

Factors influencing the intention of Indonesian nursing students to work in rural areas

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ABSTRACT

Objective The aim of this study was to analyse the factors associated with the intention of Indonesian nursing students to work in rural areas.

Design This was a cross-sectional study. The instrument used was a self-developed questionnaire consisting of 13 questions. The data were analysed using the χ^2 statistics test and binary logistic regression with a level of significance <0.05.

Setting The study was conducted at a public nursing school located in urban Surabaya, East Java, Indonesia, in December 2017.

Participants A total of 714 nursing students from four different programmes were involved.

Results This study found that almost 60% of nursing students were reluctant to work in rural areas. Of the three variables which were significant in the χ^2 analysis, only two were significant following the logistic regression test, namely the class programmes of undergraduate regulars (OR=2.274; 95% CI 1.326 to 3.900), profession regulars (OR=2.262; 95% CI 1.110 to 4.607) and rural place of origin (OR=1.405; 95% CI 1.036 to 1.906).

Conclusion The education programme and place of origin were associated with the intention of nursing students to work in rural areas. Therefore, the recruitment of prospective nurses should consider these factors by considering the local context.

targets of the WHO which is important for all countries as a part of following the global target agenda.⁷

However, recruiting and attracting nurses to work in the rural areas of Indonesia remains a challenging issue, particularly due to limited access⁶ and the nurses' low interest.^{8–11} Some factors influencing their preferences are personal factors; the local community, environment and living conditions. The working conditions include their career and financial incentives, the education system and regulations as well as the national and international context.^{12–15}

Besides the aforementioned factors, one study noted that nurses who were already employed were less likely to apply as a result of being recruited and moved to rural areas. They have strong preference for staying in their current job when there is an offer to migrate to rural areas.¹⁶ These findings lead us to consider nursing students as the study subject due to their broad career choice after graduation and their different working preferences compared with practising nurses.¹⁷ Only a few studies, moreover, have focused on the rural preferences of nursing students. Most of the studies focused on other health students such as medical,^{10 18} optometry⁹ and midwifery,¹¹ or including nurses but mixed in with the others.^{8 19–21} Meanwhile, several studies focusing on nursing students in particular had different objectives, namely that they only involved students from rural universities²² and final-year students.²³ Several rural health-related studies conducted in Indonesia had different subjects and aims to the current study, such as identifying the medical students' rural preferences,¹⁸ assessing the rural health programmes and not the students' preferences^{24 25} and concerning only the attracting factors.²¹ This study adds to the existing studies by identifying the preference of the nursing students as future

INTRODUCTION

Inequalities in the distribution of nurses and other health workers in rural and remote areas have long been a global challenge for the governments of all countries regardless of their economic status.^{1 2} The WHO stated that only 38% of nurses and a quarter of physicians worked in rural areas despite half of world population living there.³ The nursing shortage could lead to adverse effects such as a decline in the infant and under-five mortality rate⁴ and a poorer health status in general.⁵ An adequate number of health workers, therefore, are desperately needed to provide better quality healthcare services.⁶ The equal distribution of health workers, including nurses, subsequently was considered to be one of main



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Table 1 Description of the class programmes in Indonesia

Academic phase	Recruited from	
	Senior high school	Nursing diploma
Preclinical	Undergraduate regular (4 years)	Undergraduate transfer (2.5 years)
Clinical	Profession regular (1 year)	Profession transfer (1 year)

nurses in different settings and to determine their targets based on their individual-related factors.

We conducted the study in Indonesia because it is one of the countries that had the most significant shortage of health workers, especially nurses, out of the Southeast Asian countries.²⁶ Compared with other Asian countries like Malaysia, Singapore, Sri Lanka and Thailand, Indonesia had the lowest ratio of nurses to a population, with less than 100 nurses per 1000 people, which is still far from WHO recommendation of 1.58 nurses per 1000 people. In addition to this, the distribution of Indonesian nurses is still uneven.^{27 28} Therefore, this study aimed to analyse the factors associated with the intention of Indonesian nursing students to work in rural areas.

METHODS

Study design and participants

The study used a cross-sectional approach. The participants were nursing students at a public nursing school in urban Surabaya, East Java, Indonesia. The study site was selected conveniently with consideration that it was one of a few nursing schools in Indonesia which still provided both regular and transfer programmes. The total population was 927 students from four different programmes, namely undergraduate regular, undergraduate transfer, profession regular and profession transfer (table 1). The participants were selected using simple random sampling with the randomisation performed via <https://www.randomizer.org/>. All of the students were included in the randomisation process except for those who were on academic leave. The sample size was determined using the statistical G power test which required at least 714 samples. All of the recruitment and data collection processes were conducted in December 2017.

