

Recruiting Rural Nurses to Become Advanced Practice Registered Nurses in Rural Colorado

Ingrid M. Johnson

Arizona State University

Recruiting Rural Nurses to Become Advanced Practice Registered Nurses in Rural Colorado

Abstract

Rural healthcare leaders are increasingly tasked with the responsibility of providing health access to 21% of the national population with only 10% of the provider workforce (Sonenberg, Knepper, & Pulcini, 2015). Provider recruitment strategies offering loan repayment have had some success in the short term, but are less impactful at creating a long-term retention rate, unless the providers have an existing connection to either the community in which they are working or rural healthcare (Renner et al., 2010). Responding to this data, a demonstration project has been created in Colorado to test a rural focused “grow your own” advanced practice registered nurse (APRN) model. This model is designed to recruit RNs from inside rural communities to return to school and become primary care providers within those communities upon graduation. The project offers stipend support with assistance in the school application process, educational support, clinical and job placement assistance, and monthly coaching. Additionally, communities are asked to provide matching funds to support the APRN students with a goal of creating a self-sustaining model that will build a continuous pipeline of APRN providers. This strategy avoids the costly need to recruit and relocate providers who have no ties to the community. The initial response from rural nurses and communities around the state has been overwhelmingly successful. This success suggests that this model could serve as a new and sustainable strategy for building a rural APRN provider workforce pipeline while ensuring access to a primary care health provider for all people living in rural areas.

Keywords: rural, nurse practitioner, provider, shortage, recruitment

Problem, Purpose and Rationale

The looming shortage of health care providers in rural areas creates access to care barriers in these communities. There is a need for recruitment strategies specifically targeted at APRNs to provide access to quality health care for this underserved patient population. The purpose of this paper is to assess what types of recruiting techniques are the most effective in targeting nurses currently living and working in rural and underserved communities to return to school to become APRN providers within rural communities.

Background and Significance

Primary care provider (PCP) shortages have been a topic of discussion in the United States for many years. The Future of Nursing Report (Institute of Medicine, National Academy of Sciences [IOM], 2011) cited a variety of credible sources that were reporting anywhere from severe current PCP shortages to looming expected shortages (IOM, 2011). The Patient Protection and Affordable Care Act (ACA), created a significant influx of newly insured people whom, as expected, would take the opportunity to access needed healthcare (Sonenberg, Knepper, & Pulcini, 2015). This influx exacerbated a national primary care physician provider shortage, estimated at between 35,000 and 44,000 between 2005 and 2025 (Bodenheimer & Pham, May, 2010). Numerous efforts to recruit physician providers to move to rural and frontier communities have been tried with very limited success (Sharp, 2010).

Research suggests that recruiting providers who are not from or committed to a specific community has not successfully created a pattern of long-term retention of those providers within the communities in which they have agreed to serve (Renner et al., 2010). However, APRNs have proven to be a very flexible workforce that is much easier to both build and distribute to areas in need of providers (Morgan, Johnson, & Fraher, March, 2015). Additionally,

APRNs from a given community have been shown to have a higher probability of long-term retention within that community. Building a local provider workforce of APRNs could serve to mitigate the provider shortage and improve access to healthcare for rural residents (Auerbach et al., 2013). Fully educating and mobilizing APRNs as PCPs in both the general population and provider shortage areas could greatly alleviate the current and looming PCP shortage, serving to provide increased access to care to those most in need (HRSA, 2013).

Evidence also indicates that APRNs have been shown to be more prone than physicians to practice in rural and underserved areas when their practice is not unduly limited by statutory barriers (Federal Trade Commission [FTC], March, 2014).

Although not exclusionary to APRNs, most projects in the state focused on building a PCP rural workforce continue to favor rural physician recruitment and are not specifically aimed at recruiting additional APRNs in rural areas (Renner et al., 2010). Evidence supports that APRNs could serve to fill the void of providers in those areas, mitigating the provider shortage challenge (Auerbach et al., 2013; Health Resources and Services Administration Bureau of Health Professionals [HRSA], 2013).

The PICO question utilized for this topic therefore is; For rural community nurses (P) what extrinsic recruiting techniques (I) compared to no recruiting techniques (C) affect the nurses decision to attend school and return to practice as an APRN within the rural community(O)?

Literature Search Strategy, Critical Appraisal and Synthesis of Evidence

An exhaustive literature search was carried out using CINAHL (Appendix A), PsycInfo (Appendix B), and PubMed (Appendix C). The limited amount of high level existing evidence on this subject created a need to clearly identify what elements were essential in utilizing an

existing study. All studies chosen were published in the last 10 years, with many having been published within the last five years. Additionally, because of the need to ensure rigor in these studies, each chosen study was identified in the search as peer reviewed. This was crucial because of the lack of level I, II and III evidence. The final criteria for utilizing the literature revolved around the population, subject and clarification of whether each resource was a primary or secondary resource.

All studies were independently reviewed with the data carefully evaluated, synthesized, and separated for inclusion in the Evaluation (Appendix D) and Synthesis (Appendix E) Tables. Ultimately, sixty-nine studies were retained for review.

Contribution of Theory

Social Capital Theory

The evidence cited in the Evaluation Table (Appendix D) and the Synthesis Table (Appendix E) lends itself to the Social Capital Theory (Lauder, Reel, Farmer, & Griggs, 2006) which focuses on social connectedness within a community. The idea behind this theory is that human beings are socially interconnected. Capitalizing on existing resources within a community allows that community a sense of self sustainability (Lauder et al., 2006, p. 74). Involvement in a given community and social participation builds trust, networks and support systems (Baum & Ziersch, 2003). Evidence indicates these elements are vital components in rural recruitment as indicated in the Synthesis Table (Appendix E). Rural health professionals and their patients often are closely connected within their communities. This connection creates a trust-based relationship, ensuring “transition costs (are) low because of mutual trust, reciprocity and interpersonal relationships are strong” (Lauder et al., 2006, p. 78).

Tyler Collaborative Model (TCM) for Evidence-Based Nursing Practice

The TCM (Appendix F) was created as a strategic collaborative model designed to eliminate barriers to utilizing research for more effectively initiating evidence based practice in nursing (Olade, 2004). Rural nursing workforce recruitment is a subject that has been studied and discussed. However, evidence suggests that little emphasis has been placed on creating an effective evidence based practice to more efficiently recruit nurses to rural and underserved communities. Although created with a focus on EBP at the bedside, the model combines Lewin's and Havelock's change theories (Olade, 2004) creating a new model designed to allow all practice within nursing to have an EBP foundation; including rural nurse recruitment. The model is designed to create EBP by following three phases. The first is the Unfreezing Phase which has a three step process; building relationships, diagnosing the problem, and acquiring resources. The second phase is the Moving Phase. Two steps are identified at this stage; choosing a solution and gaining acceptance. The third phase is the Refreezing Phase. This final step focuses on stabilization of the process to implement the EBP. Utilizing this model in gathering information on rural nurse recruitment allows full synthesis of the available evidence regarding best practices for rural nurse recruitment.

Methodology

Plan for Application of the Evidence

Two Colorado based private foundations have looked at the evidence on rural provider maldistribution and the challenges of health access in rural communities. Both provided funding to test a demonstration project designed to build an APRN provider workforce from the existing nursing workforce in rural Colorado. Available evidence supports the idea that providers are more likely to stay and practice in a rural community if those providers are from a rural community (Bigbee & Mixon, 2013). Initial data necessary to identify where providers are

needed focused on the location of Colorado Health Provider Shortage Areas (HPSAs). Upon identification of where providers were needed, the intervention was to recruit existing nurses in those areas through the public health departments, schools, federally qualified healthcare facilities (FQHCs), critical access hospitals and local nursing organizations. The recruitment plan included an offer of financial support for a return to school through a stipend, assistance with the school application process, employer support, mentoring, and accessing community matching funds. All nurses accepted to the program, titled the Rural and Underserved APRN Project, are required to either be living or working in a rural and/or underserved community or from a similar community with plans to return. Additionally, each participant is contractually obligated to stay and work in a rural and/or underserved community for two years for every year funding is provided. The project will fund 40 new APRNs. The Nursing Community Apgar Questionnaire (NCAQ), a validated survey designed to measure elements that impact recruitment and retention of rural nurses, has been used to measure outcomes (Prengaman, Bigbee, Baker, & Schmitz, 2014; Prengaman & Bigbee, 2016).

Ethics Approval

Approval was obtained through the Institutional Review Board at Arizona State University to begin data collection from the nurses accepted to participate in the Rural and Underserved APRN Project. The IRB number is: STUDY00004736 : Rural APRN Recruitment.

Nursing Community APGAR Questionnaire

Thirty-six nurses had been accepted into the program at the time data collection began. Approval was obtained from the authors of the NCAQ to use it as a measurement tool in the data analysis. The NCAQ is a survey consisting of 50 factors grouped into five classifications of 10 factors each (Prengaman et al., 2014). The survey separately rates the advantages/challenges and

the importance of the geographic, economic, management/decision making, practice environment, and community practice support classifications to the respondents decision to return to school and become local providers.

Each participant was sent the NCAQ survey via Survey Monkey in a web link. All identifying characteristics of each participant were blinded in the on-line survey, including email and IP addresses to ensure anonymity of the participants.

Data Collection

Thirty-six registered nurses (RNs) living and/or working in a rural and/or underserved community were asked through email with a web link to survey monkey to complete the survey. Thirty-four RNs completed at least some of the survey and returned it, which is a 94% response rate. Twenty of the surveys were completed and returned with incomplete data; therefore the final sample size varies among the classifications according to the number of questions completed within that classification.

Participants were asked to rate each factor first as either an advantage or challenge and then on its level of importance. A four-point Likert scale was assigned to each corresponding score. The advantage/challenge ratings were scored as: 'major advantage' = 2, 'minor advantage' = 1, 'minor challenge' = -1, and 'major challenge' = -2. The importance ratings scores were: 'very important' = 4, 'important' = 3, 'unimportant' = 2, and 'very unimportant' = 1 (Pregaman et al., 2014).

