RESEARCH ARTICLE

Nursing & Health Sciences WILEY

Determinants of nursing students' intention to migrate overseas to work and implications for sustainability: The case of Indonesian students

Ferry Efendi S.Kep.Ns., MSc., PhD[1,2] 🔟 | Hisaya Oda MA[3] |
Anna Kurniati SKM., MA., PhD[4] | Samuel S. Hadjo MPH[5] |
Ima Nadatien SKM., M.Kes[6] | Imelda L. Ritonga S.Kp., MPd., MN[7]

[1]Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia

[2]School of Nursing & Midwifery, La Trobe University, Melbourne, Victoria, Australia

[3]Faculty of Policy Science, Ritsumeikan University, Osaka, Japan

[4]Center for Planning and Management of Human Resources for Health, Ministry of Health of the Republic of Indonesia, Jakarta, Indonesia

[5]Faculty of Nursing, Klabat University, Sulawesi Utara, Indonesia

[6]Faculty of Health Sciences, Universitas Nahdlatul Ulama, Surabaya, Indonesia

[7]Universitas Imelda, Medan, Indonesia

Correspondence
Ferry Efendi, SKep.Ns, MSc, PhD Faculty of Nursing, Universitas Airlangga, Surabaya, Indonesia.
Email: ferry-e@fkp.unair.ac.id

Abstract

High graduation of nurses and limited job opportunities in Indonesia may lead to the emigration of nurses particularly through facilitated migration. This study aimed at identifying the prevalence of Indonesian nursing students with intention to work in Japan and predictors of their intention to migrate as well as having a definite plan to work in Japan. The study adopted cross-sectional design with a sample of 1,407 Indonesian nursing students. Factors associated with having migration intention, as well as a definite plan to work in Japan, were age, residence, and overseas experience. Other factors related to a definite plan to work abroad were family income, mastering a foreign language, knowledge about the nurse migration related to Indonesia-Japan cooperation, and their motivations to migrate to Japan. Sustainability of this international recruitment of nurses is possible by understanding the context of both source and destination countries. Maximizing benefits of migration of nurses for Indonesia and Japan requires structured policies targeting the educational sector and addressing the sustainability issues.

KEYWORDS

emigration and immigration, health workforce, Indonesia, intention, Japan, nursing students

1 | INTRODUCTION

The migration of international nurses and the sustainability of domestic nursing workforce is critically interconnected and interdependent (ICNM, 2015). This critical connection suggests that specific measurement may be applied to support the nursing workforce policy (Buchan, Campbell, Dhillon, & Charlesworth, 2019). However, maintaining a nursing workforce within the national health system is a complex issue for both sending and receiving countries (Efendi, Kurniati, Bushy, & Gunawan, 2019). The current shortage of approximately 9 million nurses and midwives worldwide become a real challenge for any country's health system as the demand of health services increases rapidly due to the population growth, aging population, and the shift of public health burden to non-communicable diseases (World Health Organization, 2016).

Shortage of nurses is also evident in high-income countries. The increased demand for health services would lead to an estimated shortage of 2.5 million nurses in 23 Organization for Economic Co-operation and Development (OECD) countries by 2030 (Scheffler & Arnold, 2019). Japanese Nursing Association expressed concerns over the lower ratio of nurses to population in Japan compared to other developed countries, which could be the reason for highly reported hospital-related incidents and accidents (Japanese Nursing Association, 2013; Lamar, 2000). Japan is estimating to have a shortage of 270,000 nurses by 2025 (Japan Times, 2020). Importing foreign-trained nurses is considered one of crucial policy options to

address the health workforce shortage in developed countries. The effect of economic globalization on the health sector that allows the cross-border mobilization of the health workforce is observed from the increased flows of nurses from developing to developed countries (Jones & Sherwood, 2014).

Within the past decade, the proportion of overseas trained nurses among OECD countries has grown from 11.0% in 2000/01 to 14.5% in 2010/11 (Dumont & Lafortune, 2016). In Japan, the cumulative number of nurses and care workers with a nursing background recruited internationally through a bilateral agreement of Economic Partnership Agreement (EPA) scheme from 2008 to 2016 was 3,858 staff, mostly from Indonesia, Philippines, and Vietnam (Takahashi, 2018). In Indonesia, it is reported that approximately 2% of 253,745 licensed nurses have migrated to work overseas between 2011 and 2014 (MoH, 2015b). In the bilateral labor agreement between The National Board for the Placement and Protection of Indonesian Overseas Workers (BNP2TKI) and Japan International Corporation of Welfare Services (JICWELS), nurses will be hired either as a candidate for a nurse (*Kangoshi*) or a candidate for a care worker (*Kaigofukushishi*). The Kangoshi position is aligned with the academic background of Indonesian nurses, but Kaigofukushishi or the care worker position may be controversial (Efendi, Mackey, Huang, & Chen, 2017) because Kaigofukushishi is seen as a professional worker that is not aligned with nursing skills. Securing any of these two different job positions is depends on the choice of the nurses when they are applying for job. The issue of sending professional nurses as care workers to Japan is not only contentious in Indonesia but also in the Philippines (Ohno, 2012). Despite these concerns, around 75% of Indonesian nurses applicants of EPA program applied for the position of care workers with available data indicating that the pass rate is much higher for care workers than for nurse positions (MoH, 2020).