Data collection

The data were collected using a self-developed questionnaire consisting of 13 questions based on the literature review. The questions were divided into three groups (personal factors, environmental factors and policy factor), with an intention question with 'yes' or 'no' answers. The personal factor items included (A) sex, (B) age and (C) current education programme. The environmental factor items consisted of (D) childhood residence, (E) place of origin, (F) parent's income based on regional minimum wages in each respondent's hometown, (G) father's and (H) mother's occupation,

(I) father's and (J) mother's education, and (K) working experience. The policy factors were assessed through (L) knowledge on *Nusantara Sehat*—a team-based assignment from the Indonesian government to remote areas for young health professionals.²⁹ Five questions were dichotomy or binary questions with two possible answers (A, D, E, K and L). Seven items were close-ended questions with multiple-choice answers (B, C, F, G, H, I and J) and there was one intention question with a dichotomous answer. We tested the instrument among nursing students to reduce the bias of the instrument. The instrument was deployed among 10 students to fill out and to give feedback to the researchers.

Data analysis

The statistical analysis was performed using IBM SPSS V.19.0. All of the data were analysed using descriptive analysis through a χ^2 test and inferential analysis was conducted using binary logistic regression with a degree of significance that was less than 0.05. The significant elements in the descriptive analysis were included in the binary logistic regression analysis. In addition, the results of Hosmer and Lemeshow's goodness-of-fit test was 0.989 (>0.05), which indicated a model fit.

RESULTS

Demographic characteristics

Out of the total 927 students, 714 (77.0%) were involved in this study. Table 2 presents the characteristics of the respondents in relation to the three groups of factors. The majority of the respondents had no intention to work in rural areas (59.9%). They were dominated by females (69.5%) and late adolescents by age (76.6%). In regard to education, the undergraduate regular programme was the most attended programme by the respondents (54.9%).

As many as 375 (52.5%) students had lived in a rural area during their childhood, while 371 (52.0%) students originated from a rural background. Regarding their parent's income, most respondents had parents with an income that was less than regional minimum wages (41.7%). Their fathers were dominantly entrepreneurs (37.5%), while their mothers mostly had another job than what was mentioned (44.5%). Both the students' fathers and mothers mostly graduated from senior high school (41.2% and 40.9%, respectively). Out of the total, 547 respondents (76.6%) had no previous working experience at all and a similar amount (75.2%) had sufficient knowledge of the *Nusantara Sehat* programme.

Binary logistic regression results

Of the 12 independent variables analysed, only three variables had significant results in the χ^2 analysis, namely class programme ($p=0.004$), place of origin ($p=0.028$) and knowledge of *Nusantara Sehat* ($p=0.039$). Only two had a significant effect on the intention of Indonesian nursing students to work in rural areas, namely the class

Table 2 All of the variables measured according to the participating nursing students (n=714)

