

## ORIGINAL ARTICLE

# University Accreditation Affect the Pass Rate of Nurse Competency Exam: A Nationwide Study

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## ABSTRACT

**Introduction:** The purpose of this study is knowing how the accreditation of nursing profession study programs, university ownership status, and university location predicts the INCE graduation rate. **Methods:** The design of this study was quantitative, an observational cohort study using secondary data and consisting of two stages. The independent variable of accreditation, university status (state/private), and location of higher education (Java/outside Java). The dependent variable is the INCE graduation rate. By applying the inclusion criteria of INCE period of 2015 – 2020 and exclude the university that haven't graduate any student the final samples are 291 universities. **Results:** The equation of the model explains that first, every increase in the accreditation of a nursing education institution will contribute to an increase in the INCE graduation rate by 14%. Second, if the ownership of the university is public, the increase in INCE graduation increases by 28%. The three universities located on the island of Java will experience an increase in INCE graduation by 15%. **Conclusion:** This study found that accreditation, university ownership status, and university location determine the level of INCE pass rate. In this study, INCE pass rate was used as the measurement of quality and the study found that the better the independent variables resulting in the better the quality.

**Keywords:** Accreditation; Education Quality; Nursing Education Research; Competency

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## INTRODUCTION

Accreditation assesses the quality of nursing education from all aspects, one of which is the curriculum which is very influential on the competence of nursing graduates to work effectively with patients, and families. The benchmark for the competency of nursing graduates in Indonesia is the UKNI, in English it translated as INCE (Indonesian National Competency Exam). This exam acts like NCLEX (US) or NMC ToC (UK), namely to determine the level of competence of nurses so that they are entitled to become registered nurses.(1) The minimum criteria for the INCE graduation rate of a nursing college are 80%, this is stated in the 9th standard of IAAHEH (Indonesian Accreditation Agency for Higher Education

in Health) accreditation. Indonesia applies three accreditation scales A, B, and C where A is the best accreditation (1–3).

Nursing colleges occupy the sixth position in the ranking of the highest number study programs in Indonesia.(4) The number of institutions offering higher education in Indonesia is 4.551 as of September 2017 and only 1.012 (22.24%) of them have been accredited. There are only 24 undergraduate nursing study programs that are accredited A, the rest are accredited B (229) and C (37).(6) To put into context, all undergraduate nursing study programs that are accredited A 13 of them are public universities, very few private undergraduate nursing study programs are accredited A. Regulations of private universities in Indonesia do not distinguish between for-profit and non-profit.

The novelty of this research is that universities in Indonesia are not differentiated between profit and

non-profit, only public and private. The aspect that needs to be studied further about the effect of accreditation on the quality of education is what aspect of accreditation increases the success rate of the exam.(7) To the best of our knowledge, there are no similar studies that discuss this topic. Especially in developing countries, particularly Indonesia no studies were highlighting this particular topic. In detail, the purpose of this study will be to analyze the following points. First, to find out the percentage and trend of the INCE graduation rate nationally. Second, knowing how the accreditation of nursing profession study programs, university ownership status, and university location predicts the INCE graduation rate.

## MATERIALS AND METHODS

The design of this study was quantitative, namely an observational cohort study consisting of two stages. This study did not meet the definition of human subject research then this study was reviewed by the AINEC (Association of Indonesian Nursing Education Center).

### Data

This is the data sources: (1) Data on the results of accreditation by IAAHEH which can be accessed at <https://lamptkes.org/>. This study obtained data by accessing it from June 2020 - May 2021. The data obtained are the results of accreditation from 2015 to 2021. (2) The official competency test result data is accessed through <http://ukners.kemdikbud.go.id/>. (3) Information of ownership status and location of the university is obtained from the official website of each university or from the results of surfing the internet.

### Variables

The variable used for the first research question is the percentage of INCE graduation from each nursing college over time, based on the level of accreditation and university status. The second question uses the independent variable of accreditation, university status (state/private), and location of higher education (Java/outside Java). The dependent variable is the INCE graduation rate.

