Post-Graduate NP Education: Impact on Job Satisfaction

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Abstract

Problem Statement: Programs to facilitate Nurse Practitioner (NP) transition to practice have been developed at public and private institutions across the US and there is no published evidence of their influence on NP job satisfaction.

Purpose: Determine the impact of post-graduate education on job satisfaction among NPs.

Research Question: Is there a difference in job satisfaction between NPs who have completed formal post-graduate education and NPs who have not participated in formal post-graduate education programs?

Methods: A non-equivalent group research design was used. The Misener Nurse Practitioner Job Satisfaction Scale$^{©}$ was administered to a convenience sample of two groups of nurse practitioners; one group having had formal post-graduate education and another group that has not had formal post-graduate education. Participants were recruited through post-graduate NP education program directors who were asked to forward the job satisfaction scale to program alumni. This group was compared to NPs who have not participated in formal post-graduate education and recruited through a professional NP organization.

Analysis: Independent samples t-test of factor scores was used to compare job satisfaction between groups and contrast post-graduate fellowship training effects within demographic strata. A multiple linear regression was calculated to predict participants' total job satisfaction based on years of NP experience, state regulatory environment and whether or not they completed a post-graduate education program.

Significance: Post-graduate education has a statistically significant positive impact on NP job satisfaction. Knowledge of factors that influence job satisfaction is advantageous to employers and NPs considering post-graduate education opportunities.

Table of Contents

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In a call to action, the Institute of Medicine (IOM) advocates for innovative solutions to address health care workforce shortages, including the transformation of nursing education and practice to help meet our nation's health care demand (Institute of Medicine [IOM], 2011). Recommendation number three of the report suggests "State boards of nursing, accrediting bodies, the federal government, and health care organizations should take actions to support nurses' completion of a transition-to-practice program (nurse residency) after they have completed a prelicensure or advanced practice degree program or when they are transitioning into new clinical practice areas" (IOM, 2011, p. S 9).

Post-graduate NP education programs, i.e. residencies and fellowships, began to emerge as employer based programs in Federally Qualified Health Centers (FQHCs), academic health systems and the Veterans Health Administration (VA) prior to the IOM recommendations. The terms residency and fellowship are used interchangeably in the literature and among current programs. This may serve to obscure the choice made by some NPs to pursue additional clinical education after graduation from an accredited graduate nursing program and successful completion of national certification and state licensure. There is also potential confusion when the term residency is used to describe clinical capstone courses that serve to provide practical experience in formal graduate and undergraduate nursing degree programs. In medicine and some other professional disciplines, residency education is required for licensure and fulfills a clinically focused requirement to practice. In nursing, post-graduate education for NPs is optional and not required for entry into practice. To address the potential confusion regarding the optional nature of post-graduate NP opportunities, the NP Roundtable, a national collaborative of NP organizations, endorsed use of the term "fellowship" which has traditionally been used to

reference optional graduate education programs (American Association of Nurse Practitioners [AANP], 2013). Many other NP organizations use the term "transition- to-practice" as it does not suggest regulatory control, mandatory requirements or that NPs are not competent to provide care immediately upon completion of formal graduate nursing education (Wiltse Nicely & Fairman, 2015).

Literature Review

A systematic review of English language literature using PubMed, CINAHL, and Google scholar was performed for analysis of programs designed to provide support for new graduate NPs entering the workforce through formal institutional assistance. The following search terms were used: nurse practitioner fellowship, nurse practitioner residency, nurse practitioner transition to practice and nurse practitioner orientation. Inclusion criteria were limited to articles addressing development and implementation of post graduate NP education programs. Exclusion criteria eliminated articles proposing NP post-graduate education initiatives without program implementation and those focused on facility orientation without specific clinical content. A total of 8 articles met review criteria.

An additional internet search using the same terms revealed employer based programs that were not discovered when limiting sources to academic literature. Numerous employer sponsored programs were identified and include post-graduate education in a variety of primary care and specialty settings. These programs are associated with schools of nursing, schools of medicine, academic health systems and community health centers. Table 1 in Appendix A lists general information for programs actively recruiting participants in the summer of 2014. Most of these programs were not discovered through review of academic literature. Interestingly, the

most innovative programs that integrate paid intensive clinical experience into post baccalaureate and post master's advanced practice nursing degree programs were not revealed in review of the literature. This is likely due to the dynamic nature of innovative models and the rapid pace at which post-graduate education programs are developing across the country.

Flinter (2011) developed the first post-graduate NP education program at a FQHC in Connecticut. Supported by the Health Resources Service Administration (HRSA), FQHCs are private not-for-profit or public organizations that provide comprehensive health care services to underserved areas or populations and qualify for enhanced reimbursement from Medicare and Medicaid (Health Resources Service Administration [HRSA], 2014). The Connecticut Community Health Center, Inc. (CHCI) is a multisite, FQHC where the first NP residency program was designed specifically for family nurse practitioners intending to deliver primary care to underserved populations (Flinter, 2011). The CHCI program grew from observing the challenges encountered by new NPs during the transition to expert clinician and the "stress that the transition places on the new NP, the practice team, and the organization" (Flinter, 2011, para 9). Challenges involve caring for patients with complex health conditions, behavioral issues, low health literacy, substance abuse and limited access to specialty care. Costs of the CHCI NP residency program include: NP resident salary and benefits; administrative cost; facility overhead and lost productivity of the clinical preceptor while supervising residents (Flinter, 2011). NP residents are fully licensed and credentialed providers and revenue billed for clinical service while a resident served to offset program expenses.

Interest in post-graduate NP education led to the Patient Protection and Affordable Care Act (PPACA) (2010) authorization of a demonstration project to fund FQHC programs in nurse managed health centers (Boyar, 2010). In the process of securing appropriation funding for the

project, the Department of Health and Human Services sought input from nursing educators. The

National Organization of NP Faculty (NONPF) voted not to support NP residencies, along with

several other national NP leadership groups. "We thought the money should go to support NP

programs to increase the number of NPs across rural areas in particular" (M. Price, personal

communication, March 24, 2014). In July of 2012, the Department of Health and Human

Services changed course and directed $200 million of funding to five academic health centers to

support the graduate education of advanced practice registered nurses (Center for Medicare &

Medicaid Services [CMS], 2014). There remains no consistent and direct federal funding

appropriation for post-graduate NP education and nearly all programs are internally funded. The

uncertainty of consistent funding makes large scale standardization, development and quality

control of training programs more difficult (Wiltse Nicely & Fairman, 2015).

Additional indirect federal support for post-graduate NP education comes from the VA

with the development of five Centers of Excellence in Primary Care Education (CoPCE). Each

CoPCE consists of NP students and physician residents with other health disciplines optionally

involved based on need and availability (Rugen et al., 2014). Within the second or third year of

the initiative, at each of the 5 project sites, the VA found that first year NP students struggled to

fully engage in clinical care with physician resident colleagues and subsequently implemented a

post-graduate NP residency program to amend the mismatch of clinical experience (Rugen et al.,

2014).

In 2011, the VA Connecticut Healthcare System CoEPCE in West Haven launched the

first interprofessional fellowship to address clinical experience among NPs. Qualitative analysis

of the initial cohort (n = 7) uncovered four themes: bridging into professional practice, expanded

appreciation of health professionals' roles, commitment to interprofessional teamwork, and the

necessity of mentorship (Zapatka, Conelius, Edwards, Meyer, & Brienza, 2014). The post-graduate program provides additional clinical education for NPs and was designed to promote interprofessional practice partnerships with physician trainees in order to establish a collaborative team-based primary care model (Zapatka et al., 2014).

Semistructured interviews were conducted with NP fellows at 3 points during the yearlong fellowship: preprogram, midyear and at the end of the program. Interview analysis revealed that simply knowing the differences between professions was less important than an appreciation of the differences and how they complement other health professions (Zapatka et al., 2014). Study participants clearly indicated greater confidence in the assessment and management of complicated patients after a year of mentoring. Distinguishing the difference between "mentorship" and clinical "supervision" was less clear and requires further study (Zapatka et al., 2014).

In September 2013, the VA Puget Sound Health Care System CoEPCE convened an information forum to explore post-graduate NP education models in Seattle Washington (K. Brown, Poppe, Kaminetzky, Wipf, & Woods, 2015). The goals of the forum were to define unique needs of NP trainees, develop an understanding of key elements needed to support post-graduate NP education and examining best practices for the viability of post-graduate NP education models.

Kathryn Rugen, PhD, FNP, OAA Nurse Consultant offered an overview of the national CoEPCE model and the two dozen NP trainees at VA centers in 5 states. She described a competency tool that has been developed to track progress over the one year program. Analysis of a longitudinal multisite evaluation is currently underway in preparation for future

dissemination (K. Brown et al., 2015). During the forum a current post-graduate NP trainee shared that transition to practice programs improve patient care skills and reduce attrition through increased job satisfaction (K. Brown et al., 2015). In addition, forum attendees generated a list of key components for the development of post-graduate NP education programs. Among the recommendations was the need for reliable funding and valid evaluation measures to determine the impact of post-graduate NP education (K. Brown et al., 2015).