International nurses' migration can be influenced by personal and economic factors, human rights, and special circumstances in the country (Oda, Tsujita, & Rajan, 2018). Previous studies reveal several personal reasons that drive Indonesian nurses to migrate to Japan for work such as economic factors, more promising career paths, less opportunity to get jobs in their own country, and interest in Japanese culture(Efendi, Chen, Nursalam, Indarwati, & Ulfiana, 2016). The high rate of nurse migration is also influenced by various pull and push factors in both source and destination countries, such as labor market capacity in the health sector, regulations related to immigration and employment, and policies on the health professional registration and licensure system (World Health Organization, 2014).

Indonesia estimates a national surplus of nurses due to a higher number of the nursing workforce compared to the estimated number of nurses required by various health care facilities (MoH, 2019a). International migration is seen by the government of Indonesia as an option to provide more working opportunities as well as international working experience for health workers (MoH, 2015a). With more than 70,000 nurses graduating annually, Indonesia has the potential to send nurses abroad (MoH, 2019a). The increasing number of nurses migrating to Japan shows the desire of Indonesian nurses to work in Japan. Starting from 208 nurses in 2008, by 2019 there are approximately 2,445 Indonesian nurses working in Japan as nurses or careworkers (MoH, 2019b). After more than a decade of EPA, Japan has become the top destination country for Indonesian migrant nurses (MoH, 2019a).

Understanding nursing student's intention and decision to work abroad is essential to inform the policymakers in preparing the nurses to meet the global requirement and sustain the international recruitment under the bilateral agreement program. The migration of Indonesian nurses to Japan is unique regardless of the long history of the bilateral relationship between the two countries. This arrangement may become a role model of global nurse migration that suits the needs and resources of both partners. However, to our best knowledge there is inadequate information on the intentions of nursing students to migrate and work overseas. It is imperative for both source and destination countries to promote reciprocal outcomes from the bilateral cooperation on international migration by considering nurses as the subject. Using the Indonesia-Japan Economic Partnership Agreement (IJEPA) context, the purpose of this study was to identify factors of Indonesian nursing students associated with their intention to migrate and a definite plan to work in Japan.

2 | METHODS

2.1 | Design and sampling

This study adopted a cross-sectional survey design to assess factors related to the Indonesian nursing students' intention to migrate and a definite plan to work in Japan.

The population of the study consists of nursing students of diploma, bachelor, and nursing profession program in Indonesia. There is a 1-year clinical education program for the bachelor program graduates to attain the nurse professional degree. The inclusion criteria for this study were active nursing students from diploma, bachelor, and clinical education program, while the exclusion criteria were nursing students from a transfer or special program. The recruitment invitation email was sent to 20 nursing schools with information regarding the purpose of the study, participants' rights, and the researcher's contact details. From the 20 schools emailed, only five nursing schools responded and contacted the researcher. Consequently, the study participants were drawn from five nursing schools (higher education level), which consist of two public and three private institutions. Three schools were located in the Java region, while the other two schools were located in Sumatera and Sulawesi regions. The non-probability sampling method was applied in selecting the participants by allowing each student to decide their willingness to participate in the online survey (Fricker, 2008). Before the online survey, we had targeted 384 respondents, with a 95% confidence level and assume 50% distribution of results descriptively (Price, Daek, Murnan, Dimmig, & Akpanudo, 2005).

2.2 | Data collection

We carried out a web-based survey. This is an unrestricted self-selected survey, posted on a website that welcomes anyone to participate in the survey (Fricker, 2008). The link to the web survey was sent to all students in the five nursing schools that are on the student social media group. On the first page of the online survey, we provided all information regarding the study, participants' rights, and researcher's contact details. The online survey was set up in a way that the nursing students must click on an agreed button, indicating that they have read the consent letter and agreed to participate. The nursing students could only proceed to the survey questionnaire after given their consent.

Access to the web survey was opened for 3 months from February to April 2017. Approximately 1,410 students responded to the survey, but three respondents did not complete the survey and were excluded from the study. Finally, we included the eligible data of 1,407 respondents for the analysis.

2.3 | Measurements

2.3.1 | Questionnaire

The survey instrument adopted the questionnaire from Santric-Milicevic et al. (2015). The adoption process involved translation into Bahasa Indonesia and cultural adaptation by a panel of bilingual experts in nursing. The questionnaire was then modified to match the context of Indonesian nurses' migration to Japan. Part of the modifications was changing "perception on the household financial situation" to "family income," which was based on the minimum monthly salary per province in Indonesia. The questionnaire consisted of 13 items that represented sociodemographic factors such as age, gender, education program, current academic term, type of the nursing school, residence, marital status, work experience, and family income, as well as factors that facilitate migrating overseas, including the ability to speak a foreign language, knowledge on IJEPA, having a previous overseas experience, and having a relative or friends overseas. All respondents were asked whether they have the intention to migrate to Japan. Respondents who affirmed an intention to migrate to Japan were then asked whether they already have a solid decision to enroll in the recruitment of Indonesian nurses to work in Japan either immediately after graduation or sometime after graduation. The "Yes" answer indicated respondents had a definite plan to work in Japan. The respondents were asked two additional questions to elicit their intention to migrate to Japan, including motivations to migrate and sources of information that encouraged their intention to migrate. To reduce information bias, the questionnaire was trial-tested among selected nursing students to get the feedback.

2.3.2 | Dependent variables

There are two dichotomous dependent variables. The first dependent variable is having the intention to migrate to Japan, which is dichotomized as yes or no. The second dependent variable was having a definite plan to work in Japan, which is also dichotomized as yes or no.

