

THE PREDICTING FACTORS OF SUCCESS IN THE INDONESIAN NATIONAL NURSING COMPETENCY TEST

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ABSTRACT

The implementation of the Indonesian National Nursing Competency Test faces several challenges, especially those associated with low passing rates. Low passing rates are a concern of all nursing schools because they reflect the quality of the institution. The purpose of this study was to determine the factors predicting success on the Indonesia National Nursing Competency Test. The research design was descriptive correlational. Participants in the study were 201 alumni of the Faculty of Nursing at Universitas Pelita Harapan in Indonesia. Statistical tests showed a significant correlation between academic achievement (academic stage GPA, professional stage GPA, English proficiency score, and tryout) and the national competency test, while demographic data showed no significant correlation. Academic achievement plays a significant role in success on the Indonesian National Nursing Competency Test.

Keywords: predicting factors, national nursing competency test, Indonesia

ABSTRAK

Pelaksanaan Uji Kompetensi Nasional Perawat Indonesia menghadapi banyak tantangan terutama berkaitan dengan rendahnya tingkat kelulusan. Tingkat kelulusan yang rendah

menjadi perhatian dari semua institusi pendidikan keperawatan karena hal ini menjadi potret dari institusi. Tujuan penelitian ini untuk menjelaskan faktor-faktor prediksi keberhasilan dalam Uji Kompetensi Nasional Perawat Indonesia. Design penelitian menggunakan deskripsi korelasi. Partisipan penelitian adalah alumni Fakultas Keperawatan Universitas Pelita Harapan Indonesia sejumlah 201. Uji statistic menunjukkan korelasi yang signifikan antara hasil bidang akademik (IPK tahap akademik, IPK tahap profesi, nilai kemampuan bahasa Inggris, dan *try out*) dengan uji kompetensi test, sedangkan data demografi tidak menunjukkan korelasi yang signifikan. Pencapaian bidang akademik memiliki peran signifikan didalam keberhasilan pada Uji Kompetensi Nasional Perawat Indonesia.

Introduction

The year 2014 was a cornerstone for nursing profession in Indonesia because the Indonesian Nursing Act was approved. This Nursing regulates the nursing education, registration, practice, organization and council. An implication of this Nursing Act is the implementation of Indonesian National Nursing Competency Test (INNCT). This test is one of the requirements to obtain a professional nurse license. Purpose of competency test is to recognize that competency level has been achieved by the graduate nurse and will guarantee patient safety in nursing practice. Indonesian Ministry of Research and Technology of Higher Education addressed that in terms of global challenges, the national competency test is part of standardization of registration and practice licenses for health worker who will provide health services in Indonesia (Ristekdikti, 2016). The implementations of the INNCT have faced several challenges, such as facilities, technical problems, and passing rate. The passing rate of the INNCT has declined over time: period IV/2015 (57%), V/2016 (47%), VI/2016 (38%), VII/2017 (38%) (Ristekdikti, 2016). On the other hand the participant on the INNCT has increased from 10,571 to 20,825.

The issue of low passing rate has been a significant concern for every nursing school because it reflects the quality of the school. Nursing schools with a history of low passing rate are at risk for negative impact on their reputation. Low licensure exam rates have the potential for serious negative adverse effects on a program's continued and

reputation (Brown-O'Hara, 2013) (Wade, 2011). Moreover, the quality of a nursing education program is evidenced by the performance of its graduates on licensure examination (Bahari, 2015).

Pitt, Powis, Levett-Jones, & Hunter (2012), identified four major characteristic factors that influence nursing students' academics and performance: 1) demographic factors (age, gender, English as second language, hours of part time employment), 2) academic factors (admission qualifications within program indicators), 3) cognitive (critical thinking skills), and 4) personality/behavior (personality, anxiety, self-efficacy, support seeking, academic engagement). Previous studies show correlation between academic achievement and non-academic factors such as critical thinking, grade point average (GPA), nursing subject score, socio-demographic on NCLEX-RN success; the student's nursing GPA was the most powerful predictor of the first-time NCLEX-RN pass rate (Romeo, 2013) (Penprase, Harris, & Qu, 2013) (Foley, 2016)(Reeve, 2014) (Amankwaa, Agyemang-Dankwah, & Boateng, 2015).