The VA also offers scholarship opportunities to current staff in exchange for a commitment to service (Goudreau et al., 2011). Novice NPs are challenged by the complexity of patient problems and the quantity of clinical expectations at the VA. "Even nurses who have worked within the VA system but have now become NPs face tremendous challenges as they transition from the role of staff nurse to that of providing comprehensive care to our complex patients at an advanced practice level" (Goudreau et al., 2011, p.383). In an effort to support the transition from staff nurse to new NP, a post-graduate residency education program was developed at the Portland, Oregon VA.

Historically, VA NP orientation consisted of 6 to 9 months of precepted clinical experience while working with a fellow NP in their clinical setting. The new NP residency program enhanced experience in several additional clinical departments including; primary care, women's health, mental health, dermatology, cardiology, hematology/oncology, diabetes, preoperative care, the emergency department and orthopedics. The intended outcome was to provide peer networking opportunities for the new NP while gaining insight into effective referral patterns for specialty services (Gourdeau et al., 2011). The resident NP gained experience in performing initial evaluations related to common specialty consultations. Since the VA treats only adult patients, core Family Nurse Practitioner (FNP) competencies established by

NONPF were modified for use as benchmarks for program evaluation. NP residents rated their

comfort with each competency before and after each rotation to allow for individualized learning

experience for each rotation and resident. Consistency between rotations was maintained by a

strong mentoring relationship between the resident and lead NP as they discussed the self-

evaluation for each clinical area at the VA.

Several unanticipated process issues arose, i.e. credentialing and computer access, during

the inaugural program (Gourdeau et al., 2011). The appropriate level of computer access was

unclear for a fully licensed NP who was serving in a trainee role. The resident NP needed to

order tests and document clinical activity but nursing trainees in the VA system aren't provided

high level access to the electronic health record. The Oregon State Board of Nursing recognized

the resident as a fully licensed NP but she was clearly in a supervised role throughout the

program.

This role confusion was also evident during the credentialing and privileging process.

The Medical Staff Council was unclear of boundaries for an NP resident and concerned about

potential confusion with medical residents. Extended NP orientation was the terminology used to

describe the program to the Medical Staff Council, while the term NP residency was used by the

team that created the experience. This apparent dichotomy created many opportunities for

preceptors and other providers to explain that the resident was a licensed independent

practitioner in a trainee role (Gourdeau et al., 2011). Clarification of the term and concept of a

NP residency was also needed for the medical staff as some assumed the resident to be a student

nurse. Hence, there is a need for consistent terminology regarding the role of fully licensed NP in

a training role as described by the NP roundtable (AANP, 2013).

The NP residency program at the Portland VA was considered a success (Gourdeau et al., 2011) although initiation of each rotation proved challenging. Providers were unsure how to approach guidance of the NP resident. The need for a consistent NP mentor from the beginning of the residency with weekly meetings to discuss general issues was recognized early in the program. The short duration of some rotations combined with limited understanding of the preceptor regarding the intended role of the NP resident led to occasions where the NP did not actively participate in patient care but shadowed the preceptor (Gourdeau et al., 2011). To address the issue, several specialty rotations were associated with a longer primary care rotation so that the NP gained "hands-on" experience through entering orders, managing medications, performing examinations and maintaining responsibility for a panel of patients could continue.

The NP resident completed the program in the first year as a full-time NP in the preoperative clinic and continued employment at the VA at the time of publication. The effort to ensure that the NP resident was successful with a supportive educational environment in which to further develop skills necessary for the advanced practice role have impacted satisfaction and retention of the NP. "Both are key to the nurse administrator in a time of difficult transitions and costly recruitments" (Gourdeau et al., 2011, p. 387).

The VA is at the forefront of developing innovative models of NP education for delivery of health care and in March 2014, announced a psychiatric mental health NP residency at the Durham Veterans Affairs Medical Center (Durham VA Medical Center, 2014). NP residents and experienced mentors will work side-by-side to treat a diverse population of patients with mental health issues. Residents accepted into the training program are also eligible to apply to Duke University School of Nursing and use clinical projects developed at the Durham VA toward their Doctor of Nursing Practice (DNP) degree.

Recent examination of practice patterns indicate that slightly more than half (52%) of NPs practice primary care while 48% practice in specialty settings (Agency for Healthcare Research & Quality [AHRQ], 2014). In this novel method, AHRQ used National Provider Identification Numbers (NPI) to determine the practice partners of each NP. Primary care or specialty practice categories were assigned based of those with whom NPs work (AHRQ, 2014). Primary care providers will play an important role in providing care and preventive services for a growing patient population. However, the expansion of medical knowledge and treatment options has contributed to a proliferation of medical and surgical specialties and subspecialties (Dall et al., 2013). To improve access to care and reduce wait times for specialty services, many specialty practices have incorporated NPs into their practice models (Dower & Christian, 2009). Nurse practitioners also impact inpatient care teams by generating revenue, reducing length of stay and standardizing quality metrics (Kapu, Kleinpell & Pilon, 2014). Programs to facilitate NP transition to practice in primary care and specialty settings have been developed at public and private institutions across the US. Analysis of transition to practice programs for NPs after graduation is limited.

The growing need for specialty experience is evident when examining NP education. Few pediatric NP (PNP) programs offer training opportunities for students to work in an emergency department (ED). The ED at the Children's Hospital of Philadelphia (CHOP) developed an ED PNP fellowship to expose PNP students to the ED during their clinical rotations while in graduate school (Varghese, Silvestri, & Lopez, 2012). Prior to the fellowship program, NPs at CHOP received on-the-job training for 12 weeks after earning a master's degree and passing national certification examination. The program was designed to support the transition from nurse to ED NP through clinical experience in a multidisciplinary team while

managing multiple patients and coordinating continuing care after ED discharge. Potential

fellows were recruited from three local university PNP programs with the expectation that

fellowship hours fulfill clinical requirements during the final year of their degree curriculum

(Varghese, Silvestri & Lopez, 2012). The fellowship experience included two 8-hour shifts each

week with students working with two primary preceptors during a variety of day, evening and

weekend shifts. The NP fellows also shadowed experienced NPs in multiple specialty clinics

including; otolaryngology, orthopedics, endocrine, neurology, trauma, and cardiology. The

program received favorable review by ED physicians, specialty clinic NPs and the ED staff at

CHOP (Varghese, Silvestri & Lopez, 2012). Although the PNP ED fellowship at CHOP is not a

post-graduate program, it exemplifies the interest in formal transition to practice training

programs among NP employers and nursing educators.

The number of NPs working in acute and critical care has dramatically increased over the

past decade (Harris, 2014). In July 2003, the Accreditation Council for Graduate Medical

Education (ACGME) enacted new standards limiting resident physician hours to 80 hours per

week in all specialties (Philibert, Friedmann, Williams, & ACGME Work Group on Resident

Duty Hours, 2002). This, along with reductions in Medicare funding, have driven demand for

acute care nurse practitioners (ACNP) in specialty services within hospital systems (Harris,

2014). Post-graduate ACNP education programs have grown to meet the workforce needs of

quality nurse leaders with specialized skills in clinical practice. "Not only are the postgraduate

residency programs very popular among NP graduates looking for additional mentorship and

specialty training, but are also a relatively inexpensive way to recruit and retain new hires"

(Harris, 2014, p. 333). The need for experienced acute care NPs has led to innovation in nursing

education. Vanderbilt University Hospital combines a two year paid critical care fellowship and

a two year post master's DNP program in partnership with the Vanderbilt University Schools of Nursing and Medicine (DNP ACNP Intensivist Fellowship, n.d.)

Some post-graduate NP education programs focus on specific clinical conditions. Acute neurovascular patients are significantly underserved due to a combination of stroke physician shortages and physician disinterest in acute stroke treatment (Alexandrov et al., 2009). The Neurovascular Education and Training in Stroke Management and Acute Reperfusion Therapy (NET SMART) Advanced Practice Nurse (APN) program offers post-graduate, fellowship education for APNs that are patterned after physician academic fellowship programs and are augmented with internet based support. Criteria for enrollment into the NET SMART APN fellowship include master's degree preparation as a NP or clinical specialist or current graduate student status within 12 months of program completion (Alexandrov et al., 2009).

The NET SMART APN curriculum consists of 14 modules that address stroke treatment and prevention strategies, complications of acute stroke, entry into rehabilitation, NP role innovation and stroke center leadership (Alexandrov et al., 2009). Enrolled fellows must contract with a physician supervisor, preferably a neurologist, to provide oversight of clinical skills training and support. In the absence of local neurologist support, fellows may contract with a neurosurgeon, emergency physician, cardiologist, or interventional radiologist. Program faculty work closely with fellows who do not have local neurologist support to ensure an appropriate learning environment is provided (Alexandrov et al., 2009). After successful completion of all modules, fellows advance to an on-site clinical validation session at the University of Alabama at Birmingham Comprehensive Stroke Center.