2.3.3 | Independent variables

In the study, only the variable of age was continuous; others were categorical variables. Each independent variable of work experience, ability to speak a foreign language, having overseas experience, and having a relative or friends overseas was dichotomized into yes or no. Respondents were also asked whether they know the bilateral cooperation between Indonesia and Japan through IJEPA to facilitate the migration of nurses. Their responses to this question are dichotomized into yes or no. In Indonesia, the nursing education system is provided at the higher educational level and is divided into the vocational program including Diploma 3 (D3) and Diploma 4 (D4) and the academic program (Strata 1 [S1] or bachelor degree). Diploma 3 nursing offers a 3-year full-time education, in which the graduates obtain an associate degree in nursing. Diploma 4 nursing offers a 4-year full-time education, which is equivalent to S1 or bachelor degree in nursing. Graduates of Diploma 3 nursing would need an additional 1 year of education in D4 program or 2 years in S1 program to obtain a bachelor degree in nursing. The nursing profession has a 1-year clinical education program for D4 and S1 nursing graduates that they must complete before taking the nursing competency examination. Those who have passed the nursing competency examination are certified as registered nurses (level 7 of the national nursing qualification framework). Therefore, because of the variable of the educational program, we categorized respondents into two groups. The first group consisted of those who enrolled in the diploma or bachelor program, and the second included those who were in the nursing profession education program. The variable of the academic term was dichotomized into those who were in early or middle semester and those who were in final semester. The variable of family income was categorized based on the median level of the 2017 provincial minimum monthly salary at approximately 2 million Indonesia rupiahs (IDR 2,000,000 = ± USD 167) (Humas-Setkab, 2016). For the dependent variable of having a definite plan to work in Japan, two variables from two open-ended questions (motivations to migrate and source of information) were added. Each variable was divided into three categories by grouping the respondents' answers. The variable of motivations to migrate included categories of salary or income, professional career or experience, and Japanese culture. Source of information was categorized into school, social media, and other sources. The independent and dependent variables as depicted in Figure 1.

2.4 | Statistical analysis

Statistical analyses included descriptive analysis and multiple logistic regression analysis. Two logistic regression analyses were performed to obtain an adjusted probability ratio (OR) using 95% confidence

Independent variables
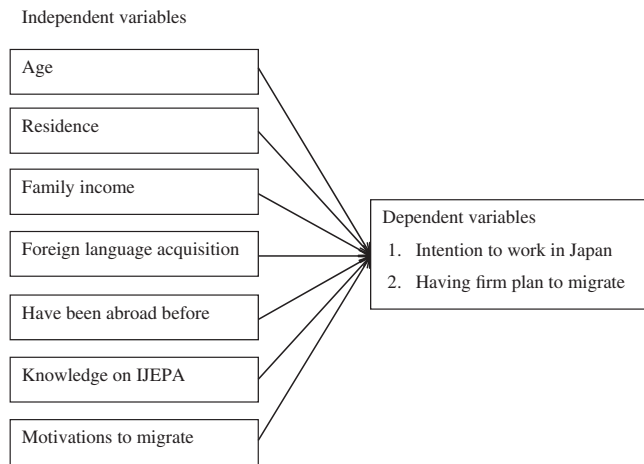
FIGURE 1 Independent and dependent variables of this study

interval (CI) and a significant level of $P \leq 0.05$. The first logistic regression analysis was to assess the association between the independent variables and the intention to migrate to Japan. All independent variables of age, gender, educational program, academic term, type of the nursing school, residence, marital status, family income, foreign language acquisition, knowledge on IJEPA, having previous overseas experience, and having a relative or friends overseas were entered into the equation at the same time. The second was to identify the relationship between the independent variables and having a definite plan to work in Japan. In this second logistic regression analysis, all independent variables in the first regression analysis and additional two variables of motivation to migrate and source of information were also entered simultaneously in the analysis. The Hosmer and Lemeshow test was applied to assess the goodness of fit for the regression models. The test results for the first and the second logistic regressions showed that $P > 0.05$, indicating that the data fit the regression models well. The IBM SPSS Statistics version 24 was used for the analysis.

2.5 | Ethical consideration

This study received ethical approval from the Universitas Klabat number 01/UK.LP/SKE/1 in 2017. As this survey is using an online platform, we provided information regarding the study and sought the participants' consent.

3 | RESULTS

3.1 | Characteristics of respondents

The mean age of the 1,407 respondents is 20.83 ± 1.92 years. About 91.3% of the respondents (*n* = 1,284) reported having an intention to migrate to Japan as shown in Table 1. The majority of the respondents are female (69.9%) and undergoing a diploma or bachelor degree

program in nursing (91.0%), mostly in private nursing schools (92.8%). Most of the respondents were in their early and middle semester of the academic term (74%) at the time of the survey. Respondents are mostly residing in regions outside Java (69.6%). A majority of the respondents are unmarried at the time of the interview (98.2%). Of the total respondents, only 15 respondents (1.1%) reported having work experience and all of them indicated their intention to work in Japan. Therefore, the variable of work experience was excluded from the data analysis. More than half of the respondents reported coming from families with a monthly income lower than the median level of 2017 provincial minimum income. About 66.2% of the respondents reported having acquired foreign language proficiency. Surprisingly, most students (81.2%) reported having overseas experiences, although most of them (62.3%) had no family living overseas. More than half of the respondents affirmed that they have no knowledge of IJEPA.

