

Postgraduate Nurse Practitioner Education: Impact on Job Satisfaction

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ABSTRACT

Programs to facilitate nurse practitioner (NP) transition-to-practice have been developed at public and private institutions across the United States, yet there is no published evidence of their influence on NP job satisfaction. The Misener Nurse Practitioner Job Satisfaction Scale was administered to a convenience sample of two groups of NPs: one group with a formal postgraduate education and another group without formal postgraduate education. Postgraduate education has a statistically significant positive impact on NP job satisfaction. Knowledge of factors that influence job satisfaction is advantageous to employers, policymakers, and NPs considering postgraduate education opportunities.

Keywords: nurse practitioner fellowship, nurse practitioner residency, nurse practitioner transition-to-practice, postgraduate nurse practitioner education

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In collaboration with the Robert Wood Johnson Foundation, the Institute of Medicine supports novel approaches for the redesign of nursing education and practice to help satisfy the demand for health care services in the United States.¹ Recommendation number 3 of the report suggests “State boards of nursing, accrediting bodies, the federal government, and healthcare 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.”¹(pS9) Before the Institute of Medicine’s recommendations, postgraduate nurse practitioner (NP) education programs, that is, residencies and fellowships, began to emerge as employer-based programs in federally qualified health centers, academic health systems, and the Veterans Health Administration (VA).

Postgraduate NP education programs are frequently referenced as fellowships or residencies. Inconsistency among program titles may obscure choices made by NPs who pursue additional clinical education after completion of an accredited graduate nursing program, national certification, and state approval to practice. There is also potential confusion when the term residency is used to describe clinical capstone courses that 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. Postgraduate education is not required for NP licensure or to begin practice. In an effort to reduce confusion regarding the optional nature of postgraduate NP education, a national collaborative of NP organizations has recommended the term “fellowship” be adopted.² Others recommend “transition-to-practice” as a term that avoids regulatory implications, mandatory requirements, or the suggestion that NPs are not prepared to enter the workforce upon completion of formal graduate nursing education.³

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. No limits were set regarding date of publication. Search terms included: nurse practitioner fellowship; nurse practitioner residency; and nurse practitioner transition-to-practice. Inclusion criteria were limited to articles addressing development and implementation of postgraduate NP education programs. Exclusion criteria eliminated articles proposing NP postgraduate

education initiatives without program implementation. A total of 8 articles met review criteria.

An additional internet search using the same terms revealed employer-based programs that were not discovered in the academic literature. Numerous employer-sponsored programs were identified and include postgraduate education in a variety of primary care and specialty settings. Programs are associated with schools of nursing, schools of medicine, academic health systems, and community health centers.

The first postgraduate NP education program was designed specifically for family NPs preparing to deliver primary care to underserved populations at a multisite federally qualified health center in Connecticut.⁴ The 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.”⁴(¶9)

Much of the literature regarding postgraduate NP education comes from the VA through the development of Centers of Excellence in Primary Care Education (CoEPCE), with 24 postgraduate NP trainees at VA centers in 5 states. Each CoEPCE consists of NP and physician residents with other health disciplines optionally involved based on need and availability.⁵ In 2011, the VA Connecticut Healthcare System CoEPCE launched the first interprofessional fellowship program to address clinical experience among NPs. The 1-year postgraduate program provides additional clinical education for NPs and was designed to promote interprofessional practice partnerships with physician trainees to establish a collaborative team-based primary care model.⁶

In September 2013, the VA Puget Sound Health Care System CoEPCE convened an information forum to explore postgraduate NP education models.⁷ The goals of the conference were to define unique needs of NP trainees, develop an appreciation of fundamental components for support of postgraduate NP education, and to examine best practices for the viability of postgraduate NP education models. During the forum, a current postgraduate NP trainee shared that postgraduate education improves clinical skills and enhances retention through increased job satisfaction.⁷ In addition, conference attendees developed

recommendations for the development of postgraduate NP education programs. Among the key components was the need for reliable funding and valid evaluation measures to determine the impact of postgraduate NP education.⁷

The VA also offers scholarship opportunities to current staff in exchange for a commitment to service.⁸ To support the transition from staff nurse to new NP, a postgraduate residency education program was developed at the Portland, Oregon VA. The effort to ensure that the NP resident was successful with a supportive educational environment had an impact on NP satisfaction and retention: “Both are key to the nurse administrator in a time of difficult transitions and costly recruitments.”⁶(p387)