Additionally, each participant was asked to respond to two open-ended questions surrounding their decision to return to school and become a provider within their community. This allowed a qualitative element to enhance the richness of the data, but the questions were

provided via on-line format, not face to face as is the accepted methodology of a qualitative questionnaire. The questions are:

- “What are your greatest barriers to returning to school and becoming an APRN provider in your community?”
- “What can be done to overcome these barriers?”

Data Analysis

Descriptive statistics was used to describe the sample population and the outcome variable (NCAQ) and each domain of the NCAQ scale. The One Sample Kolmogorov-Smirnov (K-S) test, a non-parametric test, was used to assess goodness of fit and clarify how the sample population was distributed. SPSS® 24 was utilized to analyze the statistical data (IBM, 2016). The Critical value was set at $p < 0.05$.

Findings

Sample Population

Thirty-four (N=34) registered nurses living and/or working in a rural and/or underserved community responded to the survey. The average age of respondents was 37.4 (SD= 8.0) years of age and the ages ranged from 25 to 53 years old. The average number of years the respondents had been practicing as registered nurses was 11.1 years (SD= 8.0) and the number of years ranged from 2 to 29. Thirty-three (97.1%) respondents reported currently living and/or working in a rural and/or underserved community and thirty-two (94.1%) respondents identified themselves as female. Twenty-six (77.0%) respondents reported having been raised in a rural and/or underserved community. The majority of the sample (N=24) report their ethnic background as Caucasian (70.6%) and ten (29.4%) self-identify as coming from other ethnic backgrounds (Appendix H).

During the recruitment phase of the Rural and Underserved Program, ethnic background was not identified; however, utilizing holistic admission techniques (Glazer et al., 2016) and identifying professional merit and an interest in serving the targeted communities created a population of nurses that self-identifies as over 29% diverse. This is aligned with state-wide diversity levels in Colorado as reported by the census bureau, suggesting ethnic heterogeneity of the data that is in line with the overall state demographics (United States Census Bureau, 2015).

Each domain of the NCAQ survey was evaluated. The average score on the Management/Decision Making Importance Scale was 36.10 (SD=3.90) and the scores ranged from 28 to 40. The average score on the Practice Environment Importance domain was 37.00 (SD=3.15) and the scores ranged from 30 to 40. These two categories appear to have the most impact on decisions of the respondents to return to school (Appendix I).

The average score on the Practice Environment advantage/challenge was 7.0 (SD=9.41) and the scores ranged from -13 to 20 (Appendix I). These findings suggest that the nurses see the practice environment as an advantage in their decision to return to school. However, the K-S test does not support that outcome as significant ($p=.137$). The overall advantage/challenge mean score in the Economic category provides the only negative mean of $-.50$ (SD=13.20) and the scores range from -16 to 20 (Appendix I). These findings suggest Economic issues are a strong challenge in the decision to return to school.

Clinical Significance

Respondents indicated that the biggest advantage to returning to school and becoming a provider in a rural and/or underserved community is the emphasis placed on patient safety and quality care. This is followed by the family-friendly environment, high level of autonomy and respect, ethical climate and strong partnerships between medicine and nursing. The lowest rated

mean item scores identifying the highest challenges to returning to school are listed in Table 1 (Appendix I). The challenges most frequently listed are economic housing availability and affordability, costs of day care, shift differential pay, geographic access to a larger community, and salary. The items rated as most important to support a return to school and decision to serve as providers in a rural and/or underserved community are listed in Table 1 (Appendix I). Those items include: positive workplace culture/supportive environment, emphasis on patient safety, job satisfaction/morale, professional development opportunities and autonomy and respect.

Qualitative Findings

A text analysis was run on the open-ended questions included in the survey through Survey Monkey. That analysis identified the most commonly used words and terms in responding to each of the two open-ended survey questions. The most commonly used words and terms in responding to the question, “What are your greatest barriers to returning to school and becoming an APRN provider in your community?” are the following: school, cost, financial, family, money, community, commitment, funding, living, and rural. Responding to the question, “What can be done to overcome these barriers?” respondents most frequently used the following words or terms: scholarships, programs, financial assistance, school, flexible, rural, support, cost, and financial support.

Significance and Implications for Practice

The statistical evidence gained through the use of the NCAQ strongly supports the evidence identified in the initial literature search. Nurses within rural communities are willing to return to school and become providers within those communities, but are in need of support. Most significant is the suggestion that nurses will be drawn into becoming providers in their communities if the practice environment within those communities is supportive of nurse

practitioners. They appreciate a positive working environment with local physicians as well as the management/decision making entities of local health care organizations. 100% of the nurses accepted into the Rural and Underserved APRN program verbally report working either part or full time while they attend school. Organizations can support building the APRN workforce by providing flexibility in their work schedules while they attend school. All are contractually obligated to stay and work in a rural and/or underserved community for a minimum of two years for each year they receive stipend funding. Employers within rural communities can be very impactful in building an APRN workforce from within their own locality. This can be done by drawing upon talented local nurses and helping connect them with accredited APRN programs designed for nurses living and working in a rural area.

Additionally, respondents indicated that their biggest challenge in returning to school is financial. Communities and employers have the opportunity to provide financial assistance with a requirement of service following education. This serves to decrease financial barriers to the students and improve access to providers within the community upon graduation. Doing so creates the opportunity to build a sustainable primary care provider workforce from local nurses.

Respondents indicate that they find living in a rural community an advantage. Data from traditional loan repayment/relocation programs that draw upon providers from outside the community suggest that providers who relocate do not perceive the rural community positively unless they are from a rural community. This creates a culture in which providers move to rural communities as a requirement of loan repayment, but largely are not retained in those communities once their rural placement commitment is complete (Renner et al., 2010). Providers who are relocated to a community report challenges in helping their spouse or partner find employment (Glasser, Peters, & MacDowell, 2006). When providers are built from within the

existing community, spouses and partners are already engaged within the community and finding employment is not an issue. Respondents indicated the importance of their family-friendly environment, but did not identify challenges regarding spousal satisfaction as is often seen when providers are relocated (MacDowell, Glasser, Fitts, Fratzke, & Peters, 2009).

Respondents indicated in the open-question section of the survey that they can be more successful if schools are open to creating rural-friendly programs that are either hybrid or fully on-line. Schools are moving toward holistic admission practices, which focus more on life success than academic success and have shown an equal outcome in academic success rates for students (Glazer et al., 2016). Regis University Loretto Heights School of Nursing responded to this need by creating a rural and underserved APRN cohort using a holistic admission to test the success of the Rural and Underserved APRN participants. Twelve members of the program applied and were accepted into this program, which is a hybrid design requiring the students to come to campus for a few successive days each semester with most of the education provided in synchronous on-line courses. All students report a high level of appreciation for a program designed around their remote locations. Creating collaborations between rural communities with provider shortages and accredited APRN schools creates opportunities for acceptance into school while allowing participants to remain in their communities.

The practical implication of this work suggests that areas and organizations experiencing health care provider shortages have the opportunity to build a sustainable provider model from within. Rural communities and local healthcare organizations and businesses can quickly initiate actions to build an APRN provider workforce, locally. The most impactful actions that can be done at the community level are; provide financial assistance and workplace flexibility, collaborate with rural-friendly accredited APRN programs, and build a defined willingness

within organizations and with other providers to work with APRNs. Allowing APRNs to practice to the full extent of their education and experience is important. The nurses want to know there will be a place for them to serve as providers once they have completed their education.

Limitations

Missing data from individual variable answers created a total score that did not include scores of 58% of the respondents because SPSS does not include partial responses in the total score. The NCAQ tool was designed to be given face to face, which would allow the researcher to ask for all data to be answered, generally, even if it didn't specifically impact that respondent. Because the tool doesn't include a 'not applicable' answer, it left a void in capturing some of the data. However, the ability to create the survey in an on-line format provides the opportunity to reach more respondents in a shorter amount of time without the need to travel across the state to meet with each respondent. Since the survey wasn't originally designed to be given in this format, the unanswered questions created unexpected challenges with missing data.

The sample was a convenience sample accessed through the rural and underserved nurses who were accepted into the Rural and Underserved APRN program. Each is required to have a monthly phone call with the researcher to assess if the added support impacts their success in completing the educational process. This is an opportunity for follow-up research on how mentoring/coaching can impact student success. However, for the purposes of this research, it made it very difficult to ensure the data analysis remained focused on the survey responses only. Knowing each participant so well and understanding the issues they identify monthly as challenges made it difficult to retain objectivity in reading the data. An objective and unbiased statistician was asked to review the data and provide feedback on the data analysis to ensure

there was no bias in the analysis. The respondents were not coached on how to answer survey questions. They were simply asked to read the directions, answer honestly, and return the surveys. The statistical data supporting the significance of a positive practice environment and management and decision making support was clear in the data and identified by the statistician as well as the researcher.

Each respondent was recruited into the Rural and Underserved Program with the promise of financial assistance in addition to other types of support. The fact that each respondent was already receiving financial assistance at the time the survey was completed may have mitigated the level of economic challenges identified by the participants. This may be one reason economic challenges are repeatedly mentioned in the qualitative, open-ended question responses, but are not shown as significant in the statistical data.

Opportunities for Further Research

Full assessment of the impact of this project requires follow-up on retention data as well as recruitment. This project is only the initial phase of a three phase research project. Phase one identifies external elements important for recruitment of rural nurses to become APRNs within their communities. Phase two will measure graduation rates of those nurses and phase three will measure retention rates of the APRNs from this project in rural and underserved communities after five years.