Among those with an intention to migrate, there was an almost equal proportion between those without a definite plan to work in Japan (49.9%, *n* = 641) and those with a definite plan to work in Japan (50.1%, *n* = 643), as presented in Table 2. Pursuing a professional career or experience in nursing has become the main motivation for most respondents who intend to work in Japan (56.9%). Most of the respondents (79.8%) cited social media as their main source of information about nursing work opportunities in Japan.

3.2 | Factors of an intention to migrate and a definite plan to work in Japan

Table 3 presents the results of two sets of logistic regression analyses. Only independent variables with significant association to the dependent variables were presented in this table. In the first regression analysis, only three independent variables have a significant association with the intention to migrate to Japan; these are age, residence, and having previous overseas experience. Other variables, which include gender, education program, academic term, type of the nursing school, marital status, family income, foreign language acquisition, knowledge on IJEPA, and having a relative or friends overseas showed no significant association with the intention to migrate to Japan. It was revealed that every increase of age by 1-year lowers the likelihood of respondents' intention to migrate by 17%. Furthermore, respondents who live in Java region are less likely to have migration intentions than those from other regions (OR = 0.33; 95% CI = 0.15–0.71). Having experience of going overseas either for academic or non-academic purposes increases the likelihood of migration intentions by more than 37 times (95% CI = 21.14–67.13).

The second regression analysis included only participants with the intention to migrate. The analysis yielded results of seven independent variables associated with having a definite plan to work in Japan. These significant variables are age, residence, family income, foreign language acquisition, having previous experience abroad, knowledge on IJEPA, and migration motivations. An increase in the age by 1 year will increase the chance of having a definite plan to

TABLE 1 Characteristics of respondents with intention to migrate to Japan (N = 1,407)

Variable	No, *n* (%)	Yes, *n* (%)	Total, *n* (%)
		Intention to migrate to Japan	
Sex			
Female	95 (77.2)	889 (69.2)	984 (69.9)
Male	28 (22.8)	395 (30.8)	423 (30.1)
Education program			
Diploma/bachelor	112 (91.1)	1,169 (91.0)	1,281 (91.0)
Nursing profession	11 (8.9)	115 (9.0)	126 (9.0)
Academic term			
Early/mid semester	75 (61.0)	966 (75.2)	1,041 (74.0)
Final semester	48 (39.0)	318 (24.8)	366 (26.0)
Residence			
Java region	114 (92.7)	419 (32.6)	428 (30.4)
Other regions	9 (7.3)	865 (67.4)	979 (69.6)
Type of school			
Private	117 (95.1)	1,189 (92.6)	1,306 (92.8)
Public	6 (4.9)	95 (7.4)	101 (7.2)
Marital status			
Not married	119 (96.7)	1,262 (98.3)	1,381 (98.2)
Married	4 (3.3)	22 (1.7)	26 (1.8)
Work experience			
No	123 (100.0)	1,269 (98.8)	1,392 (98.9)
Yes	0 (0.0)	15 (1.2)	15 (1.1)
Family income			
≤2 million	58 (47.2)	705 (54.9)	763 (54.2)
>2 million	65 (52.8)	579 (45.1)	644 (45.8)
Foreign language acquisition			
No	50 (40.7)	426 (33.2)	476 (33.8)
Yes	73 (59.3)	858 (66.8)	931 (66.2)
Have been abroad before			
No	106 (86.2)	158 (12.3)	264 (18.8)
Yes	17 (13.8)	1,126 (87.7)	1,143 (81.2)
Have family/friend abroad			
No	87 (70.7)	789 (61.4)	876 (62.3)
Yes	36 (29.3)	495 (38.6)	531 (37.7)
Knowledge on IJEPA			
No	85 (69.1)	673 (52.4)	758 (53.9)
Yes	38 (30.9)	611 (47.6)	649 (46.1)
Total	123 (8.7)	1,284 (91.3)	1,407 (100.0)

work in Japan by 10%. Respondents from Java region are also less likely to have a definite plan to migrate than those from other regions (OR = 0.51; 95% CI = 0.37–0.69). Respondents with monthly family income that is higher than the median level of provincial minimum salary (>IDR 2,000,000) are less likely to have a migration plan (OR = 0.47;

95% CI = 0.36–0.61). Respondents proficient in a foreign language are two times more likely to have a definite plan to migrate than those without foreign language proficiency (95% CI = 1.855–3.285). Overseas experience also increases the likelihood of respondents to have a migration plan by 4.6 times (95% CI = 2.60–8.17). Respondents who

Variable	Definite plan to work to Japan		
	No, n (%)	Yes, n (%)	Total, n (%)
Motivations to migrate			
Salary/income	79 (12.3)	54 (8.4)	133 (10.4)
Professional career/ experience	261 (40.7)	470 (73.1)	731 (56.9)
Japanese culture	301 (47.0)	119 (18.5)	420 (32.7)
Source of information			
Others	41 (6.4)	18 (2.8)	59 (4.6)
School	89 (13.9)	111 (17.3)	200 (15.6)
Social media	511 (79.7)	514 (79.9)	1,025 (79.8)
Total	641 (49.9)	643 (50.1)	1,284 (100.0)

TABLE 2 Motivations and source of information among respondents with regard to their firm plans to work in Japan (N = 1,284)

TABLE 3 Predictors of nursing students having an intention to migrate and a definite plan to work in Japan