### Population and Sample

The research population is all universities listed on the website which is 291 nursing colleges, all the university included in the study with accreditation data from 2015 – 2020 and INCE results from period IV 2015 to period XVI 2020. INCE results above period XVI were excluded because the COVID-19 pandemic occurred and the clinical practice of the nurse profession switched to online which suspected could affect the test outcome. We also exclude the university that haven't graduate any student.

## Statistical Analysis

First, to find out the percentage of INCE graduation nationally and analyze the trend of graduation based on the level of accreditation and status of the university. The second use multivariate regression analysis to predict the INCE graduation rate based on accreditation and university status. The analysis used SPSS version 26 application and Eviews application version 10 (both full version).

## RESULTS

The study results are presented in two steps. First, the trends of the INCE pass rate according to the accreditation level from 2015 – 2020 (12 periods of the test). Second, the result of the regression models in which also controlling the ownership status, dan location. In December 2020, 291 universities held nursing professional study programs (table I). The majority of the nursing professional study programs were B-accredited (230), then study programs C-accredited (37) were more than study programs A-accredited (24). The total number of students who have attended INCE since period IV (2015) to period XVI (2020) from all universities is 210,455 students. The results of the tabulation of data found that the graduation rate for INCE universities accredited A was 83%. The graduation rates for INCE universities accredited B and C are only 46% and 24%, respectively.

### Trends in The Percentage of The INCE Pass Rate According to The Accreditation Level

The trend of INCE graduation rates tends to be stable and is influenced by the level of accreditation. The higher the accreditation level, the higher the INCE graduation rate. In addition, public universities have higher graduation rates than private universities. The minimum standard for passing the INCE pass rate is 80% and only public A-accredited universities can achieve this average standard. Overall, the level of accreditation is very influential on the graduation rate of INCE.

### Panel Regression Model (Random effect model)

The model chosen is the Random effect model because the use of this model only contains less bias than other models (8). The parameter estimation model rendered from the regression test is shown below:

$$Y_t = 4.135 + 14.763 X_{1t} + 28.207 X_{2t} + 15.705 X_{3t}$$

The letter t means the year, where the equation of this model explains that each variable is affected by the coefficient and the year of data observation. The equation of the model explains that first, every increase in the accreditation of a nursing education

**Table I : School-Level Characteristics based on the accreditation level on 2020**

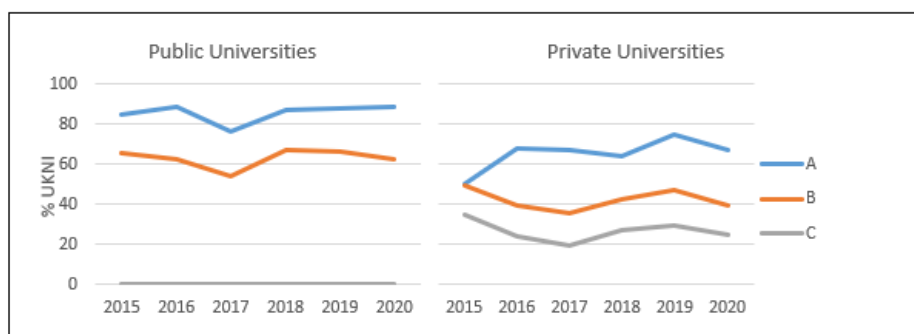
Universities Characteristics	Accreditation Level		
	A	B	C
Number of Universities	24	230	37
Universities Ownership	Public	15	13
	Private	9	217
Universities Located	in Java Island	18	118
	not in Java Island	6	112
Number of Student*	Take INCE	18.410	166.514
	Pass the INCE	15.230	76.372
	Failed the INCE	3.180	90.142