In recognition of the increasing role APRNs and physician's assistant's (PAs) play in clinical, academic, research and administrative settings, the Carolinas HealthCare System (CHS)

developed a Center for Advanced Practice (CAP) to aid in the progression from a volume-based

service to a value-driven health care delivery system (Wilcox, Broyhill, Taylor, & Williamson,

2015). CHS committed to optimizing the role of APRNs and PAs through education,

collaboration and professional support by developing the CAP along with post-graduate

fellowship training tracks and an acute care NP program in partnership with the University of

North Carolina at Charlotte. The CAP developed specific strategies for recruitment and retention

of a skilled workforce with goals focused on provider satisfaction and clinical outcomes (Wilcox

et al., 2015).

Participant self-evaluations show significant increase in clinical knowledge, radiological

skills and preparedness to lead teams in emergency situations after three months of program

participation (Wilcox et al., 2015). CHS also noticed an annualized decline of APRN and PA

turnover from 12% to 8% during the first year of the program resulting in significant cost savings

to the health system (Wilcox et al., 2015). An unanticipated outcome was noted in the support

network that naturally developed to aid communication and camaraderie among fellows. In a

2014 CHS provider survey, job satisfaction scores among APRNs and PAs improved in 10 of 11

categories and were greater than physician job satisfaction scores for the first time (Wilcox et al.,

2015). The first fellowship graduates entered permanent positions in October 2014 and CHS

continues to collect and analyze outcomes data.

Cost and Commitment

The University of Miami Hospital and Jackson Health Systems developed a pilot

program incorporating intensive critical care experience into the Acute Care/Adult NP program

leading to a master's degree at the University of Miami School of Nursing and Health Studies.

Students were to spend most of their time in the clinical setting with only one class the first year

and an increased course load in the second and third years of the three year program. The

program was discovered in the summer of 2014 but no longer appears to exist as University of

Miami School of Nursing and Health Studies website no longer contains a description of the

program. Multiple attempts to contact program leaders via email and phone have been

unsuccessful. Similarly, programs at the University of California at San Francisco School of

Nursing and Ohio State University Comprehensive Cancer Center were recruiting applicants in

the summer of 2014 but current attempts to confirm program details via associated websites were

unsuccessful.

The lack of reliable funding for post-graduate NP education may have an impact on

program longevity. The University of North Carolina at Chapel School of Medicine's

Department of Orthopaedics offered a NP fellowship in 2006 & 2007 (Zychowicz, 2010). The

economic downturn in 2008 resulted in hiring restrictions that prevented appointment of a new

candidate at the state supported health system. The program was reinstituted with internal

funding and began to recruit new fellow candidates in the spring of 2015 (NP orthopaedic

Fellowship, UNC School of Medicine, 2015). More recently, the Penobscot Community Health

Care NP residency program in Maine, developed with HRSA funding, has suspended recruitment

for 2015 and plans to begin again in 2016 (Penobscot Community Health Care, 2015).

Post-graduate education is central to physician education and federally funded by the

Department of Health and Human Services through Medicare and Medicaid Services (Dower,

2012). Federal support totals more than $100,000 per physician resident annually (Dower, 2012).

When state Medicaid payments are considered, the public investment can exceed half of a

million dollars per physician (Dower, 2012). Nurse Practitioner post-graduate programs are not

eligible for GME funding support and there are no recurring, direct federal funding programs for post-graduate NP education.

Several post-graduate NP education programs operate with inconsistent external grant support and through federally funded demonstration projects. Indirect federal funding also supports post-graduate NP education through FQHCs and the VA. Employer sponsored NP orientation programs and formal transition to practice curricula remain relatively uncommon. The majority of those that do exist are funded internally; without direct public support. Most NP employers have limited orientation programs and expect new NP graduates to perform at an advanced level with little support when they begin work (Bahouth, Blum, & Simone, 2013).

The majority of current post-graduate NP education programs are funded by employers interested in recruiting and retaining qualified health professionals to meet immediate and growing workforce needs across multiple settings. The costs of developing and maintaining a NP post-graduate education program include NP salary and benefits, lost revenue of the preceptor, facility overhead and administrative expenses (Flinter, 2011). Annual cost per trainee can reach $100,000 with two thirds supporting the post-graduate NP and the rest used to supplement lost preceptor productivity (D. Taylor, personal communication, April 14, 2014). In most cases, the cost of training is employer funded. A portion of the cost can be offset through billable clinical activity performed by the trainee during the program. Some programs require an employment commitment to the sponsoring organization following completion of training while others consider the program an investment in a positive work environment that fosters collaboration and overall retention of growing and critical components of the health care workforce.

Conceptual and Theoretical Framework

The transition from registered nurse (RN) to NP can be a significant adjustment in a nurse's career. During NP role transition, there is the shift from experienced, often expert status in the RN role to an inexperienced, novice status in the NP role. This change in professional identity can lead to an individual's loss of confidence, impair role development and affect employment continuity and the decision to remain in the profession within the first year of practice (Cusson & Strange, 2008). Barnes (2014) described four defining attributes of NP role transition; absorption of the role, the shift from provider of care to prescriber of care, straddling two identities, and mixed emotions. Formal mentoring can mitigate many challenges associated with role transition and create positive work conditions that support learning and job retention (Hill & Sawatzky, 2011). There is notable literature describing the nature of internships and practice residencies for entry into practice for registered nurses (Barnett, Minnick, & Norman, 2014). There is limited analysis, however, of transition to practice programs for NPs after completing graduate education.

Brown and Olshansky (M. Brown & Olshansky, 1997) describe a theoretical model that represents the transition of new NP graduate to the primary care nurse practitioner role. "From Limbo to Legitimacy" encompasses four major categories: "Laying the Foundation, Launching, Meeting the Challenge and Broadening the Perspective." Their model highlights the anxiety and accomplishments of novice NPs during their initial year as advanced practice nurses. Transitioning from graduate student to licensed clinician is often associated with feelings of insecurity and the sense of being an imposter. As new graduate NPs gain experience there is an interrelationship between their competence and confidence that impact diagnostic reasoning and clinical decision making. Feeling illegitimate and fear of errors produces considerable anxiety for the new graduate and raises the question of whether their anxiety is a function of transitional

identity issues or lack of environmental support (Brown & Olshansky, 1997). Considering the

complexity of the role and high demands placed on advanced practice nurses, factors that

facilitate or impede transition to practice should be explored in an effort to support this growing

component of health care professionals.

Post-graduate NP education follows formal education and allows translation of learning

into the expertise required for successful clinical practice. Historically, employing organizations

provide clinical support with on-the-job training during the first few weeks or months of practice

for new graduate NPs. The new employee typically has access to an experienced clinician within

the organization who can provide mentorship at the point of care. Mentors do not typically

receive funding or adjusted performance expectations for their supportive role. In many settings,

no specific mentor is identified and new NPs must find support for specific questions from

willing clinicians in an ad hoc fashion. Few acute or primary care settings are structured to meet

this expectation with a clinical mentor whose primary focus remains on their own clinical

productivity. Leaders in the development of post-graduate NP education suggest that new

clinicians should gain this valuable experience in a more supportive environment (Flinter, 2005).

An ideal setting would provide clinical decision support from experienced practitioners focused

on mentoring rather than their own clinical productivity. An inability to support new NPs during

transition to demanding practice settings results in turn-over and retention issues for employers

(Barnes, 2014). Many NPs consider the level of available support when considering their first job

and seek well-established employers with interdisciplinary, patient focused role models for

professional socialization (Meyer, Zapatka, & Brienza, 2015).

One could argue that the diploma nursing schools were in fact residencies without the

university education. Perhaps in reaction to diploma nursing programs, we have

developed a professional bias against institution-based training in favor of preparation

provided in institutions of higher education. Advanced practice primary care requires

both. (Flinter, 2005, Nurse Practitioner Residency Programs in Community Health

Centers, para. 2).

National initiatives have called for transformation of health care education (Benner,

Sutphen, Leonard-Kahn, & Day, 2008; IOM, 2011) to support nurses' transition to practice. The

Commission of Collegiate Nursing Education (CCNE) developed an accreditation process for

entry-level nurse residency programs (Commission of Collegiate Nursing Education [CCNE],

2009). Literature focused on programs for NP transition to practice has emerged in the last

decade (Flinter, 2005; Flinter, 2011; Goudreau et al., 2011; Rugen et al., 2014). More recently,

the American Nurses Credentialing Center (ANCC) developed accreditation criteria for

Advanced Practice Registered Nurse (APRN) practice transition programs (American Nurses

Credentialing Center [ANCC], 2014).

