SD = 3.7) and the TSAM model (n= 17, M= 31.0, SD = 4.1) conditions; t(30) = 3.857, p = 0.001

Error Bars: 95% CI
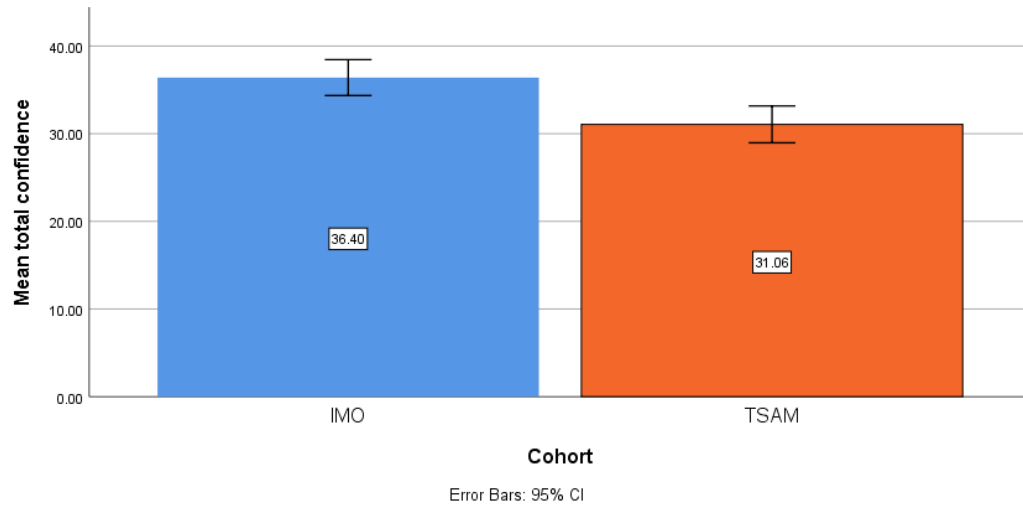
APPENDIX N: MEAN OF PROFESSIONAL ROLE BEHAVIOR
SUBCATEGORIES

Mean of comfort w/MD communiction, Mean of comfort w/delegation, Mean of comfort w/prioritization, Mean of comfort w/pt communication, Mean of comfort w/time managemnt, Mean of comfort w/ collaboration, Mean of comforatble w/knowledge & experience by Cohort by INDEX
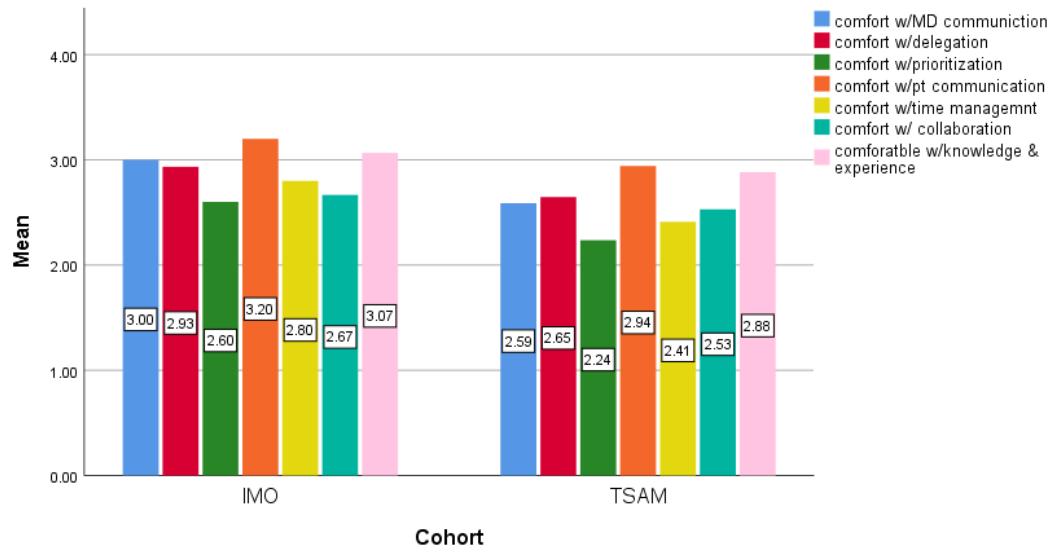
APPENDIX O: PROFESSIONAL ROLE BEHAVIOR GROUP
STATISTICS