Independent variable	Intention to migrate to Japan OR (CI 95%)	Definite plan to work in Japan OR (CI 95%)
Age	0.83 (0.72–0.97)*	1.10 (1.02–1.21)*
Residence		
Other regions	1.00	1.00
Java region	0.33 (0.15–0.71)**	0.51 (0.37–0.69)***
Family income		
≤2 million		1.00
>2 million		0.47 (0.36–0.61)***
Foreign language acquisition		
No		1.00
Yes		2.469 (1.855–3.285)***
Have been abroad before		
No	1.00	1.00
Yes	37.67 (21.14–67.13)***	4.61 (2.60–8.17)***
Knowledge on IJEPA		
No		1.00
Yes		2.83 (2.17–3.70)***
Motivations to migrate		
Salary/income		1.00
Professional career/ experience		2.91 (1.89–4.47)***
Japanese culture		0.832 (0.51–1.37)

*P < 0.05.
**P < 0.01.
***P < 0.001.

have knowledge on IJEPA were 2.83 times more likely to have definite decisions compared to respondents without knowledge of IJEPA. Compared to salary or income, gaining professional experience or career development was 2.91 times more likely to influence the respondents' motivation to plan their migration to Japan (95% CI = 1.89–4.47).

4 | DISCUSSION

In this study, the target students who had expressed interest to migrate to Japan consisted of 1,284 students (91.3%). Previous studies investigating the nursing student's intention to migrate also reported a higher proportion of those who expressed willingness to

migrate such as in Serbia (Santric-Milicevic et al., 2015), South Korea (Lee & Moon, 2013), and Uganda (Nguyen et al., 2008). The high proportion of Indonesian nursing students who indicated the intention to migrate to Japan might reflect the need to enter a nursing career in the international job market beyond the domestic health sector employment. In addition, the government's facilitation might be the driving force for this migration.

4.1 | Determinants of having the intention to migrate and to work in Japan

In this study, for an additional 1 year of age, the likelihood of having the intention to migrate decreases. In contrast, the probability to set up a definite plan to migrate increases along with the increase in the respondents' age. Earlier studies also reported that age is a strong predictor for student's intention to work abroad. A study of Serbian specialist nursing graduates found that the intention to migrate lowered by 10% along with every increase in age (Santric-Milicevic et al., 2015). Similarly, younger Israeli nurses are more likely to consider to migrate than the older ones (Hendel & Kagan, 2011), which is similar to a study of Ghanaian nurses conducted by Boafo (2016). This finding suggests that while the intention to migrate tends to diminish when the students get older, the willingness to realize the migration plan might get stronger for older students who already have considered migration.

It is interesting to learn that nursing students from nursing schools in the Java region are less likely to have either a migration intent or decision to migrate. Some possible explanations might relate to the different employment opportunities among regions and the cultural obligation. Compared to other regions in Indonesia, the Java region may offer more nursing job opportunities as it has more national hospitals with better facilities, numerous private hospitals, and other types of health facilities. Java regions experienced a higher increase of the hospital growth rate and the number of hospital beds than other regions at approximately 7–8% between 2012 to 2017 (Trisnantoro, 2017). According to the Indonesia National Statistics, the half unemployment rate in provinces within the Java region is below the national level benchmark of 6.62% (BPS, 2018). The low half unemployment rate in Java reflects the high proportion of utilized manpower and decent works available in this region. In addition, 60.74% of businesses/companies were located in the Java region while, only 39.26% in other regions (BPS, 2018). Students from the Java region might be less interested in migration because of their feelings about their families or communities. A qualitative study among Fiji physicians informed the importance of cultural commitment, including family responsibility and participation in cultural rites that prevent them from leaving the country (Oman, Moulds, & Usher, 2009).

Although the variable of family income was not significantly associated with the intention to migrate, this variable has a significant association with a definite plan to migrate among those with migration intent. The respondents from families with a higher income might

be less interested in migrating than those from a lower-income family. A previous study found that Indonesian nurses who came from economically burdened families relocate to Japan for a better salary (Hirano & Wulansari, 2009). In Indonesia, the median level of nurse's monthly salary is approximately USD 348 (IDR 4,185,000); however, about 28.4% of nurses are paid below the minimum provincial wage (Balitbangkes, 2018). In Japan, nurse candidates may receive a monthly salary from USD 1000 to USD 1800, whereas certified nurses can get a higher salary from USD 1300 to USD 2000 per month (Efendi et al., 2017). By migrating abroad, the Indonesian nurses in Japan expect to get a higher salary to improve their family income. The amount of remittances from overseas workers in developing countries is increasing, and this is the most stable external financial source (Allison Squires & Amico, 2015).

Nursing students with overseas experience are more likely to have migration intent or to set up a plan to migrate. Their previous experience of being in abroad might provoke their insight and give them an idea about the possibility of working and living overseas. Moreover, language is one of the important factors that affect a nurse's decision to migrate to Japan in this study. The nurses' proficiency in speaking a foreign language is among the main factors that motivate them to desire to work abroad (Buchan, 2006). The acquisition of a foreign language may increase the confidence of nursing students to enter a global job market competition. It should be noted, however, that most of the respondents reported being familiar with English rather tan Japanese. Trends in nurse mobility were closely linked to the language capability in which mastering the language of destination countries might be beneficial to the prospective nurses to work there (A Squires, Ojemeni, & Jones, 2016). Nursing students might think that their communication skill in either English or Japanese would help acclimatize them to Japan's work life.