A successful mentoring relationship can add to the knowledge and skill of new personnel

in addition to contributing to a positive work environment (Hill & Swatzasky, 2011). Growth in

post-graduate NP education programs is likely to continue as employers confirm return on

investment through recruitment and retention of a cost effective workforce.

Problem Statement and Rationale

Programs to facilitate NP transition to practice have been developed at public and private

institutions across the US and there is no published evidence of their influence on NP job

satisfaction, clinical competency or patient satisfaction (Bush, 2014). Advanced practice nursing

degree programs provide adequate didactic information and clinical experience for entry into

practice as a novice clinician. Graduate nursing education incorporates competency based standards and national program accreditation to prepare highly qualified NPs to complete national certification exams and deliver safe, high quality patient care at the time of graduation (Newhouse et al., 2011). Supplemental post-graduate education is not required or necessary for entry into practice. Additional guidance and support after graduation, however, is vital for a timely and successful transition from novice NP to expert clinician. Mentoring promotes socialization into the NP role, fosters autonomy, and enables novice NPs to satisfy the demands of patient care and clinical productivity within a busy organization (Hill & Sawatzky, 2011). Brown and Olshansky (1997) suggest that "When (NPs) practice in a supportive environment, in which they were encouraged to build their skills systematically over time with repetition, their ability to increase patient volume developed naturally" (Discussion section para. 7). To address this need, there is a growing number of post-graduate education programs designed specifically for new NP graduates and experienced NPs transitioning to new practice settings.

Nearly 50 years of practice and dozens of high-quality studies provide robust evidence that APRNs, including NPs, provide safe, effective and quality care without post-graduate education (Newhouse et al., 2011). Supplemental post-graduate programs are not required for NP entry into practice and evidence is needed to evaluate their impact on a growing constituent of the health care workforce.

Methods and Procedures

The East Carolina University & Medical Center Social/Behavioral Institutional Review Board certified the study as exempt on October 27th, 2014. The study was granted exemption under category 2 of the U.S. Department of Health and Human Services "Common Rule" for the

protection of human subjects and assigned UMCIRB 14-001574 with the title "Post-graduate NP education."

Sample

This study compares two groups (NPs with post-graduate education and NPs without post-graduate education) across all clinical settings on the Misener Nurse Practitioner Job Satisfaction Scale© (MNPJSS) (Misener & Cox, 2001). The scale is composed of six responses, which range from (1) very dissatisfied at one end to (6) very satisfied at the other (Appendix B). Overall median scores and frequencies were computed for each group.

Power And Precision® software (Borenstein, 2011) was used for computation of sample size and is based on the assumption that 75% of median scores of NPs with post-graduate education will cluster among responses four, five and six (somewhat satisfied, satisfied and very satisfied) while 75% of median scores of NPs without post-graduate education will cluster among responses three through six (somewhat dissatisfied, somewhat satisfied, satisfied and very satisfied). A sample size of 56 participants in each group is required for the study to have an 80% likelihood of yielding a statistically significant effect and conclude that responses differ between groups (Borenstein, 2011). The power analysis assumes 10% missing data and no attempt was made to adjust for the possibility that people who fail to respond differ from those who provide a response. Missing values for categorical fields were excluded from analysis.

Methods

A non-equivalent group study design was used to compare job satisfaction scores among a convenience sample of NPs who have completed post-graduate education with NPs who have not participated in formal post-graduate education. The MNPJSS and the accompanying demographic tool took less than 10 minutes to complete. Survey responses were confidential and

cannot be linked to participants. Participation was voluntary and no incentives were offered for completing the survey. Eysenbach (2004) describes a Checklist for Reporting Results of Internet Electronic Surveys (CHERRIES) designed to ensure the complete description of email surveys reported in health care literature and is included in Appendix C.

A survey link was sent to 30 post-graduate NP program directors who were asked to forward the survey to their graduates. Leverage-Saliency theory supports focusing on positive effects of survey participation as a form of social exchange to motivate potential respondents (Dillman, Christian, & Smyth, 2014). As a gesture of appreciation for forwarding the survey link, the author offered to share study results directly with program directors if they responded to an email invitation and included the number of graduates to whom they sent the survey. Several program directors responded enthusiastically to the request and others did not respond at all. Program directors that did not respond to the initial email received a phone call inquiring about their receipt of the survey. This yielded additional survey participants as some invitations had been filtered as spam by aggressive email filtering software. Determining a response rate to the survey is imprecise as indicated in the CHERRIES tool (Appendix C). The indirect nature of contact with potential participants makes gaining cooperation more challenging and risks increasing nonresponse error (Dillman et al., 2014).

A comparison sample of NPs who have not participated in post-graduate training was recruited through an email marketing campaign administered through the ENP Network (Palm Beach Gardens, FL). The email campaign targeted NPs without post-graduate training from within the same states as NPs who had completed post-graduate training and participated in the survey. This allowed for comparison of NP job satisfaction between groups within the same regulatory environment. A total of 10,000 email invitations targeted NPs without post-graduate

education and returned 182 completed surveys. A survey response rate of 1.8% is consistent with

expectations for internet based surveys (Dillman et al., 2014).

Instrument

The aim of the project was to measure the impact of post-graduate education on NP job

satisfaction using the MNPJSS. The scale (Appendix B) was developed specifically for Nurse

Practitioners and has strong reliability and validity metrics (Misener & Cox, 2001). The 44 item

scale contains 6 factored subscales named: Interpractice Partnership/Collegiality;

Challenge/Autonomy; Professional, Social, and Community Interaction; Professional Growth;

Time; and Benefits. The six factors produce internal consistency reliability estimates of .94, .89,

.84, .86, .89, and .79 respectively (Misener & Cox, 2001). When totaled, the six subscales

represent overall job satisfaction among survey participants. More than half of the scale focuses

on Interpractice Partnership/Collegiality and Challenge/Autonomy. Median job satisfaction is

reported for the entire survey and factored subscales analyzed independently to help determine

factors that impact job satisfaction most highly (Appendix A, Tables 3 & 4). The survey was

adapted for online administration using Qualtrics® survey software version 59038 (*Qualtrics*

research suite, 2014) and reported de-identified data. Several demographic queries accompanied

the survey including questions regarding participants': race; gender; age; years of NP experience,

highest academic degree; date of post-graduate program graduation; and practice zip code. Data

was collected from NPs in a variety of clinical settings and no attempt was made to differentiate

between NPs in acute care or outpatient settings. Similarly, no attempt was made to distinguish

between NPs in primary care and specialty practice. The MNPJSS and demographic variables

were used to determine the impact of post-graduate NP education on important determinants of

job satisfaction.

Evaluation Strategies

The two groups of NPs were compared using SPSS (Version 22.0). Independent samples t-test of factor scores was used to compare job satisfaction between groups and contrast post-graduate fellowship training effects within demographic strata. A multiple linear regression was calculated to predict participants' total job satisfaction based on years of NP experience, state regulatory environment and whether or not they completed a post-graduate education program. NPs with more experience may have higher job satisfaction scores with or without post-graduate education. The regulatory environment of the state in which the NP practices may also impact survey results. NPs that practice in states with plenary authority may have higher levels of job satisfaction than those who practice in more restrictive settings. The ZIP code allows comparison of NPs with and without post-graduate education within the same regulatory environment. State regulatory environment was coded as full or restricted practice as determined by state nurse practice acts and administrative rules (AANP, 2015).

Results

Demographic characteristics of study participants are listed in Table 2 (Appendix A). A total of 254 participants responded to the survey. Eighty participants had completed post-graduate NP education programs and 174 had not participated in post-graduate education.

Consistent with national demographics, most survey participants were female and identified themselves as Caucasian. Eight percent of all survey participants were male which closely matches the percentage of men in APRN nursing occupations as reported by the US Census Bureau (Landivar, 2013). NPs with post-graduate education were generally younger with 45% reporting their age as 26 to 34 while 47% of NPs without post-graduate education reported an age range of 35 to 54 years. Median years of NP experience were also lower for NPs with

post-graduate education (4 years) as compared to NPs without additional education (11 years).

The two groups were comparable regarding highest degree with 90% of participants in the post-graduate education group having earned a master's degree and 88% of NPs without post-graduate education reporting master's level education. Nine percent of NPs in each group hold Doctor of Nursing Practice (DNP) degrees with most of the remaining doctoral prepared participants having earned a PhD in nursing. One survey participant earned a PhD in another discipline and reports having completed post-graduate NP education.

NPs from 30 states and the District of Columbia participated in the survey. Nearly all participants practice in states where post-graduate NP education programs are found. Overall median job satisfaction of NPs who have participated in post-graduate education scored 5 (Satisfied) on the 6 point MNPJSS. NPs who have not participated in post-graduate education also reported median overall job satisfaction scores of 5 (Satisfied). Cumulative frequency distribution of all survey questions show that nearly sixty-nine percent of NPs who have participated in formal post-graduate education programs rate job satisfaction as Satisfied or Very Satisfied while just over fifty percent of NPs without formal post-graduate education rate their job satisfaction as Satisfied or Very Satisfied (Appendix A, Table 3).