A growing number of NPs have begun working in acute and critical care settings over the past decade.⁹ Postgraduate acute care nurse practitioner 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.”⁹(p333)

In recognition of the increasing role NPs and physician’s assistants play in clinical, academic, research, and administrative settings, the Carolinas HealthCare System 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.¹⁰ CHS committed to optimizing the role of NPs and physician’s assistants through education, collaboration, and professional support by developing the CAP along with 16 postgraduate 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.¹⁰

COST AND COMMITMENT

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.¹¹ Costs associated with creating and supporting

a postgraduate NP education program include NP salary and benefits, lost clinical productivity revenue of the preceptor, administrative costs, and operating expenses.⁴ Annual costs can reach \$100,000 per trainee, with most supporting the postgraduate NP and about one third used to supplement lost preceptor productivity (D. Taylor, personal communication, April 14, 2014). A portion of program expenses can be subsidized through reimbursable clinical care provided by the trainee. Some employers require a service commitment after program completion, whereas others see the training as a tool for nurturing collaboration and retention of vital workforce constituents. Costs to program participants include a lower salary during training and potential service commitment after program completion.

Problem Statement and Rationale

Programs to facilitate NP transition-to-practice have been developed at public and private institutions across the US, yet there is no published evidence of their influence on NP job satisfaction, clinical competency, or patient satisfaction.¹² 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.¹³ Supplemental postgraduate education is not required or necessary for entry into practice. Added support and mentoring after graduation, however, is fundamental to an effective transition from new graduate NP to clinical expert. Formal clinical support from an experienced clinician helps new NPs adjust to their new role, promotes autonomy, and supports productivity within a busy organization.¹⁴ Supplemental postgraduate programs are not required for NP entry into practice, and evidence is needed to evaluate their impact on a growing segment of health care providers.

METHODS

Sample

This study compares two groups (NPs with postgraduate education vs. NPs without postgraduate education) across multiple clinical settings on the Misener Nurse Practitioner Job Satisfaction Scale

(MNPJSS).¹⁵ This scale is composed of 6 responses ranging from very dissatisfied at one end (1) to very satisfied at the other (6). Overall median scores and frequencies were computed for each group. Several demographic queries accompanied the survey, including questions regarding participants' race, gender, age, years of NP experience, highest academic degree, date of postgraduate program graduation, and practice zip code. The hosting university's institutional review board granted exemption for this study.

Power and Precision software (Biostat, version 4, 2000) was used for power analysis and computation of sample size with the supposition that 75% of median scores of NPs with postgraduate training will cluster among responses 4, 5, and 6 (somewhat satisfied, satisfied, and very satisfied, respectively), whereas 75% of median scores of NPs without postgraduate education will cluster among responses 3, 4, 5, and 6 (somewhat dissatisfied, somewhat satisfied, satisfied, and very satisfied, respectively). A sample size of 56 participants in each group was required to have an 80% likelihood of yielding a statistically significant effect and conclude that responses differ between groups. 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.

Procedures

A nonequivalent group study design was used to compare job satisfaction scores among a convenience sample of NPs who have completed postgraduate education with NPs who have not participated in formal postgraduate 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. Participants indicated informed consent by following an email link to the survey.

Programs of 1 year or more were chosen for participation based on program descriptions uncov-

ered in the review of literature and associated internet search. Valid contact information was identified for 30 postgraduate NP program directors. A survey link was sent to program directors who were asked to forward the survey to their graduates. Determining a response rate to the survey is imprecise. The indirect nature of contact with potential participants makes gaining cooperation more challenging and risks increasing nonresponse error.¹⁶ The number of graduates in each program varies widely. Three programs have several dozen graduates each, whereas others have only 2 or 3 graduates. Program directors were asked to identify the number of graduates from their program in the initial request for survey participation. Most program directors did not indicate the number of graduates receiving the survey invitation, making postgraduate NP participant responses rates impossible to determine.