Conclusion

The evidence in the literature indicates that providers from rural communities are more likely to stay and practice in rural communities (Renner et al., 2010). Using this as a foundation, creating a new homegrown APRN workforce could change the face of the rural provider workforce and how that workforce is built. Social Capital Theory states that in order to create

sustainability within a community, there must be an interconnected network of trusted and committed members (Lauder et al., 2006). APRNs can be educated and serve while working in the rural communities in which they live, are committed, and have a support system with no need to relocate. The literature suggests that physicians rarely choose to practice for the entirety of their career in rural, and if they go to rural, it is unlikely they will stay there (FTC, March, 2014). APRNs can be built from within that community. The statistical data identified in this project support that nurses will opt for a return to school to become providers when provided financial, employment and community support. Full success of an APRN primary care provider model requires an acceptance of APRNs within communities as well as a willingness to break down barriers to practice so these professionals can practice to the full scope of their education and experience (Auerbach et al., 2013). Statutory barriers continue to exist for APRNs in many states, which serve to limit the ability of those states to utilize APRNs to mitigate provider shortages (IOM, 2011). This model for primary care provision in rural and underserved communities could become the accepted and expected model. Growing a provider workforce from local RNs has the potential to create a pipeline of APRN providers across all rural and underserved areas of the country to help eliminate the primary care provider shortage.

References

- Auerbach, D. I., Chen, P. G., Friedberg, M. W., Reid, R., Lau, C., Buerhaus, P., & Mehrotra, A. (2013). Nurse-managed health centers and patient-centered medical homes could mitigate expected primary care physician shortage. *Health Affairs, 11*(32), 1933-1941.
<http://dx.doi.org/10.1377/hlthaff.2013.0596>
- Baum, F., & Ziersch, A. (2003). Social capital. *Journal of Epidemiology and Community Health, 57*, 320-323.
- Bigbee, J., & Mixon, D. (2013). Recruitment and retention of rural nursing students: a retrospective study. *Rural and Remote Health, 1*-10.
- Blaauw, D., Erasmus, E., Pagaiya, N., Tangcharoensathein, V., Mullei, K., Mudhune, S., ... Lagarde, M. (2010). Policy interventions that attract nurses to rural areas: a multicountry discrete choice experiment. *Bulletin of the World Health Organization, 88*, 350-356.
- Bodenheimer, T., & Pham, H. H. (May, 2010). Primary care: Current problems and proposed solutions. *Health Affairs, 29*(5), 799-805.
- Brown, J., Hart, A. M., & Burman, M. E. (2009, February). A day in the life of rural advanced practice nurses. *The Journal for Nurse Practitioners, 108*-113.
- Collins, S. (2012, February). Primary care shortages: Strengthening this sector is urgently needed, now and in preparation for healthcare reform. *American Health Drug Benefits, 5*(1), 40-47. Retrieved from www.AHDBonline.com
- Colorado Health Institute. (2013). *Colorado health access survey 20 high-level findings*. Retrieved from <http://www.coloradohealthinstitute.org/data-repository/county>
- Colorado Health Institute. (2014). Colorado's primary care workforce - A study of regional disparities. Retrieved from Retrieved from <http://www.coloradohealthinstitute.org/key->

issues/detail/health-care-workforce/colorados-primary-care-workforce-a-study-of-regional-disparities

Concerning prescriptive authority of advanced practice nurses, SB15-197 Colorado General Assembly § 12-38-103 (2015).

Concerning the prescriptive authority of advanced practice nurses, S. Res. SB15-197, Cong., Colorado General Assembly 1 (2015) (enacted).

D'Avolio, D. A., Strumpf, N. E., Feldman, J., & Rebholz, C. M. (2013, April). Barriers to primary care: Perceptions of older adults utilizing the ed for nonurgent visits. *Clinical Nursing Research*, 22(4), 416-431. <http://dx.doi.org/10.1177/1054773813485597>

Federal Trade Commission. (March, 2014). *Policy perspectives Competition and the regulation of advanced practice nurses*. Retrieved from www.ftc.gov/policy/reports/policy-reports/commission-and-staff-reports

Glasser, M., Peters, K., & MacDowell, M. (2006, Winter). Rural Illinois hospital chief executive officers' perceptions of provider shortages and issues in rural recruitment and retention. *Journal of Rural Health*, 22(1), 59-62.

Glazer, G., Clark, A., Bankston, K., Danek, J., Fair, M., & Michaels, J. (2016). Holistic admissions in nursing: We can do this [Entire issue]. *Journal of Professional Nursing*, 32(4).

Gould, D. (2006). Locally targeted initiatives to recruit and retain nurses in England. *Journal of Nursing Management*, 255-261.

Health Resources and Services Administration Bureau of Health Professionals. (2013).

Projecting the supply and demand for primary care practitioners through 2020. Retrieved from

<http://bhpr.hrsa.gov/healthworkforce/supplydemand/usworkforce/primarycare/projectingprimarycare.pdf>

IBM Corp. Released 2016. IBM SPSS Statistics for Windows, Version 24.0. Armonk, NY: IBM Corp.

Institute of Medicine, National Academy of Sciences. (2011). *The future of nursing: Leading change, advancing health*. Washington, DC: National Academies Press.

Issacs, S., & Jellinek, P. (2012). *Accept no substitute: A report on scope of practice* [Report]. The Physician's Foundation: The Physician's Foundation.

Lauder, W., Reel, S., Farmer, J., & Griggs, H. (2006). Social capital, rural nursing and rural nursing theory. *Nursing Inquiry*, 13(1), 73-79.

MacDowell, M., Glasser, M., Fitts, M., Fratzke, M., & Peters, K. (2009). Perspectives on rural health workforce issues: Illinois-Arkansas comparison. *The Journal of Rural Health*, Spring, 135-140.

Morgan, P., Johnson, A., & Fraher, E. (March, 2015). Comparison of specialty distribution of nurse practitioners and physicians assistants in North Carolina, 1997-2013. Retrieved from <http://www.shepscenter.unc.edu/wp-content/uploads/2015/04/DataBrief-PAsNPs-Morgan-Mar2015-FINAL.pdf>

Moy, E., Chang, E., & Barrett, M. (November, 2013). Potentially preventable hospitalizations - 2001-2009. Retrieved from <http://www.cdc.gov/mmwr/pdf/other/su6203.pdf>

Mullei, K., Mudhune, S., Wafula, J., Masamo, E., English, M., Goodman, C., ... Blaauw, D. (2010, July 2). Attracting and retaining health workers in rural areas: investigating nurses' views on rural posts and policy interventions. *BMC Health Services Research*, 10(1).

Newhouse, R. P., Stanik-Hutt, J., White, K. M., Johantgen, M., Bass, E. B., Zangaro, G., ...

Weiner, J. P. (2011). Advanced practice nurse outcomes 1990-2008: A systematic review. *Nursing Economics*, 29(5), 1-22.

Olade, R. A. (2004). Strategic collaborative model for evidence-based nursing practice.

Worldviews on Evidence-Based Nursing, 60-68.

Prengaman, M. P., Bigbee, J. L., Baker, E., & Schmitz, D. F. (2014). Development of the nursing community APGAR questionnaire (NCAQ): A rural nurse recruitment and retention tool. *Rural and Remote Health*, 14(1-9).

Prengaman, M. V., & Bigbee, J. L. (2016). *Nursing community APGAR questionnaire (NCAQ) project phase II*. Boise State University: Idaho Office of Rural Health and Primary Care.

Renner, D. M., Westfall, J. M., Wilroy, L. A., & Ginde, A. A. (2010). The influence of loan repayment on rural healthcare provider recruitment and retention in Colorado. *Rural and Remote Health*, 10.

Shannon, K. C., & Jackson, J. J. (2011). A study of predictive validity of physician assistant students' reported practice site intent. *The Journal of Physician Assistant Education*, 22(2), 29-32.

Sharp, D. B. (2010). *Factors related to the recruitment and retention of nurse practitioners in rural areas* (Unpublished doctoral dissertation). University of Texas , El Paso.

Skinner, H. G., Coffey, R., Jones, J., Heslin, K. C., & Moy, E. (2016). The effects of multiple chronic conditions on hospitalization costs and utilization for ambulatory care sensitive conditions in the United States: a nationally representative cross-sectional study. *BMC Health Services Research*, 16(77), 1-8. <http://dx.doi.org/10.1186/s12913-016-1304-y>

Sonenberg, A., Knepper, H., & Pulcini, J. (2015). Implementing the aca: The influence of nurse practitioner regulatory policy on workforce, access to care, and primary care health outcomes. *Poverty and Public Policy*, 7(4), 337-356.

The Colorado Center for Nursing Excellence. (2015). Colorado's future healthcare workforce and the role of advanced practice registered nurses. Retrieved from <http://coloradonursingcenter.org/aprn-report>

United States Census Bureau. (2015). <http://www.census.gov/quickfacts/table/PST045216/08>

Zheng, J., Li, J., Jiang, X., & Zhang, B. (2015, April 18). Sustaining health workforce recruitment and retention in township hospitals: a survey on 110 directors of township hospitals. *Front Med*, 9(2), 239-250. <http://dx.doi.org/10.1009/s11684-015-0292-0>

Appendix A

CINAHL Database

The screenshot shows a web browser window displaying search results from the CINAHL database. The browser's address bar shows the URL: `web.a.ebscohost.com.ezproxy1.lib.asu.edu/ehost/resultsadvanced?sid=fa950101-6d44-40e4-a0b1-4a458cd8fbae%40sessionmgr4005&vid=15&hid=4112&bquery=(Fami`. The page features a search interface with buttons for "Search with AND", "Search with OR", and "Delete Searches", along with a "Refresh Search Results" button.