Cronbach's alpha for the 44 item MNPJSS in this study was .97. Subscale analysis ranged from .82 to .95 (Appendix A, Table 4) and is comparable to the original MNPJSS reliability data published by Misener & Cox (2001). Independent samples t test of factor scores reveals statistically significant differences between NPs who have completed formal post-graduate education when compared to NPs who have not participated post-graduate education programs (Appendix A, Table 4).

Analysis of mean total satisfaction scores reveals that most responses are normally distributed. A Q-Q plot shows the distribution closely matches an expected normal distribution with a few outliers and supports the use of parametric tests (Appendix A, Figure 1). Independent samples t-test of factor scores was calculated to compare job satisfaction between groups and contrast post-graduate fellowship training effects within demographic strata.

NPs in the survey who reported a master's degree as their highest academic credential trended toward higher levels of job satisfaction than NPs holding doctoral degrees although the difference between groups was not statistically significant ($t(245) = 1.7$, $p > .05$). The mean total satisfaction score of master's prepared NPs ($m = 190$, $sd = 36$) was not statistically different from the mean score of doctoral prepared NPs ($m = 178$, $sd = 34$). Similarly, small differences were found between masters and doctoral prepared NPs when grouped by participation in post graduate education (Appendix A, Table 5).

Years of experience was categorized into two groups; one group having three or fewer years of experience and the other with more than three years of practice experience as a NP. The three year break point was chosen due to 45% of NPs who participated in post-graduate training having three years or less of practice experience. This distinction was chosen to help capture transition-to-practice issues that occur early in a career and reflects fewer years (median = 4) of NP experience among those in the post-graduate training group. An independent samples t test comparing the mean scores of NPs with three or fewer years of experience and those with more than 3 years of experience found a statistically significant difference between the means of the two groups ($t(253) = -2.2$, $p < .05$). The mean score of NPs with more than three years of experience was significantly higher ($m = 192$, $sd = 37$) than NPs with three or fewer years of experience ($m = 181$, $sd = 37$). The influence of NP clinical experience is evident among NPs

who have not participated in post-graduate education. NPs who have completed post-graduate education do not show a statistically significant difference when considering years of experience alone (Appendix A, Table 6). This may reflect fewer years of NP experience within this group.

The regulatory environment of states in which NPs practice was also considered as a potential determinate of job satisfaction and coded as full or restricted practice as determined by state nurse practice acts and administrative rules (AANP, 2015). An independent samples *t* test was calculated comparing the mean satisfaction scores of NPs who practice in plenary authority states to the mean scores of NPs who practice in states requiring a collaborative agreement between the NP and another health discipline. No statistically significant difference was found (t(222) = .841, p > .05). Likewise, no differences were found between NPs who practice under the exclusive authority of state boards of nursing and those in more restrictive regulatory environments when grouped by participation in post graduate education (Appendix A, Table 7).

When considering post-graduate education and years of experience, however, regulatory environment made a statistically significant impact on NP job satisfaction. An independent samples *t* test was calculated using the mean satisfaction scores of a subset of NPs who have completed formal post-graduate training with more than three years of experience and practice in plenary authority states. This group was compared to a subset of NPs having completed formal post-graduate training with more than three years of experience who practice in states requiring a collaborative agreement between the NP and another health discipline. There was a statistically significant difference between the mean scores of the two groups (t(42) = 2.461, p. < .05). When comparing subsets of each group based on regulatory environment, the mean score of NPs practicing in states with restricted regulation was significantly lower (*m* = 195, *sd* = 38) than the

mean scores of NPs who practice under the exclusive authority of the state board of nursing ($m =$ 225, $sd = 29$) (Appendix A, Table 8).

An independent samples t test comparing mean job satisfaction scores of NPs who have completed post-graduate education with NPs who have not participated in formal post-graduate education found statistically significant differences between the means of the two groups ($t(252) = 3.42$, $p < .001$). The mean scores of NPs having completed post-graduate education was significantly higher ($m = 200$, $sd = 36$) than the mean scores of NPs who have not participated in formal post-graduate education ($m = 183$, $sd = 37$).

A multiple linear regression was calculated to predict participants' total job satisfaction based on years of NP experience, state regulatory environment and whether or not they completed a post-graduate education program. Because regulatory environment and years as a nurse practitioner were considered potential "covariates" or variables to be controlled for, they were entered in a separate block or step, with total satisfaction regressed on post-graduate education (yes or no) in a separate, sequential step. While the overall regression was significant ($(F_{3, 215}) = 3.097$, $p = .028$), the explained variance associated with post-graduate education was small ($R^2 = .04$). Full regression results are included in Table 9 (Appendix A).

Limitations

Participant recruitment for this survey was limited to email invitation. Single mode survey methods risk missing individuals who do not find email surveys particularly appealing (Dillman et al., 2014). Furthermore, participants were recruited indirectly through program directors who may not have current contact information for all program graduates. This results in highly unreliable estimates of survey response rates (CHERRIES, Appendix C). The comparison group for the study was recruited through an online community of professionals. Membership is

voluntary and may not represent the diversity of NPs within each state. Because a nonprobability

sampling technique was used, there is a risk for bias and results may not be generalizable to NPs

across all states and all settings. The survey sample may have been more or less satisfied with

their jobs than a randomly sampled group of NPs from across the country.

The use of parametric tests on ordinal data may be considered a study limitation. The

treatment of Likert scale scores as interval data has long been controversial (Jamieson, 2004).

Armstrong (1981) argues that "what is important is to fulfill the requirements of the inferential

statistics being used, not whether the scale is ordinal or interval" (p. 60). He goes on to assert

that "the assumption of normal distribution is not rigid, i.e. the t test is robust enough to perform

satisfactorily in violation of the assumption of normality" (Armstrong, 1981). A Q-Q plot shows

the distribution closely matches an expected normal distribution with a few outliers and supports

the use of parametric tests in this study (Appendix A, Figure 1).

Discussion

Post-graduate education has a statistically significant positive influence on NP job

satisfaction. Identifying factors that impact job satisfaction is advantageous to employers, policy

makers and NPs considering post-graduate education opportunities.

Interestingly, NPs who have completed post-graduate education and NPs who have not

participated in formal post-graduate education scored highest on survey items regarding work

challenge and autonomy. This suggests that factors that influence autonomy largely contribute to

overall job satisfaction among NPs and is consistent with other studies utilizing the MNPJSS

(Pasaron, 2013; Pron, 2013; Schiestel, 2007). Two of the four factor subscales of the MNPJSS

(time and benefits), were not statistically significant between groups. This may reflect the

younger age and fewer years of experience among NPs who have completed post-graduate

education. They may consider professional growth, autonomy, collegiality and interaction with professional, social and community groups more valuable in the early years of their career.

When total satisfaction was regressed on post-graduate education, years of NP experience and state regulatory environment the overall regression was significant although the variance explained by post-graduate education was quite small (Appendix A, Table 9). This suggests that other factors significantly influence NP job satisfaction among survey participants. Mean job satisfaction scores were highest among NPs who have completed post-graduate training, work in full practice authority states and have more than three years of experience (Appendix A, Figure 2). Regulatory environments may more heavily impact job satisfaction as NPs gain education and experience. State mandated regulatory agreements between NPs and other health professions may be unattractive to NPs interested in practicing at the full potential of their education and experience.

Additional research to determine the effect of post-graduate education on NP confidence, competence and patient outcomes should also be considered. Studies to determine the difference between mentorship associated with transition-to-practice programs and clinical "supervision" of NPs by other licensed health professionals can help policy makers evaluate outdated regulatory models and enable all health disciplines to practice to their full potential. The outcomes of this study can help inform NPs, state and federal regulatory authorities and employers on the value of transition-to-practice programs for a growing constituent of our nation's health care workforce.

Summary

There are a growing number of post-graduate NP education programs designed specifically for new graduates and experienced NPs transitioning to new practice settings. Unlike

formal physician residency and fellowship training, most post-graduate NP education comes from mentoring and on-the-job training. Nearly all post-graduate programs for NPs are internally funded by employers. The programs are not standardized and there is considerable variability and inconsistency in learning objectives, content, and titles to describe participants' roles. It is important to understand that post-graduate education does not prepare NPs to function outside their formal population-focused educational preparation and scope of practice. Programs cannot expect to prepare NPs to practice with a new population focus or move between primary care and acute care settings (AANP, 2013).