A comparison sample of NPs who have not participated in postgraduate training was recruited through an email marketing campaign administered through the ENP Network (Palm Beach Gardens, FL). The email campaign targeted NPs without postgraduate training from within the same states as NPs who had completed postgraduate training and participated in the survey. Recruitment of a comparison group from the same states allowed for comparison of NP job satisfaction between groups within the same regulatory environment. A total of 10,000 email invitations targeted NPs without postgraduate education and returned 182 completed surveys. A survey response rate of 1.8% is consistent with expectations for internet-based surveys.¹⁶

Instrument

The MNPJSS was developed specifically for NPs and has strong reliability and validity metrics.¹⁵ Permission to use the tool was granted by the copyright holder. The 44-item scale contains 6 factored subscales, including: Interpractice Partnership/Collegiality; Challenge/Autonomy; Professional, Social, and Community Interaction; Professional Growth; Time; and Benefits. Individual factor analysis produces internal reliability scores of .94, .89, .84, .86, .89, and .79, respectively.¹⁵ 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. The survey was adapted for online administration using Qualtrics survey software (Qualtrics Research Suite, version 59038, 2014) and reported de-identified data.

Evaluation Strategies

The two groups of NPs were compared using statistical software (Statistical Program for the Social Sciences, IBM-SPSS Statistics). Independent-samples *t*-tests of factor scores were used to compare job satisfaction between groups and contrast postgraduate 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 postgraduate education program.

RESULTS

Demographic characteristics of study participants are listed in Table 1. NPs from 30 states and the District of Columbia participated in the survey. Nearly all participants practice in states where postgraduate NP education programs are found. Overall median job satisfaction of NPs who have completed postgraduate education scored 5 (Satisfied) on the 6-point MNPJSS. NPs who have not participated in postgraduate education also reported median overall job satisfaction scores of 5 (Satisfied). Cumulative frequency distribution of all survey questions show that nearly 69% of NPs who participated in formal postgraduate education programs rated job satisfaction as Satisfied or Very Satisfied. Just over 50% of NPs without formal postgraduate education rated their job satisfaction as Satisfied or Very Satisfied.

Analysis of mean total satisfaction scores reveals that approximately 94.5% of responses are normally distributed (deviating from the expected standard deviation value by 0.2 or less). Fourteen mean total satisfaction scores diverge from the expected value of standard deviation, with 6 of these due to their position below the mean value and 7 due to their position above the mean value. Cronbach's α for the 44-item MNPJSS in this study was .97. Subscale

Table 1. Participants' Demographics

	Percent	Postgraduate Education		Total (<i>N</i> = 254)
		Yes (<i>n</i> = 80) <i>n</i> (%)	No (<i>n</i> = 174) <i>n</i> (%)	
Gender				
Female	91.6%	73 (91.2)	160 (92)	233
Male	8.4%	7 (8.8)	14 (8)	21
Highest degree				
Master	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	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

^a Not all participants answered each question resulting in a sum of < 100%.

^b Participants advised to check all that apply resulting in sums of > 100%.

analysis ranged from .82 to .95 (Table 2), and the findings were comparable with the initial tool reliability data of Misener and Cox.¹⁵ Independent-samples *t*-test of factor scores reveals statistically significant differences between NPs who completed formal postgraduate education when compared with NPs who did not participate in postgraduate education programs (Table 2).

Years of experience were categorized into two groups: one group having ≤ 3 years of experience and the other with > 3 years of practice experience as an NP. The 3-year breakpoint was chosen because

45% of NPs who participated in postgraduate training had ≤ 3 years of practice experience. This distinction was selected to help capture transition-to-practice issues that occur early in a career and reflects fewer years (median = 4 years) of NP experience among those in the postgraduate training group. The mean scores of NPs without postgraduate education and ≤ 3 years of experience were compared with mean scores of NPs without postgraduate education and > 3 years of experience. Independent-samples *t*-test showed a statistically significant difference between the mean scores of the two groups [$t(172) = -2.4$, $P < .05$]. The mean score for NPs with > 3 years of experience was significantly higher (mean = 188, SD = 36) than for NPs with ≤ 3 years of experience (mean = 173, SD = 37). The influence of clinical experience on job satisfaction is evident among NPs who have not participated in postgraduate education.

Independent-samples *t*-test among NPs who had participated in postgraduate education showed no statistically significant difference when considering years of experience [$t(78) = -1.2$, $P > .05$]. Among NPs with postgraduate training, the mean scores for those with > 3 years of experience was not significantly higher (mean = 204, SD = 37) than for NPs with ≤ 3 years of experience (mean = 195, SD = 37).