Another interesting finding in this study is that respondents with knowledge about IJEPA are more likely to plan their migration than str those without such knowledge. Knowing that this recruitment program is facilitated by both the government of Indonesia and the government of Japan, nursing students might find it attractive and plan to benefit from it. A bilateral agreement in international recruitment is believed to offer better protection on the right of Indonesian nurses migrated to Japan (Efendi et al., 2017). However, it is unclear whether the respondents fully understood the job positions offered in IJEPA. Most Indonesian nurses have returned to Indonesia due to contract termination as a result of failing the national examination. Some of the returnees, especially those who worked as care workers in Japan, complained that they were shocked to realize the job difference between nurses and care workers after they started work (Kurniati, Chen, Efendi, & Ogawa, 2017). Moreover, neglected or poor nursing skills and low level of confidence were common issues pointed out by some of the returnees from Japan who worked as care workers. Some Filipino nurses are willing to work as domestic care givers in Canada to gain Canadian citizenship for their family, improved lifestyle, and a higher social status (Salami, Nelson, Hawthorne, Muntaner, & Mcgillis Hall, 2014). This could be a similar reason for some of the Indonesian nurses who were aware of job differences and still want to emigrate.

On sources of information about migration to Japan, social media was mentioned by most of the respondents as their source of information.

This study also showed that nursing students who are motivated to develop a career or gain professional experience are more likely to have a definite migration plan than nursing students with monetary motives. Indonesian nursing students might want to have work experience with a country that has a better health care system and is supported by advanced medical technologies while also offering a higher salary than their country of origin. A similar phenomenon was found among Korean nurses who reported that some of their motivation to migrate to Japan includes salary, professional development, and knowledge acquired (Lee, 2016). Previous studies reported that push factors that influence nurses' migration to other countries include low wages, low job satisfaction, poor working environment, and high workload (Dywili, Bonner, & O'Brien, 2013). The low opportunity to develop a career in the country of origin is also a factor that drives students to migrate (Santric-Milicevic et al., 2015). Interest in Japanese culture was not significantly associated with nursing students' definite plans to migrate. A previous study by Hirano, Ogawa, and Ohno (2010) also reported that interest in Japanese culture did not significantly influence Indonesian nurses to work in Japan. However, it was a significant reason for unmarried Filipino nurses to migrate to Japan (Hirano et al., 2010).

4.2 | Study implication

Our study reveals that nurses' migration to Japan is attractive to most of the Indonesia students, but only less than half of the students have a definite plan to migrate. Recruitment of Indonesia nurses to fill the job position as a nurse candidate in Japan require at least 1 year of working experience. Only a few respondents in this study have at least 1-year work experience. Lack of work experience might discourage them to have a definite plan at an early stage, although the idea of migration is still attractive to them. Considering the high interest among nursing students, migration of Indonesia nurses to Japan under IJEPA might still be sustainable in the future. With the decrease of the 18-year-old population, despite the growing nursing schools being opened, Japan will still struggle to improve the domestic demand for nurses to achieve the increased needs for elderly care by 2025 (Yamashita & Miyatake, 2018). It seems that Japan will continue to recruit international nurses as one of the strategies to reduce the negative effect of the shortage of nurses. The government of Indonesia may expand a further collaboration with the government of Japan in building an internship program for Indonesian nursing fresh graduates to help them having a minimum working experience in clinical settings in Indonesia before migrating to Japan.

From the sending country perspective, Indonesia has enough nurses to satisfy the domestic nursing workforce demand. Therefore, sending nurses overseas would provide an expanded working opportunity. Accurate information about the international recruitment of nurses under IJEPA should be made available to all nursing students as well as practicing nurses. The government of Indonesia or the

Indonesian Nurses Association might use various media. Using social media platforms to provide official and accountable information would be useful to stop false information delivered by irresponsible people. Nursing students should be provided with a clear picture about the migration prospect, the recruitment and selection process, the job difference between a candidate nurse and a care worker, the work ethic in Japanese culture, the contract duration, and the salary range, as well as other facilities offered, so that they can assess all these information before deciding to emigrate to Japan. In addition, the nursing students should understand the preparation aspects of the migration including the language level proficiency required and work experience.

In general, nursing students plan to migrate with an expectation to obtain international nursing work experience and have better career development. Therefore, the recruitment of Indonesia nurses to Japan should apply different intake for the nursing jobs and caregiving jobs. For the candidate nurse position, the academic recruitment criteria should be diploma/bachelor graduates or those bachelor nurses with professional education. However, academic recruitment criteria for the care workers should be limited to diploma graduates. Japan should ensure that international nurses including Indonesian have an equal opportunity within the Japanese nursing career development system to improve the nurse retention. On the other hand, the government of Indonesia also needs to provide clear information about the potential downgrade of nursing skills for Indonesian nurses who apply for the position of a care worker. A reintegration program should also be in implemented by the government of Indonesia to utilize skills and experience of Indonesian nurses after returning to Indonesia. These strategies are important to among nurses if they wish to return to Indonesia and to support the national nursing workforce (Kurniati et al., 2017).

To support the sending country, the bilateral agreement should be optimized to support Indonesia in improving health worker skills in elderly care. Nursing schools should have a curriculum on elderly care that is of international demand. A special content related to the Japanese nursing care system might be added with support from the Japanese counterpart. Another support can be expected from Japan by developing a care giver training program among health workers in elderly care in Indonesia. Sustainability of this bilateral scheme may need to be addressed by involving stakeholders, especially those from sending country perspective. Structured policies should be developed to link the educational sector and the destination countries to maximize the benefit of this bilateral relationship.