Post-graduate education has a statistically significant positive impact on NP job satisfaction among survey participants. Years of NP experience also positively influences NP job satisfaction. State regulatory environments did not impact NP job satisfaction overall, however, the most highly satisfied NPs in this survey had more than three years of experience, completed formal post-graduate education and practice in plenary authority states. Regulatory autonomy may influence job satisfaction more strongly among NPs with the greatest experience and clinical expertise. Knowledge of factors that influence job satisfaction is advantageous to employers, policy makers and NPs considering post-graduate education opportunities.

Growth in post-graduate NP education programs is likely to continue as employers appreciate return on investment through recruitment and retention of cost effective workforce constituents. Supplemental education is expensive and there is no published evidence that post-graduate NP education improves patient satisfaction or clinical outcomes. NPs are prepared to function as fully licensed health care providers upon graduation and mandating additional formal education after graduation could prolong education for an essential component of the clinical workforce. Common terminology for post-graduate NP education should be adopted and the

term "fellowship" used to reflect the optional nature of graduate education opportunities (AANP, 2013).

Access to stable funding sources from healthcare organizations, state and federal agencies should be considered to support development of consistent learning objectives and clinical expectations. Policy leaders must study how regulatory environments impact NP job satisfaction and advocate for modernization of state practice acts that support regulatory autonomy of boards of nursing. Opportunities for interprofessional education should be explored as post-graduate NP programs are integrated into academic clinical settings that train diverse healthcare professions. Further research is also needed within current programs to develop valid evaluation measures to discover how post-graduate NP education impacts the efficiency, quality and value of care provided by a rapidly growing member of our nation's healthcare workforce.

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Appendix A

Table 1

Nurse Practitioner Post-Graduate Education Programs

Sponsor/Location	Focus/Duration	Setting	Website
American Association for the Study of Liver Diseases Multiple sites	Hepatology 12 months	Various Academic Hepataology practice sites	https://www.aasld.org/awards/aasld/Pages/ClinicalHepatologyFellowshipProgram.aspx
Capital Health Regional Medical Center Trenton, NJ	Neurosurgery and Neurology 12 months	Multispecialty health system	http://www.capitalhealth.org/professionals/neuroscience-nurse-practitioner-fellowship
Carilion Clinic Emergency Department Roanoke, VA	Emergency Medicine 12 months	Multispecialty health system	http://www.carilionclinic.org/education/emergency-med-fellowship
Carolinas HealthCare System Charlotte, NC	Multiple Acute Care and Ambulatory Care Programs 12 months	Multispecialty health system	http://www.carolinashealthcare.org/center-for-advanced-practice-fellowship
Community Health Care Tacoma, WA	Primary Care 12 months	FQHC	http://www.commhealth.org/residency/family-nurse-practitioner-residency/family-nurse-practitioner-

			residency-program/
CommUnityCare Health Centers Austin, TX	Primary Care 12 months	FQHC	http://communitycaretx.org/about/opportunities/fnp/programgoals.html
Community Health Center, Inc. Middletown, CT	Primary Care 12 months	FQHC	http://www.npresidency.com/index.php
Duke University School of Nursing and Durham Veterans Affairs Medical Center Durham, NC	Psychiatric Mental Health 12 months Integrated into Duke DNP program[a]	Veterans Affairs Medical Center	http://nursing.duke.edu/news/applications-now-being-accepted-nurse-practitioner-residency-durham-va-medical-center
Emory Woodruff Health Sciences Center Atlanta, GA	Critical Care 12 months	Academic health system	http://whsc.emory.edu/home/education/critical_care/np_pa_post_grad_res/index.html
Family Health Center Worcester, MA	Primary Care 12 months	FQHC	http://www.fhcw.org/en/Academics/FamilyNursePractitioner
Glide Health Services University of	Primary Care 12 months	FQHC	http://nursing.ucsf.edu/nurse-practitioner-residency-introduction URL no longer leads to program

California School of Nursing San Francisco, CA			description
Harvard Medical School Boston, MA	Palliative Care 12 months	Academic health system	http://www.hms.harvard.edu/pallcare/Other/Fellowships.htm
Houston Methodist Hospital Houston, TX	Transplant and Neurosciences	Multispecialty health system	http://www.houstonmethodist.org/basic.cfm?id=39653
International Community Health Services Seattle, WA	Primary Care 12 months	FQHC	http://www.ichs.com/jobs/nursing/
Johns Hopkins School of Medicine Baltimore, MD	Gastroenterology and Hepatology 12 months	Academic health system	http://www.hopkinsmedicine.org/gastroenterology_hepatology/education_training/nurse_practitioner_fellowship_program.html
Lahey Hospital & Medical Center Burlington, MA	Dermatology 24 months	Multispecialty group practice	http://www.lahey.org/Departments_and_Locations/Departments/Dermatology/Nurse_Practitioner_Fellowship_in_Dermatology.aspx
Mayo School of Health Sciences'	Primary Care 12 months	Academic health system	http://www.mayo.edu/mshs/careers/nurse-practitioner/nurse-practitioner-

Rochester, MN	Integrated into MSN & DNP programs[b]		clinical-residency-program-minnesota
Memorial Sloan Kettering Cancer Center New York, NY	Palliative Care 12 months	Academic health system	http://www.mskcc.org/education/fellowships/fellowship/pain-and-palliative-care-nursing-fellowship
The Ohio State University Comprehensive Cancer Center Columbus, OH	Oncology 12 months	Academic health system	http://cancer.osu.edu/about/careers/leadership/pages/index.aspx URL no longer leads to program description
Penobscot Community Health Care Bangor, MA	Primary Care 12 months	FQHC	http://pchcbangor.org/education/pchc-nurse-practitioner-residency-program/ Program suspended for 2015
Regions Hospital St. Paul, MN	Psychiatric Mental Health 12 months	Multispecialty health system	https://www.healthpartners.com/ime/residency/regions-hospital/PsychiatryPANPFellowship/index.html
Santa Rosa	Primary Care	FQHC	http://srhealthcenters.org/careers/resid

Community Health Center Santa Rosa, CA	12 months		ency-training-programs/
St. Luke's University Health Network Bethlehem, PA	Emergency Medicine 12 months Trauma/Critical Care 15 months	Academic health system	http://residency.slhn.org/Advanced-Practitioners-Program/Emergency-Medicine-Post-Residency.aspx http://residency.slhn.org/en/Advanced-Practitioners-Program/Trauma-Critical-Care-PA-NP.aspx
Texas Children's Cancer and Hematology Centers Houston, TX	Hematology Oncology 12 months	Multispecialty children's hospital	http://txch.org/education/graduate-nurse-practitioner-program/
University of California- Los Angeles Center for East-West Medicine Santa Monica, CA	Integrative medicine 24 months	Academic health system	http://cewm.med.ucla.edu/physicianfellowship-html/nurse-practitioner-fellowship/
University of Colorado Hospital	Acute Care 12 months	Academic health system	http://www.ucdenver.edu/academics/colleges/medicalschool/departments/me

Medicine Group Denver, CO			dicine/GIM/ClinicalCare/HospitalMed icine/EdOps/Pages/AdvancedPracticeF ellowship.aspx
The University of Maryland Medical Center Baltimore, MD	Critical Care 12 months	Academic health system	http://umm.edu/professionals/nurse-practitioners/residency
University of North Carolina Chapel Hill, NC	Orthopaedics 24 months	Academic health system	http://www.med.unc.edu/ortho/meded uc/unc-nurse-practitioner-orthopaedic-fellowship-program
University of Pittsburg Medical Center Pittsburg, PA	Critical Care 12 months	Academic health system	http://www.ccm.pitt.edu/upmc-critical-care-medicine-advanced-practice-provider-residency
The University of Texas MD Anderson Cancer Center Houston, TX	Oncology 12 months	Academic health system	http://www.mdanderson.org/education -and-research/education-and-training/schools-and-programs/nursing-education/post-graduate-fellowship-in-oncology-nursing/index.html
Vanderbilt University Schools	Critical Care 24 months	Academic health system	https://www.nursing.vanderbilt.edu/dn p/acnp_fellowship.html

of Nursing and Medicine Nashville, TN	Integrated into DNP program[c]		
Veterans Affairs Boise, ID Cleveland, OH San Francisco, CA West Haven, CT Seattle, WA	Primary Care 12 months	Veterans Affairs Medical Centers	http://www.va.gov/oaa/rfp_coe.asp
Yakima Valley Farm Workers Clinic Multiple sites in Washington and Oregon	Primary Care 12 months	FQHC	http://www.yvfwc.com/employment-opportunities/np-residency/

Note. FQHC= Federally Qualified Health Center, DNP=Doctor of Nursing Practice, MSN= Master of Science in Nursing

[a] Residents can use hours at the Durham VA towards their Duke DNP degree and quality improvement
  projects as their capstone thesis.

[b] Must be practicing nurse within Mayo Health System to apply. Integrates 12 month paid residency into
  post Baccalaureate MSN or DNP curriculum.

[c] Integrates post Masters DNP curriculum with a 2-year paid critical care clinical fellowship.