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 NP statutes and administrative rules.¹⁷ The mean satisfaction scores of NPs who practice in plenary authority states were compared with the mean scores of NPs who practice in states requiring a collaborative agreement between the NP and another health discipline. Independent-samples *t*-test indicated no statistically significant difference between groups [$t(222) = 0.841$, $P > .05$]. Likewise, no differences were found between NPs who practice under nursing board plenary authority and those in more restrictive regulatory environments when grouped by participation in postgraduate education (Table 3). When considering postgraduate education and years of experience, however, the regulatory environment had a statistically significant impact on NP job satisfaction. Mean job satisfaction scores of NPs with > 3 years of experience, postgraduate education, and

Table 2. Independent-samples *t*-test of Factor Scores and Cronbach's α ($N = 254$)

Factors	α	Postgraduate Education				<i>t</i>	Significance (2-tailed)
		Yes ($n = 80$)		No ($n = 174$)			
		Mean	SD	Mean	SD		
Collegiality	0.95	4.33	1.03	3.94	1.05	2.74	.007 ^a
Autonomy	0.91	4.93	0.75	4.57	0.87	3.19	.002 ^a
Interaction	0.87	4.72	0.76	4.42	0.82	2.79	.006 ^a
Growth	0.89	4.38	1.11	3.78	1.16	3.84	< .001 ^b
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

^a $P < .05$.^b $P < .001$.

plenary authority by their state board of nursing were compared with scores among NPs with similar postgraduate education and years of experience, yet who practiced in states requiring a collaborative agreement between the NP and another health discipline. Independent-samples *t*-test of mean scores found a statistically significant difference between groups [$t(42) = 2.461, P < .05$]. When comparing subsets of each group based on regulatory environment, the mean score for NPs practicing in states with restricted regulation was significantly lower (mean = 195, SD = 38) than mean scores of NPs practicing under nursing board plenary authority (mean = 225, SD = 29) (Table 3).

Mean job satisfaction scores for NPs who had completed postgraduate education were also compared with those of NPs who did not participate in formal postgraduate education. Independent-samples *t*-test of mean scores found statistically significant differences between the two groups [$t(252) = 3.42, P < .001$]. The mean scores for NPs

having completed postgraduate education were considerably higher (mean = 200, SD = 36) than those for NPs who had not participated in formal postgraduate education (mean = 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 program. Because regulatory environment and experience as an NP were considered potential covariates, they were entered in a separate step with total satisfaction regressed on postgraduate education (yes or no) in a separate, sequential step. Although the overall regression was significant [$F(3, 215) = 3.097, P = .028$], the explained variance associated with postgraduate education was small ($R^2 = .04$). Full regression results are presented in Table 4.

DISCUSSION

Postgraduate education has demonstrated a statistically significant positive influence on NP job satisfaction

Table 3. Independent-samples *t*-test of Regulatory Environment, Postgraduate Education, and Years of Experience

	<i>N</i>	Plenary Authority ^a		Restricted Practice ^b		<i>t</i>	Significance (2-tailed)
		Mean	SD	Mean	SD		
> 3 years of experience and postgraduate education	44	225	29	195	38	2.46	.018 ^c
≤ 3 years of experience and postgraduate 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.^c $P < .05$.

Table 4. Multiple Linear Regression Predicting Total Job Satisfaction From Regulatory Environment, Years of Experience (Block 1), and Postgraduate Education (Block 2)

	β	<i>t</i>	<i>P</i> -value
State regulatory environment	-3.27	-0.545	.587
Years of experience as an NP	0.16	0.531	.596
Postgraduate education	-16.68	-2.972	.003 ^a

$R^2 = .04$.

^a Postgraduate education emerged as a statistically significant predictor of job satisfaction when regulatory environment and years of NP experience were considered $P < .05$.

among survey participants. Interestingly, NPs who have completed postgraduate education and NPs who have not participated in formal postgraduate education scored highest on survey items regarding work challenge and autonomy. This suggests that factors influencing autonomy largely contribute to overall job satisfaction among NPs, and this finding is consistent with other studies utilizing the MNPJSS.¹⁸⁻²⁰ Two of the 6-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 postgraduate education. They may consider professional growth, autonomy, and collegiality more valuable in the early years of their career.

When total satisfaction was regressed on postgraduate education, years of NP experience, and state regulatory environment, the overall regression was significant, although the variance explained by postgraduate education was quite small (Table 4). This suggests that other factors significantly influence NP job satisfaction among survey participants. Mean job satisfaction scores were highest among NPs who have completed postgraduate training, work in full practice authority states, and have > 3 years of experience (see Figure). 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 maximum potential of their education and experience.