Select/deselect all	Search ID#	Search Terms	Search Options	Actions
<input type="checkbox"/>	S12	Family Nurse Practitioner AND Rural AND Recruitment	Search modes - Boolean/Phrase	View Results (3) View Details Edit
<input type="checkbox"/>	S11	Family Medicine AND Rural AND Recruitment	Search modes - Boolean/Phrase	View Results (13) View Details Edit
<input type="checkbox"/>	S10	Rural AND Physician AND Shortage	Search modes - Boolean/Phrase	View Results (254) View Details Edit
<input type="checkbox"/>	S9	Nurse Practitioner AND Recruitment AND Retention	Search modes - Boolean/Phrase	View Results (57) View Details Edit
<input type="checkbox"/>	S8	Rural AND Provider AND Retention	Search modes - Boolean/Phrase	View Results (68) View Details Edit
<input type="checkbox"/>	S7	Nursing AND Shortage AND Recruitment	Search modes - Boolean/Phrase	View Results (2,406) View Details Edit
<input type="checkbox"/>	S6	Rural AND Nursing Student AND Recruitment	Search modes - Boolean/Phrase	View Results (46) View Details Edit
<input type="checkbox"/>	S5	Nurse Practitioner AND Shortage AND Recruitment	Search modes - Boolean/Phrase	View Results (31) View Details Edit
<input type="checkbox"/>	S4	Rural AND Nurse Practitioner AND Recruitment	Search modes - Boolean/Phrase	View Results (27) View Details Edit
<input type="checkbox"/>	S3	Rural AND APRN AND RECRUITMENT	Search modes - Boolean/Phrase	View Results (0) View Details Edit
<input type="checkbox"/>	S2	Rural AND Provider AND Shortage	Search modes - Boolean/Phrase	View Results (135) View Details Edit
<input type="checkbox"/>	S1	Rural AND Provider AND Recruitment	Search modes - Boolean/Phrase	View Results (97) View Details Edit

Below the table, the page indicates "Search Results: 1 - 3 of 3". The first result is titled "1. Nurse practitioner attitudes and treatment practices for childhood overweight: How do rural and urban". The browser's taskbar at the bottom shows the time as 12:40 PM on 3/17/2016.

Appendix B

PSYCINFO Database

Items selected: 0 [Delete](#) [Save](#) | [Show all details](#) | [Export all searches](#)

Set	Search	Databases	Results	Actions
S11	Rural AND (Family Nurse Practitioner OR Recruitment) ✓ Limits applied	PsycINFO	279*	Actions
S10	Rural AND (Nurse Practitioner OR Recruitment) ✓ Limits applied	PsycINFO	360*	Actions
S9	Nursing AND (Shortage OR Recruitment) ✓ Limits applied	PsycINFO	1,460*	Actions
S8	Nursing AND (Shortage OR Recruitment) ✓ Limits applied	PsycINFO	1,877*	Actions
S7	Rural AND (Nursing Student OR Recruitment) ✓ Limits applied	PsycINFO	583*	Actions
S6	(Nurse Practitioner) AND (Shortage OR Recruitment) ✓ Limits applied	PsycINFO	131*	Actions
S5	Rural AND (Nurse Practitioner OR Recruitment) ✓ Limits applied	PsycINFO	514*	Actions
S4	Rural AND (APRN OR Recruitment) ✓ Limits applied	PsycINFO	352*	Actions
S3	Rural AND (Provider OR Shortage) ✓ Limits applied	PsycINFO	2,266*	Actions
S2	Rural AND (Provider OR Recruitment) ✓ Limits applied	PsycINFO	2,332*	Actions
S1	Rural AND (Provider OR Recruitment)	PsycINFO	3,276*	Actions

* Duplicates are removed from your search and from your result count.

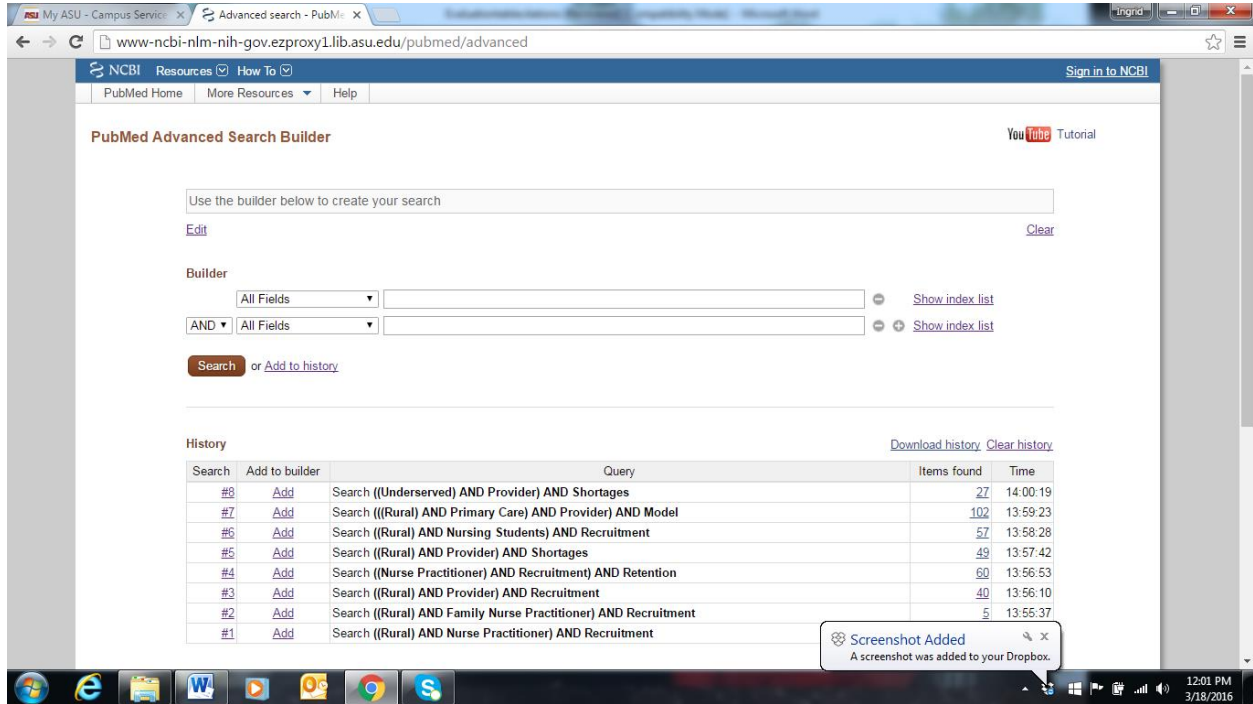
search.proquest.com.ezproxy1.lib.asu.edu/.../None?site=psycinfo&tac=RecentSear...

Why doctors choose...pdf | A National View of Ru...pdf | Show all downloads...

1:23 PM 3/17/2016

Appendix C

PUBMED Database



Appendix D

Evaluation Table

Citation	Theory/ Conceptual Framework	Design/ Method/ Purpose	Sample/Setting	Major Variables Studied and Their Definitions	Measuremen t/ Instrumentat ion	Data Analysis	Findings/ Results	Level of evidence/ Decision for Use/Application to Practice
<p>Blaauw, D. et al. (2010). Policy interventions that attract nurses to rural areas: a multi-country discrete choice experiment.</p> <p>Location: Kenya, South Africa, Thailand</p> <p>Funding: UK Department of International Development</p> <p>Bias: None noted</p>	<p>Not stated, but suggests a focus on Value theory – Asks what nurses value in an area in which they choose to work.</p>	<p>Design= Non-experimental design survey- discrete choice experiment -crosssectional research :</p> <p>Method= Mixed logic model- multistage cluster sampling model</p> <p>Purpose= Evaluate the effectiveness of different policies in attracting nurses to rural areas in Kenya, South Africa and Thailand using data from the discrete choice experiment.</p> <p>Peer Reviewed = Y</p>	<p>N=1064</p> <p>Demographics = RN students in Kenya, S. Africa and Thailand</p> <p>Setting= Classroom setting – last year of nursing school</p> <p>Response rate= 100%</p>	<p>Non-experimental design survey</p> <p>DV1:Nursing students from rural areas</p> <p>DV2: Nursing students from urban areas</p>	<p>Discrete choice experiment (DCE)-</p> <p>Data from systematic review of larger cohort longitudinal study.</p>	<p>Chow Test</p>	<p>Suggests that DCE data can be used to help policy makers identify interventions to address rural shortages. Also offers insight into what interventions would be most effective.</p>	<p>LOE IV:</p> <p>Strengths: number, content focus, maldistribution challenges, randomized. Strong Lit Review</p> <p>Weaknesses: Location – DCE could have been more clearly defined.</p> <p>Conclusion: Showed rural nurses more likely to stay in rural, but HR interventions have positive impact on retention</p> <p>Feasibility: Useful as</p>

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

<p>as focus was to gather information</p>								<p>study shows maldistribution of providers between rural and urban is an international challenge.</p>
<p>Odell, E., Kippenbrock, T., Buron, W., & Narcisse, M. (2013). Gaps in the primary care of rural and underserved populations: the impact of nurse practitioners in four Mississippi delta states.</p> <p>Location: Rural Southern USA</p> <p>Funding: Unclear</p> <p>Bias: Nursing focus could suggest desire of researchers to support broader scope of practice in rural southern</p>	<p>Not stated in the research, but could be based in Emancipatory Nursing Practice. – identifies the emancipatory intent that NPs in rural have to participate in the care of the disadvantaged and achieve change.</p>	<p>Design= Non experimental research design</p> <p>Methods= Survey Research- Examine differences between APRNs working in HPSA versus non-HPSA and rural versus urban</p> <p>Peer Reviewed = Y</p>	<p>N = 479</p> <p>Demographic= APRNs from Mississippi delta:</p> <p>Setting = Arkansas, Louisiana, Mississippi, Tennessee</p> <p>Response Rate = 8%</p>	<p>Cohort sample – non-experimental research design – cohort survey</p> <p>Variables: DV1=HPSA DV2=Non-HPSA DV3=Rural DV4=Urban</p> <p>AR = 132 LA = 166 MS = 114 TN = 67</p>	<p>24 item survey – consisted of questions on demographics, certification, place of employment, specialty, salary</p> <p>Tested with 30 APRNs who provided feedback regarding clarity, flow, appropriateness – edited based on group recommendations</p>	<p>Multiple logistic regression models</p>	<p>Rural APRNs more likely to practice primary care than urban.- Younger APRNs more willing to work in rural. – financial impact was important</p>	<p>LOE :V</p> <p>Strengths: Location focus of rural, population, focus of study aligned with PICOT</p> <p>Weaknesses: low response rate to survey (8%), limited geographical area</p> <p>Conclusion: more research with focus on APRN in rural and underserved – will need to consider incentives to retain more experienced APRNs</p> <p>Feasibility: Useful because of population and recruitment focus</p>