	Intention to pursue a rural post			
Variable	Yes (%)*	No (%)*	n (%)†	P value
	286 (40.1)	428 (59.9)	714 (100.0)	N/A
Personal factors				
Sex				
Male	96 (44.0)	122 (56.0)	218 (30.5)	0.150
Female	190 (38.3)	306 (61.7)	496 (69.5)	
Age				
Late adolescent (17–25 years)	227 (41.5)	320 (58.5)	547 (76.6)	0.171
Early adulthood (26–35 years)	47 (33.3)	94 (66.7)	141 (19.7)	
Late adulthood (36–45 years)	12 (46.2)	14 (53.8)	26 (3.6)	
Class programme				
Undergraduate regular	175 (44.6)	217 (55.4)	392 (54.9)	0.004‡
Profession regular	24 (42.9)	32 (57.1)	56 (7.8)	
Undergraduate transfer	64 (36.8)	110 (63.2)	174 (24.4)	
Profession transfer	23 (25.0)	69 (75.0)	92 (12.9)	
Environmental factors				
Childhood residence				
Rural	160 (42.7)	215 (57.3)	375 (52.5)	0.134
Urban	126 (37.2)	213 (62.8)	339 (47.5)	
Place of origin				
Rural	163 (43.9)	208 (56.1)	371 (52.0)	0.028‡
Urban	123 (35.9)	220 (64.1)	343 (48.0)	
Parent's income				
Less than regional minimum wages	122 (40.9)	176 (59.1)	298 (41.7)	0.919
Regional minimum wages	109 (39.4)	168 (60.6)	277 (38.8)	
More than regional minimum wages	55 (39.6)	84 (60.4)	139 (19.5)	
Father's occupation				
Civil servant	99 (41.4)	140 (58.6)	239 (33.5)	0.958
Private employee	12 (46.2)	14 (53.8)	26 (3.6)	
Labour/farmer	33 (37.9)	54 (62.1)	87 (12.2)	
Entrepreneur	106 (39.6)	162 (60.4)	268 (37.5)	
Retired	11 (35.5)	20 (64.5)	31 (4.3)	
Others	25 (39.7)	38 (60.3)	63 (8.8)	
Mother's occupation				
Civil servant	72 (42.9)	96 (57.1)	168 (23.5)	0.776
Private employee	7 (33.3)	14 (66.7)	21 (2.9)	
Labour/farmer	11 (50.0)	11 (50.0)	22 (3.1)	
Entrepreneur	68 (37.6)	113 (62.4)	181 (25.4)	
Retired	2 (50.0)	2 (50.0)	4 (0.6)	
Others	126 (39.6)	192 (60.4)	318 (44.5)	
Father's education				
Uneducated	1 (33.3)	2 (66.7)	3 (0.4)	0.248
Elementary school	23 (34.3)	44 (65.7)	67 (9.4)	
Junior high school	39 (41.9)	54 (58.1)	93 (13.0)	
Senior high school	114 (38.8)	180 (61.2)	294 (41.2)	

Continued

Table 2 Continued

Variable	Intention to pursue a rural post		n (%)†	P value
	Yes (%)*	No (%)*		
Undergraduate degree	97 (40.6)	142 (59.4)	239 (33.5)	
Postgraduate degree	12 (66.7)	6 (33.3)	18 (2.5)	
Mother's education				
Uneducated	1 (20.0)	4 (80.0)	5 (0.7)	0.574
Elementary school	40 (34.2)	77 (65.8)	117 (16.4)	
Junior high school	50 (43.1)	66 (56.9)	116 (16.2)	
Senior high school	118 (40.4)	174 (59.6)	292 (40.9)	
Undergraduate degree	71 (42.8)	95 (57.2)	166 (23.2)	
Postgraduate degree	6 (33.3)	12 (66.7)	18 (2.5)	
Working experience				
Yes	70 (41.9)	97 (58.1)	167 (23.4)	0.575
No	216 (39.5)	331 (60.5)	547 (76.6)	
Policy factor				
Knowledge on <i>Nusantara Sehat</i>				
Knowing	203 (37.9)	333 (62.1)	536 (75.2)	0.039‡
Not knowing	83 (46.6)	95 (53.4)	177 (24.9)	

*Percentage within subvariable.

†Percentage of total in variable.

‡Included in binary logistic regression.

N/A, not applicable.

programme of undergraduate regular (OR=2.274; 95% CI 1.326 to 3.900) and profession regular (OR=2.262; 95% CI 1.110 to 4.607), as well as rural place of origin (OR=1.405; 95% CI 1.036 to 1.906) (table 3).

Table 3 Factors affecting the interest of Indonesian nursing students to work in rural areas according to the binary logistic regression results

Variables	OR	95% CI		P value	
		Lower	Upper		
Class programme					
Undergraduate regular	2.274	1.326	3.900	0.003**	
Profession regular	2.262	1.110	4.607	0.025*	
Undergraduate transfer	1.703	0.967	2.999	0.065	
Profession transfer	1	1	1		
Place of origin					
Urban	1	1	1		
Rural	1.405	1.036	1.906	0.029*	
Knowledge of <i>Nusantara Sehat</i>					
Not knowing	1	1	1		
Knowing	0.862	0.588	1.265	0.448	

*p<0.05; **p<0.01.

DISCUSSION

The study shows that almost 6 out of 10 students (59.9%) were reluctant to work in rural areas. This result has a similar proportion to a study by Lori *et al* (54.1%) on the preference of midwifery students to work in rural areas on graduation.¹¹ The studies of Liu *et al* on the preference of medical students towards placement in rural areas¹⁰ and Boadi-Kusi *et al* on the preference of optometry students in opening their first practice in a rural area⁹ also showed similar results with percentages of 66.5% and 65.8% for unwillingness, respectively. The results portray the same reluctance as the nursing students and even other health profession students when it comes to working in rural areas.