Table 2

Participant Demographics

| | Percent | Post-graduate education | | Total (*N* =254) |
| | | Yes (*n* = 80) | No (*n* = 174) | |
		n (%)	*n* (%)	
Gender				
Female	91.6%	73 (91.2)	160 (92)	233
Male	8.4%	7 (8.8)	14 (8)	21
Highest degree				
Masters	88%	72 (90)	148 (88)	220
Doctoral	12%	8 (10)	20 (12)	29
Age range[a]				
18-25	1.2%	0	3 (1.7)	3
26-34	23.1%	36 (45)	23 (13.2)	59
35-54	43.9%	30 (37.5)	82 (47.1)	112
55-64	26.3%	11 (13.8)	56 (32.2)	67
65 and over	5.1%	3 (3.8)	10 (5.7)	13
Race[b]				
Caucasian	79.6%	68 (85)	135 (77.6)	203
African American	9%	4 (5)	19 (10.9)	23
Hispanic	2.7%	1 (1.3)	6 (6.3)	7
Asian	5.5%	4 (5)	10 (5.7)	14
Native American	0.8%	0	2 (1.1)	2
Pacific Islander	0.4%	0	1 (0.6)	1
Other	5.1%	4 (5)	9 (5.2)	13

Note. [a]Not all participants answered each question resulting in sum less than 100%.
[b]Participants advised to check all that apply resulting in sums exceeding 100%.

Table 3

Job Satisfaction Scores

Post-graduate education	N	Median	Frequency of satisfied and very satisfied
Yes	80	5	68.8%
No	174	5	50.5%

Table 4

Independent samples t test of factor scores and Cronbach alpha (N = 254)

		Post-graduate education					
		Yes (*n* = 80)		No (*n* = 174)			
Factors	*α*	*M*	*SD*	*M*	*SD*	*t*	*Sig.(2 tailed)*
Collegiality	0.95	4.33	1.03	3.94	1.05	2.74	.007*
Autonomy	0.91	4.93	0.75	4.57	0.87	3.19	.002*
Interaction	0.87	4.72	0.76	4.42	0.82	2.79	.006*
Growth	0.89	4.38	1.11	3.78	1.16	3.84	<.001**
Time	0.85	4.36	1.03	4.40	1.03	-0.28	0.78
Benefits	0.82	4.67	1.08	4.49	1.15	1.20	0.23

Note. * $p < .05$.

** $p < .001$.

Table 5

Independent samples t test of Highest Degree and Post-graduate Education

		MSN		DNP or PhD			
Post-graduate education	*N*	*M*	*SD*	*M*	*SD*	*t*	*Sig. (2 tailed)*
Yes	79	202	35	187	46	1.15	.256
No	168	185	36	174	27	1.32	.187

Note. MSN = Master of Science in Nursing. DNP = Doctor of Nursing Practice. PhD = Doctor of Philosophy.

Table 6

Independent samples t test of NP Years of Experience and Post-graduate Education

		3 or fewer years		More than 3 years			
Post-graduate education	*N*	*M*	*SD*	*M*	*SD*	*t*	*Sig. (2 tailed)*
Yes	80	195	34	204	37	-1.2	.247
No	174	173	37	188	37	-2.3	.019*

* $p < .05$.

Table 7

Independent samples t test of Regulatory Environment and Post-graduate Education

Post-graduate education	N	Plenary Authority[a]		Restricted Practice[b]		t	Sig. (2 tailed)
		M	SD	M	SD		
Yes	72	208	37	197	37	1.8	.242
No	152	182	40	182	37	-.03	.973

[a]States in which NPs practice under the exclusive authority of the state board of nursing.
[b]States requiring a collaborative agreement between the NP and another health discipline.

Table 8

Independent samples t test of Regulatory Environment, Post-graduate Education and years of Experience

	N	Plenary Authority[a]		Restricted Practice[b]		t	Sig. (2 tailed)
		M	SD	M	SD		
More than 3 years of experience and post-graduate education	44	225	29	195	38	2.46	.018*
Three or fewer years of experience and post-graduate education	28	183	34	200	36	-1.10	.280

[a]States in which NPs practice under the exclusive authority of the state board of nursing.
[b]States requiring a collaborative agreement between the NP and another health discipline.
* $p < .05$.

Table 9

Multiple linear regression predicting Total Job Satisfaction from regulatory environment, years of experience (Block 1) and post-graduate education (Block 2)

|	β	t	p value
State regulatory environment	-3.27	-.545	.587
Years of experience as a nurse practitioner	.16	.531	.596
Post-graduate education	-16.68	-2.972	.003*

Note. $R^2 = .04$.
* $p < .05$.
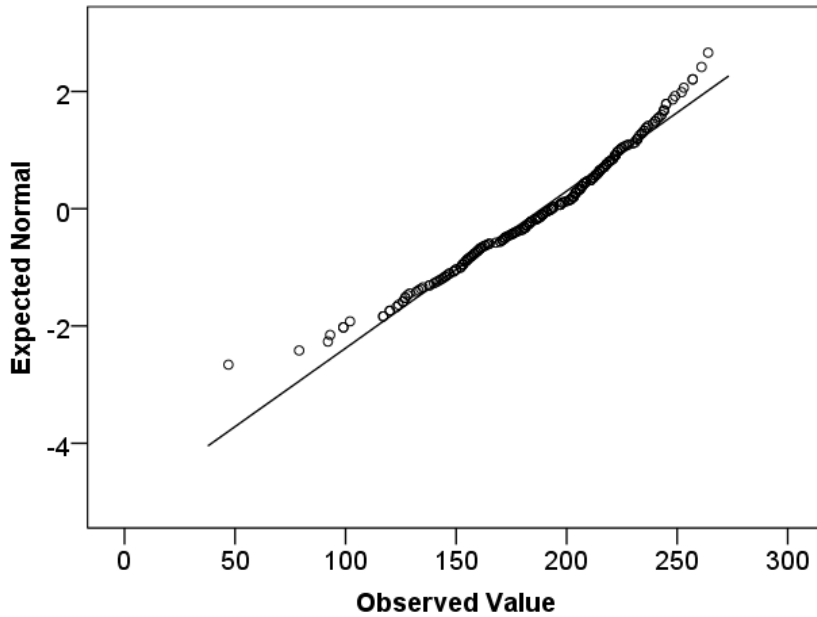
Figure 1. Normal Q-Q plot of total job satisfaction
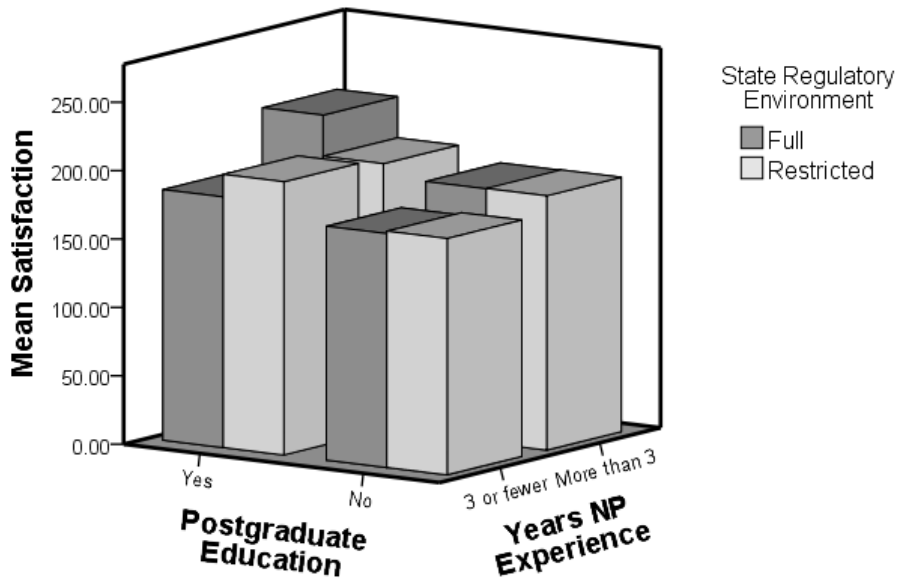
Figure 2. Mean job satisfaction of NPs with and without post-graduate education contrasted by years of Experience and state regulatory environment.

Appendix B
Misener Nurse Practitioner Job Satisfaction Scale

Instructions:

The following is a list of items known to have varying levels of satisfaction among NPs. There may be items that do not pertain to you, however please answer it if you are able to assess your satisfaction with the item based on the employer's policy, i.e., if you needed it would it be there?

HOW SATISFIED ARE YOU IN **YOUR CURRENT JOB AS A NURSE PRACTITIONER** WITH RESPECT TO THE FOLLOWING FACTORS?