Professional Role Behavior Group Statistics

Cohort		N	Mean	Std. Deviation	Std. Error Mean
comfort w/MD communication	IMO	15	3.0000	0.75593	0.19518
	TSAM	17	2.5882	0.61835	0.14997
comfort w/delegation	IMO	15	2.9333	0.70373	0.18170
	TSAM	17	2.6471	0.60634	0.14706
comfortable w/asking for help	IMO	15	3.8000	0.41404	0.10690
	TSAM	17	3.0588	0.74755	0.18131
comfort w/prioritization	IMO	15	2.6000	0.73679	0.19024
	TSAM	17	2.2353	0.66421	0.16109
comfort w/responsibility	IMO	15	2.5333	0.63994	0.16523
	TSAM	17	1.8235	0.52859	0.12820
comfort w/patient communication	IMO	15	3.2000	0.56061	0.14475
	TSAM	17	2.9412	0.55572	0.13478
comfort w/time management	IMO	15	2.8000	0.56061	0.14475
	TSAM	17	2.4118	0.61835	0.14997
comfort w/ job responsibilities	IMO	15	3.1333	0.35187	0.09085
	TSAM	17	2.5294	0.51450	0.12478
comfort w/ collaboration	IMO	15	2.6667	0.61721	0.15936
	TSAM	17	2.5294	0.51450	0.12478
comfortable w/organization	IMO	15	3.0000	0.00000	0.00000
	TSAM	17	2.2941	0.58787	0.14258
comfortable w/knowledge & experience	IMO	15	3.0667	0.59362	0.15327
	TSAM	17	2.8824	0.60025	0.14558
comfort w/confidence	IMO	15	3.6667	0.48795	0.12599
	TSAM	17	3.1176	0.48507	0.11765
total confidence	IMO	15	36.4000	3.69942	0.95519
	TSAM	17	31.0588	4.08458	0.99066

APPENDIX P: INDEPENDENT SAMPLES T-TEST

Independent Samples Test

Comfort/Confidence		Levene's Test for Equality of Variances		t-test for Equality of Means		Sig. (2-tailed)
		F	Sig.	t	df	p-value
MD communication	Equal variances assumed	0.867	0.359	1.694	30	0.101
Delegation	Equal variances assumed	0.069	0.795	1.236	30	0.226
Asking for help	Equal variances assumed	2.840	0.102	3.403	30	0.002
Prioritization	Equal variances assumed	0.116	0.736	1.473	30	0.151
RN Responsibility	Equal variances assumed	2.812	0.104	3.436	30	0.002
Patient communication	Equal variances assumed	0.451	0.507	1.309	30	0.200
Time management	Equal variances assumed	1.496	0.231	1.851	30	0.074
Job responsibilities	Equal variances not assumed	18.021	0.000	3.913	28.353	0.001
Collaboration	Equal variances assumed	0.272	0.606	0.686	30	0.498
Organization	Equal variances not assumed	45.350	0.000	4.951	16.000	0.000
Knowledge & experience	Equal variances assumed	0.074	0.788	0.871	30	0.391
Developing confidence	Equal variances assumed	1.701	0.202	3.186	30	0.003
Total confidence	Equal variances assumed	0.186	0.669	3.857	30	0.001

APPENDIX Q: MEAN OF ASKING FOR HELP, RN
RESPONSIBILITIES, DEVELOPING CONFIDENCE

Simple Bar Mean of comfortable w/collaboration(asking for help), Mean of comfort w/responsibility, Mean of comfort w/ developing confidence...

Error Bars: 95% CI

Error Bars: 95% CI
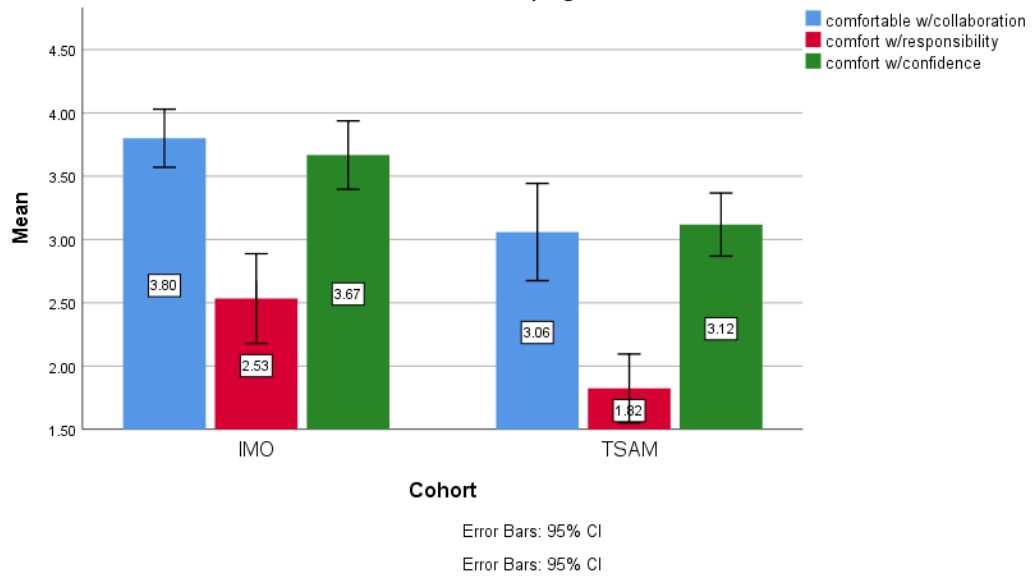
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