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

states.								
<p>Gould, D. (2006). Locally targeted initiatives to recruit and retain nurses in England. <i>Journal of Nursing Management</i>, 255-261.</p> <p>Location: England</p> <p>Funding: None identified</p> <p>Bias: None noted as focus was to gather information</p>	<p>There is no stated framework or theory, but this seems to be focused on Grounded Theory – as the information was gathered and sorted into categories based on the patterns of responses</p>	<p>Design = Qualitative Design –</p> <p>Method = Data collected via standardized telephone interviews</p> <p>Purpose= describe locally targeted nursing recruitment and retention initiatives</p> <p>Peer Reviewed = Y</p>	<p>N= 29</p> <p>Demographic= Experienced nurse supervisors at NHS trust</p> <p>Setting= NHS trust</p> <p>Response Rate = 100%</p>	<p>Non-experimental design survey research (from formulated interviews)</p> <p>DV1=Nurse supervisors leading recruitment at a NHS trust</p> <p>For recruitment measures only the supervisors were included.</p>	<p>Tape recorded interview transcripts were transcribed verbatim and analyzed by content. –</p> <p>Heavy reliance on a very solid literature review to support the findings, as the study is very small and of limited focus.</p>	<p>Concurrent gathering and analyzing : data while categorizing the emerging patterns of responses.</p> <p>Actual tool is not named in the report, which is a weakness.</p>	<p>Organizations reported limited success in advertising and attempting to bring new people to their organization. Recruitment focus was on local talent. Most effective retention came when nurses were from the area</p>	<p>LOE VI:</p> <p>Strengths: recruitment focus</p> <p>Weaknesses: numbers and poor explanation of data analysis</p> <p>Conclusion: Useful because the questions focused largely on how organizations needing nurses were able to most effectively recruit</p> <p>Feasibility: limited scope of study serves the recruitment focus</p>

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

<p>Bigbee, J., & Mixon, D. (2013). Recruitment and retention of rural nursing students: a retrospective study. <i>Rural and Remote Health</i>, 1-10.</p> <p>Location: Idaho, USA</p> <p>Funding: Boise State University</p> <p>Bias: None noted as focus was to gather information</p>	<p>Long and Weinert’s Rural Nursing Theory – “insider/outsider” concept</p>	<p>Design = Identified in study as retrospective descriptive design but looks like a retrospective cohort study.</p> <p>Method = retrospective comparison of GPA between rural and urban students</p> <p>Purpose= Compare rural and urban nursing students in relation to application, admission, and retention/graduation trends at Boise State University School of Nursing</p> <p>Peer Reviewed = Y</p>	<p>N=1283</p> <p>Demographic = no significant differences between rural and urban students in age, gender, level of ed., income.</p> <p>Caucasian = DV1=92.5% DV2=88.7%</p> <p>Setting= Boise State University School of Nursing</p>	<p>DV1= Rural Nursing Students</p> <p>DV2= Urban Nursing Students</p>	<p>Retrospective sample=1283 individuals to nursing program, 914 accepted over 5 yr. period of study. Compared urban and rural subgroups in GPA and retention/graduation rates</p>	<p>Chi square = 5.886m p=0.015 Urban versus rural acceptance rates</p>	<p>There was no difference between the success of the rural and urban subgroups once they were in school. The rural applicants out of high school, however, had a lower acceptance rate.</p>	<p>LOE IV</p> <p>Strengths: Identifies clearly differences in rural and urban nursing student entering school and that those differences are not indicative of outcomes. Important for rural provider recruitment concerns from schools.</p> <p>Weaknesses: Data from only a single institution and limited diversity.</p> <p>Feasibility = When assessing recruitment of rural based nurses, shows academic success rates.</p>
<p>Glasser, M., Peters, K., & MacDowell, M. (2006). Rural Illinois hospital chief executive officers’</p>	<p>No theory or framework stated – Likely founded in Social Capital</p>	<p>Design=Nonexperimental descriptive design</p> <p>Method= Survey Research – measuring with Likert scale</p>	<p>N = 28</p> <p>Demographic= Rural hospital CEOs Community Size=3,396 to</p>	<p>Survey – Tool measures CEO responses to questions regarding provider shortage in physician and</p>	<p>Likert Scale measured survey – Not stated whether the survey tool was validated</p>	<p>Chi square - Descriptive univariate and bivariate</p>	<p>86% reported a physician shortage with 64% of that identifying a need for family physicians.</p>	<p>LOE V</p> <p>Strength = Rural focus with discussion of impact of community involvement</p>

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

<p>perceptions of provider shortages and issues in rural recruitment and retention. <i>The Journal of Rural Health</i>, 59-62.</p> <p>Location: Rural, Illinois, USA</p> <p>Funding: None identified</p> <p>Bias: None noted as focus was to gather information</p>	<p>Theory</p>	<p>Purpose = Examine perspectives of rural hospital CEOs regarding recruitment and retention of providers</p> <p>Peer Reviewed = Y</p>	<p>33,530</p> <p>Setting=Rural hospitals in Illinois</p> <p>Response Rate = 79% (22 out of 28 surveys returned)</p>	<p>other health professional roles as well as perceptions of elements needed for recruitment and retention of health professionals</p> <p>DV1= CEO opinions of successful recruitment/retention elements</p> <p>DV2= CEO opinions of unsuccessful recruitment/retention elements</p>		<p>data – Gathered from Likert scale survey</p>	<p>91% identified a need for RNs and 64% needed pharmacists. Only 18% identified a need for APRNs</p>	<p>Weakness = Mainly focused on physicians and only in rural Illinois where APRNs do not have full practice authority.</p> <p>Conclusion = Community quality is important for provider recruitment</p> <p>Feasibility = Useful because of the provider recruitment focus in rural and discussion of important community attributes.</p>
<p>Brown, J., Hart, A. M., & Burman, M. E. (2009, February). A day in the life of rural advanced practice nurses. <i>The Journal for Nurse Practitioners</i>, 108-113.</p>	<p>Not stated – Bushy’s model focusing on rural health nursing could be implied.</p>	<p>Design=Quasi experimental design</p> <p>Method= Survey Research – replication of a past rural APRN study</p> <p>Purpose = Examine rural APRN practice on a typical</p>	<p>N = 96</p> <p>Demographics = APRNs, including: NPs, CNM, CNS,</p> <p>Setting: Rural Wyoming</p>	<p>Survey</p> <p>DV1= NPs DV2=CNMs DV3=CNSs</p>	<p>Survey Research Questionnaire based on Swartz et al’s 1999 study</p> <p>Replication of methods</p>	<p>t-test, chi-square and correlations with percentage of visits and demograp</p>	<p>Half of all APRNs in Wyoming practice in rural. Most have advanced degrees. 74% in primary care.</p>	<p>LOE III</p> <p>Strength = Rural focus with discussion of impact of APRNs and identification of how they practice in rural</p> <p>Weakness = Only</p>

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

<p>Location: Rural, Wyoming, USA</p> <p>Funding: University of Wyoming</p> <p>Bias: None noted as focus was to gather information</p>		<p>day</p> <p>Peer Reviewed = Y</p>	<p>Response Rate= 96/113 or 85%</p>			<p>hic variables</p>		<p>Wyoming, only one day examined, Didn't explain questionnaire fully</p> <p>Conclusion = APRNs provide important care in rural communities, which often have no other provider.</p> <p>Feasibility = Good example of why #s of APRNs should be increased in rural provider shortage areas.</p>
<p>Renner, D. M., Westfall, J. M., Wilroy, L. A., & Ginde, A. A. (2010). The influence of loan repayment on rural healthcare provider recruitment and retention in Colorado. <i>Rural and Remote Health, 10.</i> recruitment and</p>	<p>Not identified in study, but suggestive of Social Exchange Theory</p>	<p>Design=nonexperimental design Method = Survey Research Purpose = Assess the influence of loan repayment and other factors on the recruitment and retention of health care providers in rural Colorado. Peer Reviewed = Y</p>	<p>N=122 Demographics = healthcare providers who participated in the Colorado Health Professional Loan Repayment Program between 1992 and 2007.</p>	<p>Variables= Physicians, dentists, certified nurse midwives, physicians assistants, mental health specialists DV1 = Opted to practice in rural because of loan repayment opportunity and stayed in rural</p>	<p>Retrospective Sample Survey</p>	<p>Chi square</p>	<p>Recruitment= Participants rated location, community fit with family and scope of practice most valued. 69% reported loan repayment option was an important influence on</p>	<p>LOE IV Strengths = Rural Colorado focus with retrospective cohort study of the actual outcomes over time. Give a strong illustration of what impacted retention. Weaknesses = No focus on APRNs and relatively small number, although</p>

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

<p>retention in Colorado. <i>Rural and Remote Health</i> 10:1605.</p> <p>Location: Rural, Colorado, USA</p> <p>Funding: Colorado Rural Health Center</p> <p>Bias: None noted as focus was to gather information</p>			<p>Setting = Rural Colorado</p> <p>Response Rate = 93/122 =76%</p>	<p>DV2 = Practiced in rural for loan repayment, but were not retained in a rural setting.</p>			<p>decision to practice in rural.</p>	<p>response rate is good.</p> <p>Conclusion = Loan repayment will get someone to a rural community, but will not necessarily get them to stay there if they have no rural roots.</p> <p>Feasibility = strongly suggests strengths of building a workforce from within a rural community as opposed to relocating people to rural.</p>
<p>Shannon, K. C., & Jackson, J. J. (2011). A study of predictive validity of physician assistant students' reported practice site intent. <i>The Journal of Physician Assistant Education</i>, 22(2),</p>	<p>Not stated, but suggestive of Self-determination Theory</p>	<p>Design = Nonexperimental design Retrospective cohort design</p> <p>Methods = Compare student's surveys completed immediately post-rural clinical placement with actual practice locations following the completion</p>	<p>N=168</p> <p>Demographics = PA students who had done a rural rotation</p> <p>Setting = West Virginia</p>	<p>Cohort study looking at predictions of students versus actual outcomes.</p> <p>Variables</p> <p>DV1 = PA students who predicted they</p>	<p>Retrospective Sample study</p> <p>Comparison of WV student database – surveys of PA student's in which they indicated a</p>	<p>One tailed Fisher's exact test</p>	<p>77% of students who predicted they would practice in a rural setting while in school ended up in a rural practice.</p> <p>63% of PA students who</p>	<p>LOE IV</p> <p>Strengths = Identifies early predictors in what student will go to practice in rural. Also has longitudinal evidence allowing comparison of predictions and actual. Provides the actual data</p>