This study provides insight about predicting factors for passing INNCT, since there is limited information regarding this topic in Indonesian setting. Moreover, this finding could contribute to enhancing nursing knowledge and guiding future research in this area. By knowing the predicting factors, nursing schools can develop and provide appropriate interventions for students.

Research Method

This study is a descriptive correlational using secondary data analysis. Participants were alumni Faculty of Nursing Universitas Pelita Harapan (FoN UPH), who attended the INNCT in the period of September 2017 and September 2018. The data were categorized into academic achievement and demographic data. The academic achievement included: Cumulative GPA of academic and profession program, English capability score, try out scores; practicing questions and INNCT result. English capability score was measured by the participant's result of TOEFEL preparation score. Try out score is the score received on the Indonesian INNCT practice exam. Practicing

questions was measured by the frequency time of accessing practice questions. Demographic data included age, gender, type of program and place of origin. Type of program is based on student intake type. First are from high school, in this study named entrance to practice (ETP) type or regular, second are from diploma III nursing program, named conversion class (CC) type or transfer credit. Most of conversion class type has been working as a nurse in hospitals or health facilities. Place of origin was categorized into seven areas such as: Sumatera, Java, Kalimantan, Sulawesi, Nusa Tenggara Timur (NTT) and Nusa Tenggara Barat (NTB), Maluku and Ambon, and Papua. This area covered all big islands and group of small islands all over Indonesia from eastern part to western part. Total sampling was applied in this study and the total participants were 201. Data collection form was used to gather data of this study.

SPSS software version 22 was used for data analysis. The data analysis included frequency distribution, chi-square, Spearman rho, and regression analysis to determine which predictor and how strong variables may influence successful passing of the INNCT. The significance level was $p < 0.05$. Ethical clearance was obtained from Mochtar Riady Institute for Nano Technology (MRIN) with the approval number 016/MRIN-EC/ECI/X/2017. Ethical issues, including plagiarism, misconduct, informed consent, double publication and redundancy were monitored by author.

Result and Discussion

A total of 201 participants were involved in this study.

Table 1. Demographic Data of participants (n=201)

Variable	N (%)	Mean ± SD
Gender		
Male	37 (18.4%)	
Female	164 (81.6%)	
Age		
Min	20	22.68±3.693
Max	48	
Type of Program		
Entrance To Practice	191 (95%)	
Conversion Class	10 (5%)	

Place of Origin	
Sumatera	74 (36.8%)
Java	37 (18.4%)
Kalimantan	15 (7.5%)
Sulawesi	32 (15.9%)
NTT & NTB	30 (14.9%)
Ambon & Maluku	12 (6%)
Papua	1 (.5%)

Table 1 show that the majority of the participants were female with the total 164 (81.6%), their age was on range 20 – 48 year old with mean 22.68. The majority was regular type of student 191 (95%) and only 10 (5%) was irregular or transfer credit from diploma III nursing. Based on the place of origin, participants were coming from several islands in Indonesia such as: Sumatera 74 (36.8 %), Java 37 (18.4%), Kalimantan 15 (7.5%), Sulawesi 32 (15.9%), NTT & NTB 30 (14.9%), Ambon & Maluku 12 (6%), and Papua 1 (.5%).

Table 2. Academic Achievements (n=201)

Academic GPA		
Min	2.88	3.23±.197
Max	3.81	
Profession GPA		
Min	3.07	3.41±.157
Max	3.80	
English capability score		
Min	00	62.89±8.728
Max	96.05	
Practicing Questions		
Min	0	1.85±1.950
Max	14	
Try Out Score		
Min	33.89	51.36±5.991
Max	66.67	
INNCT Score		
Min	32.80	54.29±6.564
Max	69.40	
INNCT Passing Rate		
Pass	164 (82%)	
Fail	37 (18%)	

Table 2 displays academic achievement. For cumulative GPA (CGPA), the lowest CGPA on Academic stage was 2.88 and the highest

was 3.81, and the mean was 3.23. The lowest CGPA on Profession stage was 3.07 and the highest was 3.80, and the average was 3.41. The highest English capability score was 96.05 and the mean 62.89. The try out scores ranged from 33.89 to 66.67, the mean was 51.36 and SD 5.991. The INNCT scores ranged from 32.80 to 69.40, the mean was 54.29 and SD 6.564. Passing rate on the INNCT was 82% (Table 2).