V. S. = Very Satisfied   M. D .= Minimally Dissatisfied

S. = Satisfied   D. = Dissatisfied

M. S. = Minimally Satisfied   V. D. = Very Dissatisfied

	VS	S	MS	MD	D	VD
1. Vacation/Leave policy	6	5	4	3	2	1
2. Benefit package	6	5	4	3	2	1
3. Retirement plan	6	5	4	3	2	1

	VS	S	MS	MD	D	VD
4. Time allotted for answering messages	6	5	4	3	2	1
5. Time allotted for review of lab and other test results	6	5	4	3	2	1
6. Your immediate supervisor	6	5	4	3	2	1
7. Percentage of time spent in direct patient care	6	5	4	3	2	1
8. Time allocation for seeing patient(s)	6	5	4	3	2	1
9. Amount of administrative support	6	5	4	3	2	1
10. Quality of assistive personnel	6	5	4	3	2	1
11. Patient scheduling policies and practices	6	5	4	3	2	1
	VS	S	MS	MD	D	VD

	VS	S	MS	MD	D	VD
12. Patient mix	6	5	4	3	2	1
13. Sense of accomplishment	6	5	4	3	2	1
14. Social contact at work	6	5	4	3	2	1
15. Status in the community	6	5	4	3	2	1
16. Social contact with your colleagues after work	6	5	4	3	2	1
17. Professional interaction with other disciplines	6	5	4	3	2	1
18. Support for continuing education (time and $$)	6	5	4	3	2	1
19. Opportunity for professional growth	6	5	4	3	2	1

	VS	S	MS	MD	D	VD

	VS	S	MS	MD	D	VD
20. Time off to serve on professional committees	6	5	4	3	2	1
21. Amount of involvement in research	6	5	4	3	2	1
22. Opportunity to expand your scope of practice	6	5	4	3	2	1
23. Interaction with other NPs including faculty	6	5	4	3	2	1
24. Consideration given to your opinion and suggestions for change in the work setting or office practice	6	5	4	3	2	1
25. Input into organizational policy	6	5	4	3	2	1
26. Freedom to question decisions and practices	6	5	4	3	2	1

	VS	S	MS	MD	D	VD

		VS	S	MS	MD	D	VD
27.	Expanding skill level/procedures within your scope of practice	6	5	4	3	2	1
28.	Ability to deliver quality care	6	5	4	3	2	1
29.	Opportunities to expand your scope of practice and time to seek advanced education.	6	5	4	3	2	1
30.	Recognition for your work from superiors	6	5	4	3	2	1
31.	Recognition of your work from peers	6	5	4	3	2	1
32.	Level of autonomy	6	5	4	3	2	1
33.	Evaluation process and policy	6	5	4	3	2	1
		VS	S	MS	MD	D	VD

	VS	S	MS	MD	D	VD
34. Reward distribution	6	5	4	3	2	1
35. Sense of value for what you do	6	5	4	3	2	1
36. Challenge in work	6	5	4	3	2	1
37. Opportunity to develop and implement ideas.	6	5	4	3	2	1
38. Process used in conflict resolution	6	5	4	3	2	1
39. Amount of consideration given to your personal needs	6	5	4	3	2	1
40. Flexibility in practice protocols.	6	5	4	3	2	1
41. Monetary bonuses that are available in addition to your salary	6	5	4	3	2	1
	VS	S	MS	MD	D	VD

		VS	S	MS	MD	D	VD
42.	Opportunity to receive compensation for services performed outside of your normal duties.	6	5	4	3	2	1
43.	Respect for your opinion	6	5	4	3	2	1
44.	Acceptance and attitudes of physicians outside of your practice (such as specialist you refer patients to)	6	5	4	3	2	1

Appendix C

Checklist for Reporting Results of Internet Electronic Surveys (CHERRIES)

Item Category	Checklist	Explanation
Design	√	The target population for this survey includes a convenience sample of practicing nurse practitioners recruited through post-graduate program directors and a professional NP organization.
IRB	√	The survey was anonymous and took an average of 7 minutes to complete. Survey participation implied consent and all responses were kept confidential. Participants were advised of how long the survey should take to complete and no data was released or used with participant identification attached. The East Carolina University & Medical Center Social/Behavioral Institutional Review Board certified the study as exempt on October 27th, 2014(UMCIRB 14-001574). No personal data was collected.
Development & Pre-Testing	√	Survey questions were developed specifically for the Misener Nurse Practitioner Job Satisfaction Scale[®] (MNPJSS). The scale is well established and has strong reliability and validity metrics.
Recruitment Process & Description of the Sample Having Access to the Questionnaire	√	The survey was closed and limited to a sample well known to program directors. Participants were recruited through email contact using contact information discovered by an internet search of post-graduate NP education programs. The comparison group was recruited through an email campaign through a professional NP organization.

Item Category	Checklist	Explanation
Survey Administration	√	Participants responded to an email request to answer survey questions and responses were automatically compiled by Qualtrics analytic software.
Response Rates	√	Eighty participants were recruited from 30 email requests to program directors. Each program director potentially sent the survey to multiple recipients making response rates difficult to assess and essentially meaningless in this case. A total of 10,000 email invitations were sent to the comparison group with a response rate of 1.8%.
Preventing Multiple Entries from the Same Individual	√	Computer IP addresses were used to identify unique visitors. Users with the same IP address were prevented from accessing the survey more than once. Duplicate entries from the same IP addresses were not observed during analysis of survey results.
Analysis	√	No attempt was made for statistical correction of missing data and median scores were reported for descriptive purposes. Aggregate frequency and percentage values were also reported for selected variables.

Appendix D
Permission to use tool

From: Warner, Joanne
To: Bush, Charles T
Subject: RE: Misener tool
Date: Tuesday, December 10, 2013 11:24:50 AM
Attachments: Job Satisfaction Scale.doc
SCORING MNPJSS.doc

Dear Mr Bush,

Pleased to receive your request, and to be able to provide all the materials that I have. Attached is the scale and the scoring information. I've continued the practice Dr Misener used before his death: granting permission for the use, asking that he be given credit for the tool, and asking that a summary of the study be emailed to him. This email is official permission for the use of the scale. I wish you well in your study. It sounds relevant and timely.

Best wishes – Dr. Warner
Joanne Warner, PhD, RN
Dean, School of Nursing
University of Portland
503-943-7509/warner@up.edu

Appendix E
Approval Page

East Carolina University
College of Nursing
DNP in Nursing Program

_Charles T. Bush_____has selected the following scholarly project committee members:

(Student's name)

Committee Role	Rank/Role	Date/Signature
1. Chair	Bobby Lowery, PhD, FNP-BC	
2. Committee Member	Cheryl Duke, PhD, RN, FNP-BC	
3. Community Advisor	Dennis A. Taylor, Med., MBA, DNP, ACNP-BC, FCCM	
4.		

Director of DNP Program:

Signature and Date

CC: DNP Scholarly Project Committee

         Chair Student

         DNP Program Office

08/02/13 BL

Appendix F
IRB Approval

EAST CAROLINA UNIVERSITY

University & Medical Center Institutional Review Board Office

4N-70 Brody Medical Sciences Building· Mail Stop 682

600 Moye Boulevard · Greenville, NC 27834

Office 252-744-2914 · Fax 252-744-2284 · www.ecu.edu/irb

Notification of Exempt Certification

From: Social/Behavioral IRB

To: Charles Bush

CC:

Bobby Lowery

Date: 10/27/2014

Re: UMCIRB 14-001574

Post-graduate NP education

I am pleased to inform you that your research submission has been certified as exempt on 10/27/2014 . This study is eligible for Exempt Certification under category #2 .

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession. This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification request at least 30 days before the end of the five year period.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

Appendix G
Timeline

Summer 2014

- Project overview, committee formation and abstract approval- Complete

Fall 2014

- Project fully developed
    - IRB approval at ECU- Complete
    - Survey tools, letter of introduction- Complete
    - Review of literature publication- Complete
    - Identification of targeted program directors- Complete
    - Secure funding- Complete

Spring 2015

- Project implementation-Complete
- Project analysis and evaluation- Complete

Summer 2015

- DNP project scholarly paper- Complete
- Public defense- Complete
- Submission for publication- Pending
- Poster presentation at the American Association of Nurse Practitioners 2015 National Conference, New Orleans, LA- Complete

Fall 2015 and beyond

- Further explore the impact of post-graduate education on NP practice patterns

Appendix H
East Carolina University
College of Nursing
Doctor of Nursing Practice
Final Scholarly Project Approval

Student Name:____Charles T. Bush_____
Project Title:_____Post-Graduate NP Education: Impact on Job Satisfaction_____

Private Defense Completed on ____6/4/2015_____

Public Defense Completed on ____6/17/2015_____

Final Project/Final Paper Approval:

As the Chair of this student's Doctor of Nursing Practice Scholarly Project Committee, I have reviewed and approved this student's project and final paper and agree that he/she has met the project expectations, including the DNP Essentials, and has completed the project.

DNP Committee Chair Signature:_____ PhD_____Date 7/17/15___