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

<p>29-32.</p> <p>Location: West Virginia, USA</p> <p>Funding provided by AAPA/PAEA Research Grants Program.</p> <p>Bias: None noted as focus was to gather information</p>		<p>of school.</p> <p>Purpose = Assess predictive validity of PA student’s stated intent to practice in a rural setting in West Virginia</p> <p>Peer Reviewed – Y</p>		<p>would practice in a rural setting just after completing a rural clinical placement.</p> <p>DV2 = PAs who actually practice in a rural setting</p>	<p>plan to practice in a rural setting with their actual practice sites after they have completed education.</p>		<p>did not plan to practice in a rural setting ended up practicing at least a portion of the time in rural.</p>	<p>on what brought the PAs to a rural setting.</p> <p>Weaknesses = Doesn’t take into consideration PAs who practice in both urban and rural on a part time basis.</p> <p>Conclusions=Student questionnaires are strongly predictive of where a student will opt to practice.</p> <p>Feasibility = Useful in comparing how extrinsic factors impact in recruitment of providers to rural.</p>
<p>MacDowell, M., Glasser, M., Fitts, M., Fratzke, M., & Peters, K. (2009). Perspectives on rural health workforce issues: Illinois-Arkansas comparison. <i>The</i></p>	<p>Not identified – suggestive of Self Determination Theory or may be founded in Normative</p>	<p>Design=Nonexperimental descriptive design</p> <p>Method= Survey Research – measuring with Likert scale</p> <p>Purpose = Examine perspectives of rural</p>	<p>N= 51</p> <p>Demographic= Rural hospital CEOs</p> <p>Setting=Rural hospitals in Illinois and</p>	<p>Survey</p> <p>DV1= Arkansas CAF CEO opinions of successful recruitment/retention elements</p>	<p>Likert Scale measured survey – Not stated whether the survey tool was validated</p>	<p>Chi square</p> <p>Multivariate analysis</p>	<p>Shortages exist in both states across provider spectrum. Family medicine, OB-GN and Gen. Internal Medicine</p>	<p>LOE IV</p> <p>Strengths = strongly statistical significance in similarity of responses. Rural focus. Mirrors outcomes of past study, which shows reliability of tool.</p>

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

<p><i>Journal of Rural Health, Spring, 135-140.</i></p> <p>Location: Rural Illinois and Arkansas</p> <p>Funding: None identified</p> <p>Bias: None noted as focus was to gather information</p>	<p>Economics</p>	<p>hospital CEOs regarding recruitment and retention of providers</p> <p>Peer Reviewed = Y</p>	<p>Arkansas</p> <p>Response Rate = 83.6%</p>	<p>DV2= Illinois CAF CEO opinions of successful recruitment/retention elements</p>			<p>identified as top shortages. Significant similarities between states.</p>	<p>Weaknesses=study on based on a subset of hospitals in each state. No information on turnover rates, time needed to recruit and long-term retention rates. Unclear on validity testing of tool.</p> <p>Conclusion=clarifies need for providers in rural areas</p> <p>Feasibility=Provides one cohorts opinion of what is needed to recruit providers in rural.</p>
<p>Newhouse, R. P., Stanik-Hutt, J., White, K. M., Johantgen, M., Bass, E. B., Zangaro, G., ... Weiner, J. P. (2011). Advanced practice nurse outcomes 1990-2008: A systematic</p>	<p>No theory identified. -</p>	<p>Design=Systematic Review of published literature between 1990 and 2008.</p> <p>Method = Search strategy of RCT between 1990 and 2008 of PubMed, CINAHL, and Proquest</p> <p>Purpose=Answer the</p>	<p>N = 107</p> <p>Demographics = All studies met inclusion criteria with at least 3 supporting studies</p> <p>Setting= All studies were</p>	<p>Summary of outcomes and evidence for:</p> <p>NP CNS CNM CRNA</p>	<p>Systematic Review</p> <p>Utilized the Grading of Recommendations Assessment, Development, and Evaluation</p>	<p>Utilized the Grading of Recommendations Assessment, Development, and Evaluation</p>	<p>APRNs when working alone or in collaboration with other practitioners are similar to and sometimes better than the outcomes of care provided</p>	<p>LOE I</p> <p>Strengths= Highly rigorous, strong numbers, EBP focused with highlighted quality and safety</p> <p>Weaknesses=Review done by all nurses, which could leave it</p>

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

<p>review. <i>Nursing Economics</i>, 29(5), 1-22.</p> <p>Location: USA</p> <p>Funding: AHRQ</p> <p>Bias: Systematic Review and compilation of large amounts of data limits opportunity for bias. Could be seen as “pro-nursing” because of strong outcomes.</p>		<p>following question: Compared to other providers (physicians or teams without APRNs), are APRN patient outcomes of care similar?</p> <p>Peer Reviewed= Y</p>	<p>U.S. based.</p>		<p>(GRADE) Working Group Criteria</p>	<p>n (GRADE) Working Group Criteria</p>	<p>by physicians alone. Use of CNSs in acute care can reduce length of stay and cost of care for hospitalized patients.</p>	<p>open to criticism that it contains bias</p> <p>Conclusion= Very good resource to compare APRN practice to other practitioners</p> <p>Feasibility=Useful in looking at how this data can support rural organizations recruiting APRNs into areas that tend to only focus on physicians and have a provider shortage.</p>
<p>Mullei, K. et al. (2010). Attracting and retaining health workers in rural areas: investigating nurses' views on rural posts and policy interventions. Retrieved Feb 3,</p>	<p>Not stated, but suggests a focus on value theory – Asks what nurses value in an area in which they choose to work.</p>	<p>Design= Non-experimental design survey- cross-sectional research :</p> <p>Method= Mixed method -survey and focus group quantitative portion (self-administered questionnaire – Likert scale), qualitative</p>	<p>N=345 Demographics = RN students in Africa, Split between young (defined as pre-service) and older more experienced (defined as upgrading) nurses going</p>	<p>Non-experimental design survey</p> <p>DV1: Preservice – average age 24, full time on campus students, largely unmarried.</p>	<p>SAQ tool (self-administered questionnaire) Likert. Pre-tested with two universities not included in study – assessed meanings of</p>	<p>SAQ Likert scale: double entered and verified – Simple descriptive analysis comparing</p>	<p>Both groups had similar responses to life in rural: Concerned with remoteness, lack of resources and poor pay. Recommend financial incentives. –</p>	<p>LOE V: cross sectional and qualitative</p> <p>Strengths: number, content focus, maldistribution challenges, randomized</p> <p>Weaknesses: Location – hard to clarify how lit search was done and</p>

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

<p>2016, from BMC Health Services Research: https://www.biomedcentral.com/1472-6963/10/S1/S1</p> <p>Location – Kenya, Nairobi, S. Africa</p> <p>Funding: UK Dept. of International Development</p> <p>Bias: None noted as focus was to gather information</p>		<p>– (randomized focus group interviews)</p> <p>Purpose= to assess what elements would attract new RNs to choose to work in rural areas versus urban areas</p> <p>Peer Reviewed = Y</p>	<p>from equivalent of LPN to RN. 2/3 report roots in rural, Gender: 75% female</p> <p>Setting= 4 nursing schools in rural and urban areas in Kenya, Nairobi, South Africa.</p> <p>Response rate= 92% preservice, 63% upgrading</p>	<p>DV2: Upgrading – average age 38, largely married, hybrid programs.</p>	<p>questions and statements.</p> <p>FGD (focus group discussions) – 6-8 participants from SAQ test group – 2 groups. 45-90 minutes</p>	<p>preservice and upgrading</p> <p>FGD: Principle component analysis (PCA) – Cronbach’s alpha of 0.66 - then scores used as dependent variables in separate linear regressions. Uploaded into NVivo7</p>	<p>Lots of fear from both groups about political instability in Kenya and “tribal disagreements”</p>	<p>what that showed. Not discussed much.</p> <p>Conclusion: need more study but strengths of working in rural include practice scope opportunities and low cost of living. Challenges = few resources and poor reimbursement Feasibility: Useful as study shows maldistribution of providers between rural and urban is an international challenge.</p>
---	--	---	--	--	---	---	--	--

AAPA – American Association of Physician’s Assistants, **AHRQ** – Agency for Healthcare Research and Quality, **APRN** – Advanced Practice Registered Nurse, **AR** – Arkansas, **CAF** – Critical Access Hospital, **CEO** – Chief Executive Officer, **CNM** – Certified Nurse Midwife, **CNS** – Certified Nurse Specialist, **DCE** – Discrete Choice Experiment, **DV** – Dependent Variable, **FGD** – Focused Group Discussions, **GPA** – Grade Point Average, **HPSA** – Health Provider Shortage Area, **HR** – Human Resources, **LA** – Louisiana, **LOE** – Level of Evidence, **LPN** – Licensed Practical Nurse, **MS** – Mississippi, **PA** – Physician’s Assistant, **PAEA** – Physician’s Assistant Education Association, **RN** – Registered Nurse, **SAQ** – Self Administered Questionnaire, **TN** – Tennessee, **UK** – United Kingdom, **Y** - Yes