Table 3. Correlation between Demographic and INNCT (n 201)

Variable	I N N C T		Total	p	
	Pass	Fail			
Gender	Male	29 (78%)	8 (22%)	37 (100%)	.746
	Female	135 (82%)	29 (18%)	164 (100%)	
	Total	164 (82%)	37 (18%)	201 (100%)	
Type of Program	Entrance To Practice	156 (82%)	35 (18%)	191 (100%)	.580
	Conversion class	8 (80%)	2 (20%)	10 (100%)	
	Total	164 (82%)	37 (18%)	201 (100%)	
Place of origin	Sumatera	59 (80%)	15 (20%)	74 (100%)	.758
	Java	33 (89%)	4 (11%)	37 (100%)	
	Kalimantan	12 (89%)	3 (20%)	15 (100%)	
	Sulawesi	27 (84%)	5 (16%)	32 (100%)	
	NTT & NTB	22 (73%)	8 (27%)	30 (100%)	
	Ambon & Maluku	10 (83%)	2 (17%)	12 (100%)	
	Papua	1 (100%)	0	1 (100%)	
Total	164 (82%)	37 (18%)	201 (100%)		
Age	Mean 22.68 SD 3.693	Min 20 Max 48			.419

Table 3 show the correlation between Demographic data and INNCT. No significant correlation was found between demographic data and INNCT when grouped according to gender ($p = .746$); type of program ($p = .580$); place of origin ($p = .758$); and age ($p = .419$).

Table 4. Correlation between Academic Achievement and INNCT (n 201)

Variable	I N N C T			
	Mean ± SD	p	r	n
Academic GPA	3.23 ± .197	.0001	.653	201
Profession GPA	3.41 ± .157	.004	.202	201
English capability score	62.89 ± 8.728	.002	.212	201
Tryout score	51.36 ± 5.991	.0001	.620	201
Practicing Questions	1.85 ± 1.950	.284		201
Over all		.0001	.744	201

Table 4 displays correlation between Academic achievement and INNCT: the academic achievement included Academic stage CGPA, Profession stage CGPA, English capability score, and Tryout score. There were significant correlations between all academic achievement and INNCT, but there was no correlation between practicing questions and INNCT ($p = .284$). There was strong correlation of Academic stage CGPA ($p < .0001$; $r = .653$); low correlation of Profession stage CGPA ($p < .004$; $r = .202$); low correlation of English capability score ($p = .002$; $r = .212$); and strong correlation of tryout score ($p = .0001$, $r = .620$). There was strong correlation when all academic achievement grouped together ($p = .0001$; $r = .744$).

Discussion

The results showed no significant correlation between demographic data and INNCT. This result is in line with the results of previous studies, in which socio-demographic characteristics such as age and gender had no significant relationship with the results of nurse licensing examinations (Amankwaa et al., 2015) (Siswadi, Sommers, & Houghty, 2017) (Benefiel, 2011) (Whitehead, 2016). Gender and level socioeconomics have a significant influence on the ability of learners to respond to learning. The relationship between socioeconomic and cognitive abilities has been explained, but the mechanisms and

processes are still not fully understood. Older students potentially perform better on academics. Age and motivation are essential markers for NCLEX-RN graduation (Simon, E, McGinniss, S, & Krauss, B, 2013). Although in this study there was no correlation between demographic data and INNCT, it is still relevant to review demographic data. It will help in supporting students, especially during the learning process or adaptation process. Routinely appraising student profile characteristics to create a composite of potential variables restricting or supporting retention, success and optimal outcomes achievement can assist educators in developing proactive, transitional, and ongoing strategies to capitalize on student strengths, prevent deficits, and improve weaknesses (Jeffreys, 2015).