Notes: \*The unit count is sum of students

**Table II : Panel data regression result**

Dependent Variable: Nursing exit exam	OLS	Fixed Effects	Random Effects
X <sub>1</sub> Accreditation	14.665*** (1.290)	14.764*** (1.221)	14.763*** (1.220)
X <sub>2</sub> Ownership status	28.424*** (1.916)	28.202*** (1.813)	28.207*** (1.815)
X <sub>3</sub> Location	15.810*** (0.977)	15.701*** (0.924)	15.705*** (0.924)
Constants	4.249* (2.425)	4.132* (2.296)	4.135 (3.489)
R-square	0.305	0.381	0.328
Observations	2350	2350	2350
Hausman test (chi <sup>2</sup> )		0.041	
Breusch-Pagan LM test (chibar <sup>2</sup> )		4110.357***	

Notes: \*\*\*, \*\*, and \* are significant at 1%, 5%, and 10% levels, respectively. Standard errors are in parenthesis



**Figure 1 : Line chart of INCE graduation rate based on 2015 – 2020 accreditation.**

institution will contribute to an increase in the INCE graduation rate by 14%. Second, if the ownership of the university is public, the increase in INCE graduation increases by 28%. Third universities located on the island of Java will experience an increase in INCE graduation by 15%.

## DISCUSSION

The better the accreditation, the percentage of INCE pass rate will increase. A-accredited universities are proven to produce a higher percentage of INCE graduate than B / C-accredited universities. Accreditation that increases by one level are predicted to increase the percentage of INCE graduations to more than a quarter of the percentage at the previous accreditation level. The goal of academic accreditation is to improve academic quality. In the practical goal, the university will produce good quality nurses.(9) Accreditation in Indonesia assesses the inputs, processes, outputs, and outcomes of higher education (3).

Several cross-sectional studies have attempted to understand the factors that influence the INCE graduation rate. Factors that influence INCE graduation include GPA, liveliness, national try-out result, the manager readiness, test location, and the learning strategy (10,11). Additionally, student's internal factors such as mental preparation, spiritual level, type of personality, anxiety, family support, and peer support do not significantly relate to the INCE passing grade. External factors such as the educational process, the INCE preparation process organized by the university, adequate facilities, and infrastructure, lecturer competence, etc. have an impact on the readiness and graduation of students to work on INCE (10–12).

Public universities affect the INCE graduation rate to be higher. The line chart shows that on average there is a gap of about 10 percent between the graduation rates of INCE private universities and public universities with the same accreditation. Unfortunately, there are no public universities with C accreditation, so it cannot be seen whether this trend gap also appears in C accreditation. Several private universities of B and C accreditations achieve a 100% INCE graduation rate when students take tests of no more than 10 people.

Research across America measuring NCLEX test pass rates from public, for-profit, and non-profit universities found that of the three only public universities had an increasing trend in graduation rates. Unfortunately, the other two ownership statuses show a downward trend in the graduation rate (1,13). According to this study, several

explanations that might cause universities other than public universities to experience a decrease in the NCLEX passing rate are, first the changes in the NCLEX test pattern and an increase in the standard of the test (14). Subsequently faculty staff do not have the power to suggest improvements to the education system to investors, resulting in high staff turnover (15). Lastly limited clinical practice site (1).

The difference in ownership status of universities in Indonesia and America is that private universities in Indonesia are not divided into for- or non-profit. So the explanation of this phenomenon cannot be equated crudely. Welch (2007) said that the choice between public or private universities in Indonesia is closely related to the factors of quality, equality, and regulatory capacity. The majority of Indonesian students will try to apply to a public university and only about 20% are accepted from around half a million applicants per year. Prospective students who are not accepted at first entry and have sufficient wealth can try to enter a public university with a special registration scheme. The rest will try to enter private universities or enter the labor market (18).

## Limitation

This study does not consider the first taker or retaker participants. This might cause a shift in the pass level since the retaker tends to study less compared to the first taker. The judgment was made for this study not to consider the taker status (first or retaker) because the university has treated them similarly.

## CONCLUSION

This study found that accreditation, university ownership status, and university location determine the level of INCE pass rate. In this study, INCE pass rate was used as the measurement of quality and the study found that the better the independent variables resulting in the better the quality. It does true that other researcher would argue that competency exam pass rate is not the only measurement of quality, other might suggest that alternative measurement should be presented. Yet until other measurement has identified and able to be measured the pass rate still used as an important measurement.

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