Appendix E
Synthesis Table

Author	Year	Design/LOE	Setting	Population	Methods of Recruitment
Blaaw	2010	Non-Experimental Survey/IV	Kenya, South Africa, Thailand	Nursing Students	FS, FamS, EFP, CR, RR,H
Odell	2013	Non-Experimental/V	Rural Mississippi Delta States: Mississippi, Louisiana, Arkansas, Tennessee, USA	Rural APRNs interested in practicing in a rural area	FS, EFP, CR,RR,H
Gould	2006	Qualitative Non-experimental Research/VI	Rural Great Britain	Rural Nurse Supervisors leading recruitment for NHS	FS, CS, CR, H
Bigbee	2013	Retrospective Descriptive/IV	Rural Idaho, USA	Rural and Urban Nursing Students	FS, LR,FamS, EFP,RR,PE
Glasser	2006	Non-experimental Descriptive/V	Rural Illinois, USA	Rural Hospital CEOs – survey of provider recruitment	FS, CR
Brown	2009	Quasi-experimental/III	Rural Wyoming, USA	APRNs	CR, RR
Renner	2010	Non-experimental/IV	Rural Colorado, USA	MDs, APRNs, PAs	FS, LR, FamS, EFP, CS, CR, RR, H, PE
Shannon	2011	Non-experimental retrospective cohort/IV	West Virginia, USA	PAs	FS, LR, FamS, EFP, CS, CR, RR, H
MacDowell	2009	Non-experimental Descriptive/IV	Rural Illinois and Arkansas, USA	Rural Hospital CEOs – survey of provider recruitment	FS, LR, FamS, EFP, CS, CR, RR, H, PE
Newhouse	2011	Systematic Review/I	USA	APRNs, MDs, PAs	N/A
Mullei	2010	Non-Experimental Survey/V	Kenya, Nairobi, South Africa	Rural Nursing Students	FS, EFP, CR, RR, H

APRN – Advanced Practice Registered Nurse, **CEO** – Chief Executive Officer, **CR** – Community Resources, **CS** – Community Support, **EFP** – Extended Family Proximity, **FamS** – Family Support, **FS** – Financial Support, **H** – Housing, **LR** – Loan Reimbursement, **MD** – Physician, **N/A** – Not Applicable, **PA** – Physician’s Assistant, **PE** – Partner Employment, **RR** – Rural Roots

Appendix F

Tyler Collaborative Model

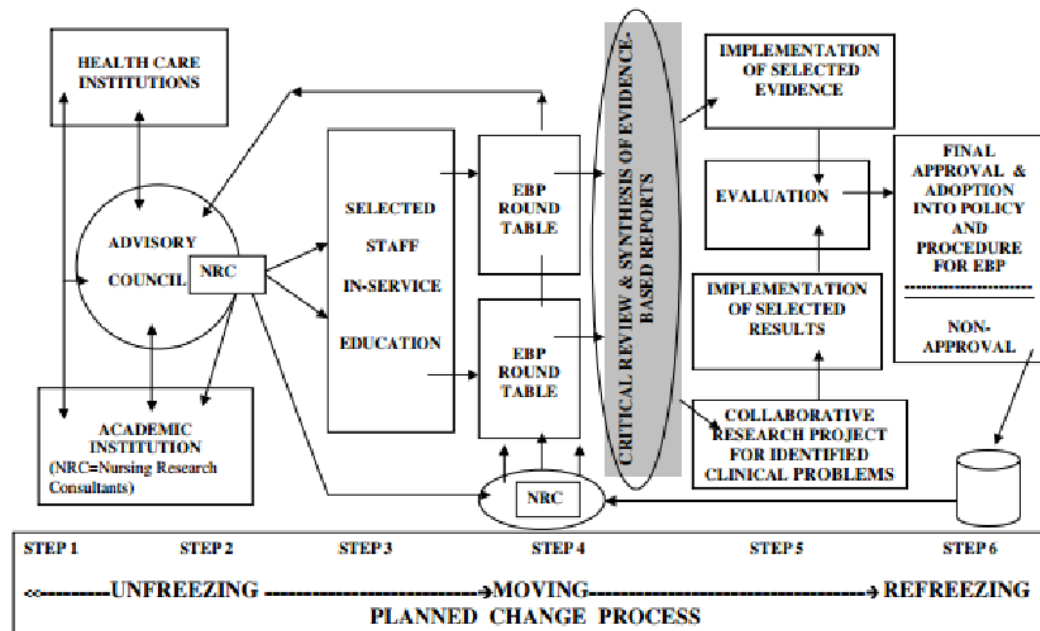


Figure 1. Tyler Collaborative Model for evidence-based practice

Appendix G Survey

Recruiting Rural Nurses to Become Advanced Practice Registered Nurses in Rural Colorado

Description of survey and participant consent

You are being invited to participate in a study that surveys what elements were most impactful for you in your decision to return to school and become an APRN provider in your community. The purpose of the survey is to help gather data on how we can most effectively recruit nurses to become APRN providers in rural and underserved communities to help build a more robust APRN provider workforce, nationally. This survey should take no more than 15 minutes.

Your participation in the evaluation of the program is voluntary. You can skip questions in the survey if you wish. If you choose not to participate or to withdraw from the program at any time, there will be no penalty. It will not affect your role in the Rural and Underserved Nurse Fellowship prior to, during, or after your participation in the program. You must be 18 years of age or older to participate in this program. Responses to the questionnaires will be used to evaluate what extrinsic elements are most impactful in supporting nurses to return to school and become APRN providers. There is no known risk greater than those that are associated with everyday types of activity.

Your responses on the questionnaires will be anonymous and will be identified only by a number that will not be connected to your name or other personal identifying information. The results of this study may be used in reports, presentations, or publications, but your name will not be known or used.

The primary investigator of this survey is Dr. Timothy Porter-O'Grady who may be reached at: tim@tpogassociates.com. If you have any questions concerning this project, please contact Ingrid Johnson at ingrid@coloradonursingcenter.org or 303-715-0343, ext. 21.

Directions: Each recruitment element, defined as a 'factor' in the tool, will be given an advantage or challenge rating by the participant ('major advantage', 'minor advantage', 'minor challenge' = , 'major challenge' =). Additionally, each recruitment element will be given an importance rating ('very important', 'important', 'unimportant', and 'very unimportant').

1. Please rank the following geographic factors as either a major advantage, minor advantage, minor challenge, or major challenge in your decision to return to school and become a rural/underserved APRN provider in your community.

	Major Advantage	Minor Advantage	Minor Challenge	Major Challenge
Access to larger community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demographics/patient mix in community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking in community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreational opportunities in community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spousal/partner satisfaction with community (education, work, general)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schools in community (K-12 and higher ed)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Climate in community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lifestyle in community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Size of community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nursing experience in community/similar rural or underserved area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

2. Please rank the following geographic factors as one of the following: very important, important, unimportant, or very unimportant in your decision to return to school and become a rural/underserved APRN provider in your community.

	Very Important	Important	Unimportant	Very Unimportant
Access to a larger community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demographics/patient mix in community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking in community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recreational opportunities in community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Spousal/partner satisfaction in community (education, work, general)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Schools in community (K-12 and higher education)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Climate in community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lifestyle in community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Size of community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Experience as a nurse in community or similar rural/underserved area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

3. Please rank the following Economic resource factors as either a major advantage , minor advantage, minor challenge, or major challenge in your decision to return to school and become a rural/underserved APRN provider in your community.

	Major Advantage	Minor Advantage	Minor Challenge	Major Challenge	
Access to larger community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demographics/patient mix	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community Education support (CE, tuition)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Salary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shift differential	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing availability/affordability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Available necessary materials/equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
External Education support (CE, tuition)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

4. Please rank the following Economic resource factors as one of the following: very important, important, unimportant, or very unimportant in your decision to return to school and become a rural/underserved APRN provider in your community.

	Very Important	Important	Unimportant	Very Unimportant
Access to larger community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Demographics/patient mix	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Social networking	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community Education support (CE, tuition)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Day care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Salary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Shift differential	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Housing availability/affordability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Availability of necessary materials/equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
External Education support (CE, tuition)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. Please rank the following Management/decision making factors as either a major advantage , minor advantage, minor challenge, or major challenge in your decision to return to school and become a rural/underserved APRN provider in your community.

	Major Advantage	Minor Advantage	Minor Challenge	Major Challenge	
Day care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurse empowerment/nurse involved in best practice design/professional collaboration between management and nursing/ unit based decision making	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurses involved in selecting new technology/equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional development opportunities/career ladders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexible scheduling/optimal shift availability/12 hours shifts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognition/positive feedback	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective partnership between medical and nursing staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teaching/mentoring opportunities/administrative role involvement/challenge of multiple roles (direct care, leadership, teaching, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Autonomy/respect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thorough orientation/preceptorship of nurses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

6. Please rank the following Management/decision making factors as one of the following: very important, important, unimportant, or very unimportant in your decision to return to school and become a rural/underserved APRN provider in your community.

	Very Important	Important	Unimportant	Very Unimportant	
Day care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurse empowerment/nurse involved in best practice design/professional collaboration between management and nursing/unit based decision making	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nurses involved in selecting new technology/equipment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Professional development opportunities/career ladders	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexible scheduling/optimal shift availability/12 hours shifts	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Recognition/positive feedback	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Effective partnership between medical and nursing staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Teaching/mentoring opportunities/administrative role involvement/challenge of multiple roles (direct care, leadership, teaching, etc.)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Autonomy/respect	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Thorough orientation/preceptorship of nurses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

7. Please rank the following Practice Environment factors as either a major advantage, minor advantage, minor challenge, or major challenge in your decision to return to school and become a rural/underserved APRN provider in your community.

	Major Advantage	Minor Advantage	Minor Challenge	Major Challenge	
Clinical Variety and challenge/emergency care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic medical records	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Positive workplace culture/supportive working environment that fosters mentoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Positive relationships/communication among different generations of nurses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Manageable workload/increased time with patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethical climate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emphasis on patient safety/high quality care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence-based practice/opportunities for research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job satisfaction/morale level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stress levels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

8. Please rank the following Practice Environment factors as very important, important, unimportant, or very unimportant in your decision to return to school and become a rural/underserved APRN provider in your community.