4.3 | Limitations

There are several limitations of this study; so, caution is required in interpreting the result. First, this study is a cross-sectional survey, thus the causal relationship was not determined. Second, we applied non-probability sampling in recruiting the study participants, which will likely lead to a biased sample and limits the generalizability of the findings. One questionnaire item about the knowledge on IJEPA was

based on subjective "yes or no" answer of the study participants, instead of using a measurement indicator, therefore caution is required to understand this context. Moreover, only the students who joined the social media group of the school and received information about this study were included. Third, as this is an online survey, there is a possibility that some of the respondents may not understand the instruction or the questions, thus affecting the reliability of their responses.

5 | CONCLUSIONS

The intention of nursing students in Indonesia to work overseas especially in Japan is very high, with expectations particularly to improve their career and nursing experience. Improving the knowledge of recruitment of nurses under IJEPA along with other important information would be beneficial for prospective applicants from Indonesia. To increase the nursing students' interest to work in Japan, the Japanese language and nursing care system might need to be introduced into the Indonesian nursing curriculum. Incorporating this subject as the curriculum local content might help the nursing students to prepare ahead of such tasks. Introducing the Japanese language and nursing care system among Indonesian nursing students might increase their interest to work in Japan. The migration scheme of Indonesian nurses under IJEPA cooperation could be strengthened by addressing the need of both sending and destination countries in managing the sustainable nursing workforce within their national health system.

AUTHOR CONTRIBUTIONS
Study design: F.E., H.O., A.K., S.S.H., I.N., and I.L.R.

Data collection: F.E., A.K., S.S.H., I.N., and I.L.R.

Data analysis: F.E., H.O., A.K., S.S.H., I.N., and I.L.R.

Manuscript writing and revisions for important intellectual content:

F.E., H.O., A.K., S.S.H., I.N., and I.L.R.

ORCID
Ferry Efendi https://orcid.org/0000-0001-7988-9196

REFERENCES
Balitbangkes. (2018). Laporan riset tenaga kesehatan tahun 2017 (Report of The 2017 Health Workforce Survey). Jakarta, Indonesia: Kemenkes RI.

Boafo, I. M. (2016). Ghanaian nurses' emigration intentions: The role of workplace violence. International Journal of Africa Nursing Sciences, 5, 29–35.

BPS. (2018). The Half Unemployment Rate By Province, 2015-2018 (Tingkat Setengah Pengangguran Menurut Provinsi, 2015 - 2018). BPS.

Buchan, J. (2006). The impact of global nursing migration on health services delivery. Policy, Politics, & Nursing Practice, 7((SUPPL 3)), 16S–25S.

Buchan, J., Campbell, J., Dhillon, I., & Charlesworth, A. (2019). Labour market change and the international mobility of health workers. Health Foundation working paper number 5.

Dumont, J. C., & Lafortune, G. (2016). International migration of doctors and nurses to OECD countries: Recent trends and policy implications. In Health Employment and Economic Growth: An Evidence Base. Ginebra: Organización Mundial de La Salud.

Dywili, S., Bonner, A., & O'Brien, L. (2013). Why do nurses migrate? - a review of recent literature. Journal of Nursing Management, 21(3), 511–520.

Efendi, F., Chen, C.-M. C.-M., Nursalam, N., Indarwati, R., & Ulfiana, E. (2016). Lived experience of Indonesian nurses in Japan: A phenomenological study. Japan Journal of Nursing Science, 13(2), 284–293.

Efendi, F., Kurniati, A., Bushy, A., & Gunawan, J. (2019). Concept analysis of nurse retention. Nursing & Health Sciences, 21, 422–427.

Efendi, F., Mackey, T. T. K. K., Huang, M.-C. M., & Chen, C.-M. C. (2017). IJEPA: Gray area for health policy and international nurse migration. Nursing Ethics, 24(3), 313–328.

Fricker, R. D. (2008). Sampling methods for web and e-mail surveys. In The SAGE handbook of online research methods (pp. 195–216). London: SAGE Publications.

Hendel, T., & Kagan, I. (2011). Professional image and intention to emigrate among Israeli nurses and nursing students. Nurse Education Today, 31(3), 259–262.

Hirano, Y. O., Ogawa, R., & Ohno, S. (2010). A comparative survey on Indonesian and Filipino nurse candidates coming to Japan under the economic partnership agreements: An analysis of the results of questionnaire surveys on socio-economic attribution of the respondents and their motivations to go to. Bulletin of Kyushu University Asia Center, 5, 153–162 http://ci.nii.ac.jp/naid/120002342314/en/

Hirano, Y. O., & Wulansari, S. A. (2009). The Japan-Indonesia economic partnership agreement through the eyes of Indonesian applicants: A survey and a focus group Discussion with Indonesian nurses. Bulletin of Kyushu University Asia Center, 3, 77–90.

Humas-Setkab. (2016). Tertinggi DKI Jakarta Rp 3,335 Juta, Upah Minimum Provinsi Rata-Rata Naik 8,25 Persen (DKI has the highest salary at Rp 3,335 million, The minimum provincial salary increased by 8.25 percent). Jakarta: Setkab RI.

ICNM. (2015). Nursing workforce sustainability: The international connection. Geneva, Switzerland: International Center on Nurse Migration.