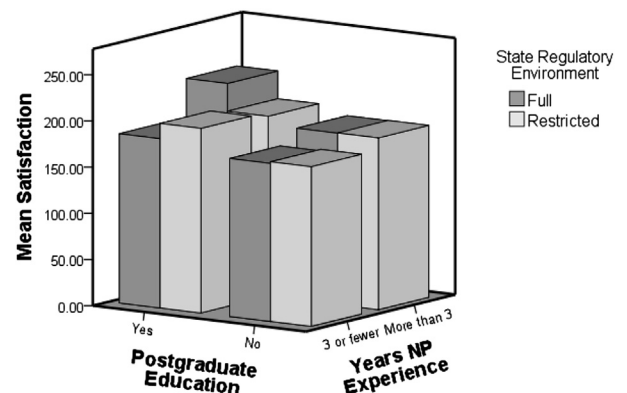
The outcomes of this study can help inform NPs, state and federal regulatory authorities, and employers on the value of postgraduate programs for an essential component of our nation's health care personnel. Additional research to determine the effect of postgraduate education on NP confidence, competence, and patient outcomes should be considered.

Limitations

Participant recruitment for this survey was limited to an email invitation. Single mode survey methods risk missing individuals who do not find email surveys particularly appealing.¹⁶ Furthermore, participants were recruited indirectly through program directors, making estimates of survey response rates highly unreliable. The comparison group for the study was recruited through an online community of professionals and may not represent the diversity of NPs within each state. Dual strategies for participant recruitment will make replication of the sampling methods difficult in future studies. Data were 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. Because nonprobability sampling techniques were used, there is a risk for bias, and results may not be generalizable to NPs across all states and all settings.

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

Figure. Mean job satisfaction of NPs with and without postgraduate education contrasted by years of experience and state regulatory environment.



Likert-scale scores as interval data has long been controversial.²¹ Armstrong argued that “what is important is to fulfill the requirements of the inferential statistics being used, not whether the scale is ordinal or interval.”^{22(p60)} He went on to assert that “the assumption of normal distribution is not rigid, that is, the *t*-test is robust enough to perform satisfactorily in violation of the assumption of normality.”^{22(p61)} Mean total satisfaction scores closely match an expected normal distribution and support the use of parametric tests in this study.

CONCLUSIONS

There are a growing number of postgraduate NP education programs designed specifically for new graduates and experienced clinicians interested in redirecting their career toward new practice settings. Nearly all formal postgraduate programs for NPs are internally funded by employers. These programs are not standardized and there is notable variation in program objectives, clinical competencies, and terminology describing participants’ roles. It is also important to understand that postgraduate education is not expected to prepare NPs to work beyond their population-focused educational training and associated certification.²

Postgraduate education has a statistically significant positive impact on NP job satisfaction among survey participants. Years of NP experience have a greater impact on job satisfaction among NPs without postgraduate education than among NPs who have completed a postgraduate education program. State regulatory environments did not impact NP job satisfaction overall; however, the most highly satisfied survey participants had > 3 years of experience, completed formal postgraduate education, and currently practice in plenary authority states. Regulatory autonomy may influence job satisfaction more strongly among NPs with the most experience and clinical expertise (see Figure).

Supplemental education is expensive and there is no published evidence supporting improved patient satisfaction or clinical outcomes when NPs have additional clinical training. NPs are prepared to function as fully licensed health care providers upon graduation, and mandating additional formal coursework after graduation could prolong education for

an essential component of the clinical workforce.² Standard terms for NPs engaged in postgraduate education should be applied, and the label “fellowship” should be considered as an indication of optional educational opportunities.²

Identifying factors that impact job satisfaction is advantageous to employers, policymakers, and NPs considering postgraduate education opportunities. Access to stable funding sources from health care organizations, as well as state and federal agencies, should be explored to support development of uniform competency 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. Further research is needed within current programs to determine how postgraduate NP education impacts the quality of care provided by this vital component of the health care workforce. **JNP**

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Acknowledgment

This study was supported by research awards from the North Carolina Nurses Association Triangle Region and the Sigma Theta Tau International Honor Society of Nursing-Beta Nu Chapter.

1555-4155/15/\$ see front matter
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<http://dx.doi.org/10.1016/j.nurpra.2015.11.018>