	Very Important	Important	Unimportant	Very Unimportant
Clinical Variety and challenge/emergency care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Electronic medical records	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Positive workplace culture/supportive working environment that fosters mentoring	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Positive relationships/communication among different generations of nurses	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Manageable workload/increased time with patients	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethical climate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emphasis on patient safety/high quality care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evidence-based practice/opportunities for research	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Job satisfaction/morale level	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stress levels	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. Please rank the following Community practice/support factors as either a major advantage, minor advantage, minor challenge, or major challenge in your decision to return to school and become a rural/underserved APRN provider in your community.

	Major Advantage	Minor Advantage	Minor Challenge	Major Challenge	
Perception of quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emergency medical services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Welcome and recruitment program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acceptance of nurses new to area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sense of reciprocity between nurses and community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Image of rural health care and nursing/positive image of job environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distance education access	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community health/nursing services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family-friendly environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nursing workforce adequacy and stability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

10. Please rank the following Community practice/support factors as very important, important, unimportant, or very unimportant in your decision to return to school and become a rural/underserved APRN provider in your community.

	Very Important	Important	Unimportant	Very Unimportant	
Perception of quality	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Emergency medical services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Welcome and recruitment program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Acceptance of nurses new to area	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sense of reciprocity between nurses and community	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Image of rural health care and nursing/positive image of job environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distance education access	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Community health/nursing services	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Family-friendly environment	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Nursing workforce adequacy and stability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

11. What are your greatest barriers to returning to school and becoming an APRN provider in your community?

12. What can be done to overcome these barriers?

Appendix H

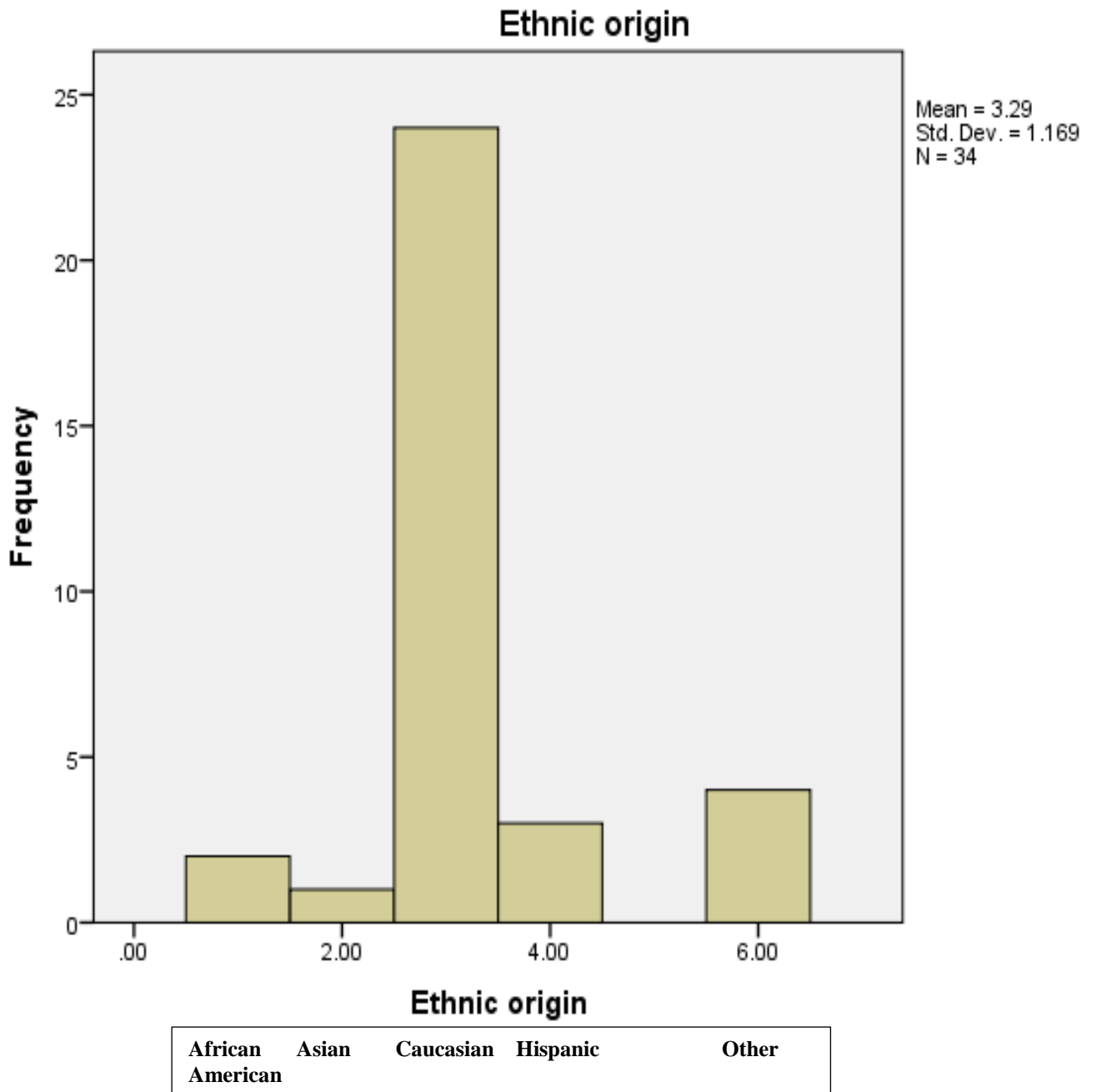


Figure 1

Appendix I

Table 1 - Mean Scores Within Classifications

Classification	Advantage/ Challenge N	Minimum	Maximum	Advantage/ Challenge Mean (SD)	Importance N	Minimum	Maximum	Importance Mean (SD)
Geographic	32	-14.00	18.00	2.41 (9.29)	29	23.00	40.00	32.21(4.00)
Economic	20	-16.00	20.00	-0.50 (13.20)	27	27.00	40.00	32.85(4.10)
Management/ Decision Making	24	-16.00	20.00	4.54(11.00)	28	28.00	40.00	35.96(3.90)
Practice Environment	33	-13.00	20.00	7.00(9.40)	33	30.00	40.00	36.90(3.15)
Community Support	29	-19.00	20.00	4.55(11.39)	31	30.00	40.00	35.90(3.43)

Appendix J

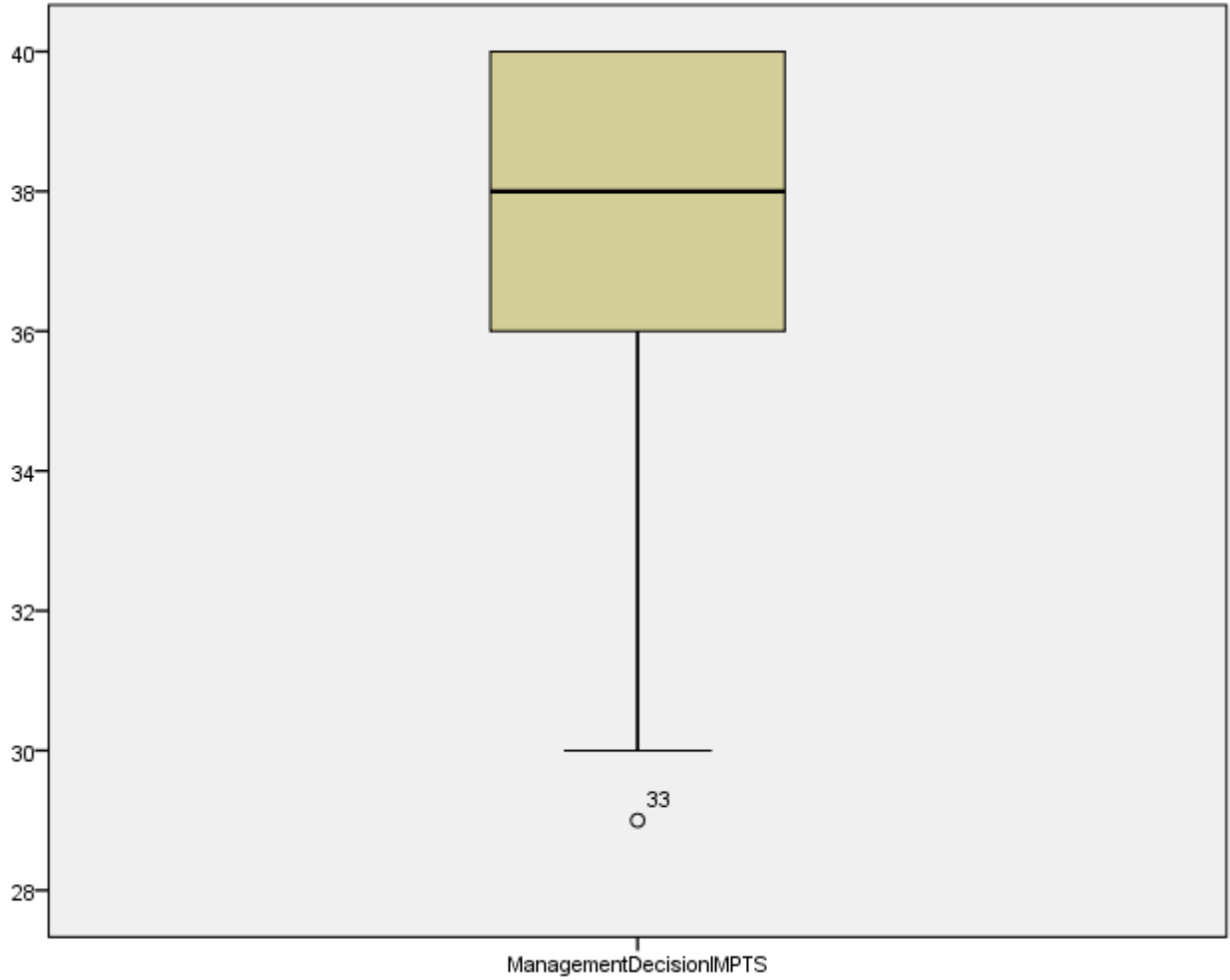


Figure 2 – Management and Decision Making Importance Distribution