The odds of undergraduate regular and profession regular students was 2.274 and 2.262 for having the intention to pursue a rural career, respectively, compared with profession transfer students. This means that regular students are more likely to be interested in working in a rural area, especially those in undergraduate classes which possess the most significant relationship (95% CI 1.326 to 3.900). This finding is supported by a study stating that first year nursing and medical students are more likely to choose a rural career than the final one.^{8 30 31} This means that students with lower study level are more likely to accept assignment to a rural area. A study by Kerr in Australia also revealed that first year students experienced less stress and had less commitment to professional

organisations than their seniors during a rural clinical placement.³² The study showed that the younger students were more flexible in choosing their working placement. Meanwhile, the seniors tended to look at their choices to work in a place permanently or for a long-term period, so they decided on their job assignment carefully. This phenomenon can also be explained by the study of Fields *et al*, which mentioned that most nurses preferred to stay in their current job even when there is an offer to migrate to rural areas.¹⁶ In this study context, it is reasonable to expect that the regular students recruited from senior high school will be more interested in working in rural areas than transfer students who have passed their nursing diploma and who have worked for several years. The junior students may still have a sense of idealism and a desire to contribute to society, while their seniors must prepare for their life after graduation, including their social and economic status, causing them to think pragmatically.

This study found that place of origin, especially rural residence, was associated with the nursing students' intention to practice in rural areas (OR=1.405; 95% CI 1.036 to 1.906). This study implied that students from rural origins had 1.405 greater odds of working in rural areas compared with those from urban places. The findings correspond with several studies which stated that rural origins determine the willingness of nursing and other health students to practise in less developed regions.^{8,9,33–40} The students who had a rural background had a lot of reasons to return to their village or town, such as family considerations and a psychological bond with their hometown.³⁸ Financial reasons can also be strong considerations as working outside their hometown will be more costly, thus influencing their decision to return home after graduation.³⁷ For those who had worked in a healthcare institution in their hometown, especially for transfer students, they will return as a consequence of their employment agreement or return-of-services commitment.³⁹ In addition, another possible explanation in this study is that the last mentioned group may have obtained a scholarship or funding from their institutions or local government to take their nursing degree. A previous study added that rural campuses also contribute to the choice of nursing students to work in rural areas.⁴¹ Because this study was conducted in an urban campus, the number of students who were intentioned to practise in rural areas, regardless of their origins, was still less than those who were not intentioned so.

Even though the knowledge of the *Nusantara Sehat* programme was not related to the intention of the nursing students in working in rural areas, the odds were 0.862 with the 95% CI 0.588 to 1.265. There was a unique finding that the number of students interested in working in rural areas as a nurse was lesser in those who knew about the *Nusantara Sehat* programme than in those who did not know about it. A possible explanation for this result could be due to the partial understanding of the respondents regarding the programme.⁴² It also

shows that the *Nusantara Sehat* programme may need a massive campaign to reach out to nursing students all over Indonesia. The campaign should target young rural resident nurses who are keen to work in their hometown after graduation.

The limitations of this study can be identified from its design, the questions used and the sample's subjectivity. The nature of the cross-sectional approach used limits the study to explaining the cause and effect of the tested variables. Nonetheless, this calls for a further rigorous investigation. Second, the dichotomous questions given to the respondents make the findings insufficient when it comes to explaining the respondent's interest in working in a rural area. Third, the use of questionnaire comes with potential bias from the subjectivity and personal preference involved.

CONCLUSIONS

The factors associated with the intention of nursing students to work in rural areas are class programme and place of origins, while knowledge of the special assignment programme is related to the intention but it does not have significant influence. The nursing students in the regular programme have the most intention to work in rural areas. This is because they are more flexible when it comes to choosing their first job. Meanwhile, family considerations, the psychological bond to their hometown, financial reasons and return-of-service commitments usually force the students with a rural background to come back and work in their hometown.

It is suggested to promote the advantage of working in rural areas to the nursing students beginning from the first year and providing specialist recruitment for students from rural areas to study nursing. The next study should be focused on understanding the reasons and expectations of the Indonesian nursing students regarding their preference for working in rural areas.

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