The academic achievements of academic CGPA, profession CGPA, English capability score and tryout scores had significant correlation with INCCT Practicing questions had no significant correlation with INNCT results. Joining all the variables together had an increasingly strong correlation ($r = .774$). The result of a positive correlation of academic achievement variables with national nurse competency test means that the higher the academic achievement, the higher possibility of successfully passing the INNCT. These results are aligned with previous studies of a significant correlation between academic achievements with National Examination Licensure. The nursing GPA is a strong predictor or strong positive relationship for predicting first-time pass rates of NCLEX-RN (Romeo, 2013) (Leon, 2016) (Amankwaa et al., 2015) (Simon, E et al., 2013). The best predictors for passing or failing the NCLEX-RN exam are the average scores of science courses, followed by the average grades of nursing courses, then English as a second language (Breckenridge, Wolf, & Roszkowski, 2012). Furthermore, an increase in the Cumulative GPA of 0.1 would increase the probability of a 23% graduation (Penprase et al., 2013). Another study found no significant correlation between NCLEX-RN with GPA (Ukpabi, 2008). There is no significant correlation between several variables such as scores on science, Fundamentals, Health assessment and pathophysiology with NCLEX-RN results (McGahee, Gramling, & Reid, 2010).

This study found no significant correlation between practicing questions and INNCT. Practice questions are essential because it allows the participant to be familiar with the structure and style of the test. Furthermore, practice questions allow participants to demonstrate their understanding of the content. Jeffrey's model states that success in nursing education is influenced by many factors (universal) such as student profile, affective, environment, academic, profession and environment. These factors are related to one another (Jeffreys, 2015).

The results of this study can serve as basis of future research in this area, especially in Indonesia, because Indonesia is still in the early stages of implementing the INNCT. The INNCT is a process to measure knowledge, attitude and skill of nurses based on the professional standard. All nurses entering the profession must demonstrate competency by passing nursing board exam (Friberg & Creasia, 2016). In Indonesia, the result of INNCT has been used as a requirement for nursing licensure. However, there have been many challenges in implementation, especially low passing rate. This low passing rate may lead to a worsening of the nursing shortage and possibly increase unemployment, which becomes a burden to the government. In education, the INNCT is expected to encourage the improvement of curriculum and the learning process in each educational institution (Ristekdikti, 2016).

1. Conclusion

Academic achievements have a significant role on successfully passing the national nursing competency test. Success on the national nursing competency test was not determined by demographic data.

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References

- Amankwaa, I., Agyemang-Dankwah, A., & Boateng, D. (2015). Previous education, sociodemographic characteristics, and nursing cumulative grade point average as predictors of success in nursing licensure examinations. *Nursing Research and Practice*, 2015, 1–8. <https://doi.org/10.1155/2015/682479>
- Bahari, G. M. (2015). A plan to promote NCLEX-RN success of Saudi Arabian nurse graduates. *Austin Journal of Nursing & Health Care*, 2(1), 1–8. Retrieved from <http://austinpublishinggroup.com/nursing/fulltext/nursing-v2-id1014.php#>
- Benefiel, D. (2011). *Predictors of success and failure for ADN students on the NCLEX-RN*. Retrieved from <https://www.proquest.com/docview/871704955>
- Breckenridge, D. M., Wolf, Z. R., & Roszkowski, M. J. (2012). Risk assessment profile and strategies for success instrument: Determining prelicensure nursing students' risk for academic success. *Journal of Nursing Education*, 51(3), 160–166. <https://doi.org/10.3928/01484834-20120113-03>
- Brown-O'Hara, P. (2013). *The influence of a academic coaching on: Baccalaureate nursing students' academic succes, perception of the academic coaching relationship, percieved NCLEX-RN readiness and success on the NCLEX-RN exam* (Publication No. 3570585) [Doctoral dissertation, Widener University School of Nursing]. Proquest. <https://pqdtopen.proquest.com/pubnum/3570585.html>
- Foley, D. M. (2016). *Predicting student success: Factors influencing NCLEX-RN rates in an urban university's pre-licensure program* (Publication No. 10115724) [Doctoral dissertation, Cleveland State University]. ProQuest.
- Friberg, E. E., & Creasia, J. L. (2016). *Conceptual foundations the bridges to professional nursing practice* (6th ed.). St. Louis, MO: Elsevier/Mosby.
- Jeffreys, M. R. (2015). Jeffreys's nursing universal retention and success model: Overview and action ideas for optimizing outcomes A–Z. *Nurse Education Today*, 35(3), 425–431.