Japan Times. (2020). Japan could face shortage of 270,000 nursing staff by 2025, ministry warns. The Japan Times. Accessed May 8, 2020 at https://www.japantimes.co.jp/news/2019/10/22/national/japan-shortage-270000-nurses-2025/#.XrUkwMC-nb1

Japanese Nursing Association. (2013). Working Condition in Japan. Japanese Nursing Association. Accessed March 2, 2019 at http://www.nurse.or.jp/jna/english/nursing/employment.html#employment

Jones, C. B., & Sherwood, G. (2014). The globalization of the nursing workforce: Pulling the pieces together. Nursing Outlook, 62(1), 59–63.

Kurniati, A., Chen, C.-M., Efendi, F., & Ogawa, R. (2017). A deskilling and challenging journey: The lived experience of Indonesian nurse returnees. International Nursing Review, 64(4), 494–501.

Lamar, J. (2000). Shortage of nurses in Japan leads to high accident rate. BMJ, 320(7246), 1362.

Lee, E. (2016). Factors influencing the intent to migrate in nursing students in South Korea. Journal of Transcultural Nursing, 27(5), 529–537.

Lee, E., & Moon, M. (2013). Korean nursing students' intention to migrate abroad. Nurse Education Today, 33(12), 1517–1522.

MoH (2015a). PMK RI No. 37 Tahun 2015 Tentang Pendayagunaan Tenaga Kesehatan ke Luar Negeri. In Kementerian Kesehatan Republik Indonesia: Vol. No. 740 (Issue 740), Jakarta: Kementerian Kesehatan Republik Indonesia.

MoH. (2015b). Rencana Kebutuhan SDM Kesehatan Tahun 2015 (Health Workforce Requirement Plan 2015) ((BPPSDMK). Jakarta, Indonesia: Kementerian Kesehatan RI.

MoH. (2019a). Human resources for health country profiles: Indonesia. Jakarta, Indonesia: Kemenkes.

MoH. (2019b). Rencana Kebutuhan SDM Kesehatan Tahun 2019 (Health Workforce Requirement Plan 2019). Jakarta, Indonesia: Kementerian Kesehatan RI.

MoH. (2020). *Kebijakan pendayagunaan SDM kesehatan ke luar negeri (Policy on empowerment of human resources for health overseas)*. Jakarta, Indonesia: Kementerian Kesehatan RI.

Nguyen, L., Ropers, S., Nderitu, E., Zuyderduin, A., Luboga, S., & Hagopian, A. (2008). Intent to migrate among nursing students in Uganda: Measures of the brain drain in the next generation of health professionals. *Human Resources Health*, 6, 5.

Oda, H., Tsujita, Y., & Rajan, S. I. (2018). An analysis of factors influencing the international migration of Indian nurses. *Journal of International Migration and Integration*, 19(3), 607–623.

Ohno, S. (2012). Southeast Asian nurses and caregiving workers transcending the national boundaries. *Japanese Journal of Southeast Asian Studies*, 49(4), 541–569.

Oman, K. M., Moulds, R., & Usher, K. (2009). Specialist training in Fiji: Why do graduates migrate, and why do they remain? A qualitative study. *Human Resources for Health*, 7(1), 9.

Price, J. H., Daek, J. A., Murnan, J., Dimmig, J., & Akpanudo, S. (2005). Power analysis in survey research: Importance and use for health educators. *American Journal of Health Education*, 36(4), 202–209.

Salami, B., Nelson, S., Hawthorne, L., Muntaner, C., & Mcgillis Hall, L. (2014). Motivations of nurses who migrate to Canada as domestic workers. *International Nursing Review*, 61(4), 479–486.

Santric-Milicevic, M., Matejic, B., Terzic-Supic, Z., Vasic, V., Babic, U., & Vukovic, V. (2015). Determinants of intention to work abroad of college and specialist nursing graduates in Serbia. *Nurse Education Today*, 35(4), 590–596.

Scheffler, R. M., & Arnold, D. R. (2019). Projecting shortages and surpluses of doctors and nurses in the OECD: What looms ahead. *Health Economics, Policy and Law*, 14(2), 274–290.

Squires, A., Ojemeni, M. T., & Jones, S. (2016). Exploring longitudinal shifts in international nurse migration to the United States between 2003 and 2013 through a random effects panel data analysis. *Human Resources for Health*, 14, 21.

Squires, A., & Amico, A. (2015). An integrative review of the role of remittances in international nurse migration. *Nursing: Research & Reviews*, 14(21), 11–21.

Takahashi, K. (2018). Japan's immigration policy and the EPA between The Philippines and Japan. *Yamagata University Human and Social Science Journal*, 15(3), 161–170.

Trisnantoro, L., & Listyani. (2017). *The number of hospitals in Indonesia, the growth of general hospitals (Jumlah RS di Indonesia, Pertumbuhan RS Publik)*. Accessed July 2, 2019 at https://manajemenrumahsakit.net/kanal-persi/jumlah-rumahsakit-di-indonesia-data-nasional/

World Health Organization. (2014). *Migration of health workers WHO code of practice and the global economic crisis* (Vol. 2015, Issue 2 February). Geneva, Switzerland: World Health Organisation.

World Health Organization. (2016). *Global strategy on human resources for health: Workforce 2030*. Geneva, Switzerland: World Health Organisation.

Yamashita, M., & Miyatake, Y. (2018). Nursing schools on the increase as the 18 year old population decreases in Japan. *Nursing & Health Sciences*, 20(3), 276–282.