<https://doi.org/10.1016/j.nedt.2014.11.004>

- Leon, D. (2016). Academic and licensure examination performances of BSN graduates: Bases for curriculum enhancement. *International Journal of Educational Policy Research and Review*, 3(4), 64–72. <https://doi.org/10.15739/ijeprr.16.009>
- McGahee, T. W., Gramling, L., & Reid, R. F. (2010). NCLEX-RN success: Are there predictors? *Southern Online Journal of Nursing Research*, 10(4), 1–9. Retrieved from <https://www.snrs.org/sites/default/files/SOJNR/2010/Vol10Num04Art13.pdf>
- Penprase, B. B., Harris, M., & Qu, X. (2013). Academic success: Which factors contribute significantly to NCLEX-RN success for ASDN students? *Journal of Nursing Education and Practice*, 3(7), 1–8. <https://doi.org/10.5430/jnep.v3n7p1>
- Pitt, V., Powis, D., Levett-Jones, T., & Hunter, S. (2012). Factors influencing nursing students' academic and clinical performance and attrition: An integrative literature review. *Nurse Education Today*, 32(8), 903–913. <https://doi.org/10.1016/j.nedt.2012.04.011>
- Reeve, I. (2014). *Predictors of first-time success on the NCLEX-RN for graduates of baccalaureate nursing program* (Publication No. 3640298) [Doctoral dissertation, University of South Dakota]. ProQuest.
- Ristekdikti. (2016). *Implementasi uji kompetensi nasional bidang kesehatan sebagai langkah konkrit penjaminan mutu pendidikan tinggi kesehatan*. Retrieved from <http://www.dikti.go.id/implementasi-uji-kompetensi-nasional-bidang-kesehatan-sebagai-langkah-konkrit-penjaminan-mutu-pendidikan-tinggi-kesehatan/>
- Romeo, E. M. (2013). The predictive ability of critical thinking, nursing GPA, and SAT scores on first-time NCLEX-RN performance. *Nursing Education Perspectives*, 34(4), 248–253. <https://doi.org/10.5480/1536-5026-34.4.248>
- Simon, E. B., McGinniss, S. P., & Krauss, B. J. (2013). Predictor variables for NCLEX-RN readiness exam performance. *Nursing Education*

Research, 34(1), 18–24. <https://doi.org/10.1097/00024776-201301000-00005>

Siswadi, Y., Sommers, L. C., & Houghty, G. S. (2017). Faktor-faktor prediksi keberhasilan uji kompetensi nasional. In *Penguatan sistem uji kompetensi dalam meningkatkan kualitas profesi tenaga kesehatan untuk memperkuat daya saing bangsa di era global* (p. 140). Bandung, Indonesia: LPUK-NAKES dan UNPAD.

Ukpabi, C. V. (2008). Predictors of successful nursing education outcomes: A study of the North Carolina central university's nursing program. *Educational Research Quarterly*, 32(2), 30–40. Retrieved from <https://eric.ed.gov/?id=EJ847443>

Wade, R. J. (2011). *Predicting NCLEX-RNreg pass rates: A regional study in the United States* (Publication No. 3466428) [Doctoral dissertation, Capella University]. ProQuest.

Whitehead, C. D. (2016). *Predicting national council licensure examination for registered nurses performance* (Publication No. 10113922) [Doctoral dissertation, Northcentral University]. <https://pqdtopen.proquest.com/pubnum/10113922.html>