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ORIGINAL ARTICLE

## Factors Related to Japanese Nurses' Tolerance Toward Indonesian Nurse Trainees

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### ABSTRACT

**Objectives:** This study aimed to clarify factors related to Japanese nurses' tolerance toward Indonesian nurse trainees.

**Methods:** We conducted a self-administered questionnaire survey from May 21, 2015 to June 13, 2015 targeting Japanese nurses in a hospital accepting Indonesian nurse trainees.

**Results:** We received responses from 97 of the 109 participants (collection rate: 89%, valid response rate: 100%). "Length of education," "overseas travel experience," "number of countries traveled," "length of stay," and "foreign language learning experience" were significantly related to tolerance and this supported results from previous research targeting residents. Foreign language learning experience had a significantly greater influence on increasing tolerance compared to agreement with policies on introducing foreign nurses. These are important findings when considering future nurse education and smooth cooperation with foreign nurses.

**Conclusion:** Factors related to tolerance were length of education and experience with different cultures.

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Economic Partnership Agreement (EPA), foreign nurse, indonesian, nurse trainee, tolerance

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## I. Background

Cross-border movement of nurses has increased sharply since the 1990s with economic globalization, declining birthrates, and aging populations in developed countries. According to an Organization for Economic Cooperation and Development (OECD) report, the average ratio of foreign-born nurses working in OECD countries rose from 11.0% in 2000 to 14.5% in 2010. The number of immigrant doctors and nurses in OECD countries increased 84% between 2000 and 2010 (OECD, 2015). Specifically, a marked tendency exists for moves from developing nations to industrialized nations (Yamamoto & Higuchi, 2015; WHO, 2006).

With the signing of the bilateral Economic Partnership Agreement (EPA), Japan also began accepting foreign nurse trainees from Indonesia in 2008, the Philippines in 2009, and Vietnam in 2014. One hospital facility in prefecture A began accepting Indonesian nurse trainees in 2009. Apart from the EPA, there are annually increasing numbers of foreign nurses who meet the fixed conditions outlined by the Ministry of Health, Labor, and Welfare, take the Japanese national nursing exam, and work in Japan (Bu & Aoyagi, 2015).

Although no research thus far exists on Japanese nurses working alongside foreign nurses in Japan, research on accepting foreign nurses has begun in Japan after the EPA signing. However, most of this research was on the original countries' nursing education and nursing systems, and were surveys of Japanese nurses and nursing students on the positives and negatives of accepting foreign nurses.

Writing about Japan's acceptance of foreigners, Kozakai states that although Japan welcomes information and concepts from different cultures, it also rejects the actual people who create and bring those things (Kozakai, 1996). Previous research has also shown that most nurses have negative feelings toward foreign nurses (Kawaguchi, 2009; Takahashi, 2014).

Considering Japan's declining birthrate, aging population, and nurse shortage, as well as the global trend of cross-border nurse expansion, it is predicted that opportunities to work alongside foreign nurses will increase in the future. Therefore, it is essential to work together to minimize friction between those from different cultural backgrounds. Yasuda reports that tolerance of people who are different is important in promoting cooperation, building trust, and generating smooth business conduct with foreigners when accepting foreign workers of different cultural backgrounds into the Japanese workplace (Yasuda, 2009). Tolerance among people in the accepting majority is thought to lead to intercultural adjustment for foreigners and understanding on both sides (Adachi, 2008).

The relationships between tolerance of foreigners and "age," "academic background," and "experience with foreigners and different cultures" have been widely reported within the domestic and foreign sociology and social psychology fields. Tolerance of foreigners is

generally greater the younger someone is (Tanabe, 2001; Matsumoto, 2004; Hirota, Machimura, Tajima et al., 2006; Mori, 2006; Ito, 2011; Nukaga, 2006; Ohtsuki, 2006; Mazumi, 2015; Bettelheim, 1949; Quillian, 1995), the longer the length of education (Tanabe, 2001; Ito, 2011; Nukaga, 2006; Ohtsuki, 2006; Mazumi, 2015; Bettelheim, 1949; Quillian, 1995; Morioka, 2000), and the more contact someone has with foreigners and different cultures (Tanabe, 2001; Matsumoto, 2004; Hirota, Machimura, Tajima et al., 2006; Mori, 2006; Ito, 2011; Nukaga, 2006; Mazumi, 2015; Ohtsuki, 2007; Hamada, 2008; Nagayoshi, 2008; Lee, 2009; Allport, 1954; Cook, 1978; Brown, 1995). Furthermore, women are more tolerant of people with different traits compared to men and have less resistance to cooperating with foreigners (Yasuda, 2009). However, in the nursing field, a lack of research exists regarding the tolerance of foreign nurses and the relationship with personal attributes that have been outlined in previous studies.

Psychology research on acceptance when a group takes in a new member suggests that the stronger the identification with the existing group, the greater the tolerance of the new member (Uemura, 2001). However, no research currently addresses this relationship in facilities accepting foreign nurses.

Policies on accepting foreign nurses require careful discussion as a nation, and future studies on policy evaluation and education content are needed. At the same time, however, in order for foreign nurses and Japanese nurses to work alongside each other while promoting mutual adaptation and understanding, Japanese nurses' tolerance of individual foreign nurses is a necessary requirement when considering future cooperation with foreign nurses.

Therefore, our study aim is to clarify the factors related to Japanese nurses' tolerance toward Indonesian nurse trainees.

In considering the impact of differences in countries' culture and religions on Japanese nurses' tolerance, we limited this study to Indonesian nurse trainees at one facility in order to eliminate the influence of accepting facilities' conditions and regional characteristics.

## II. Operational Definitions of Terms

**Tolerance:** Showing an understanding of Indonesian nurse trainees; compromises on the receiving side; and recognizing, accepting, and affirming differences when one's facility accepts Indonesian nurse trainees.

**Cooperation:** Working together with Indonesian nurse trainees in the same ward.

**Cooperation experience:** Experience working together with Indonesian nurse trainees in the same ward.

**Desire to cooperate:** The desire to work together with Indonesian nurse trainees in the same ward.

**New members:** Indonesian nurse trainees who are newly arrived and able to communicate in Japanese.

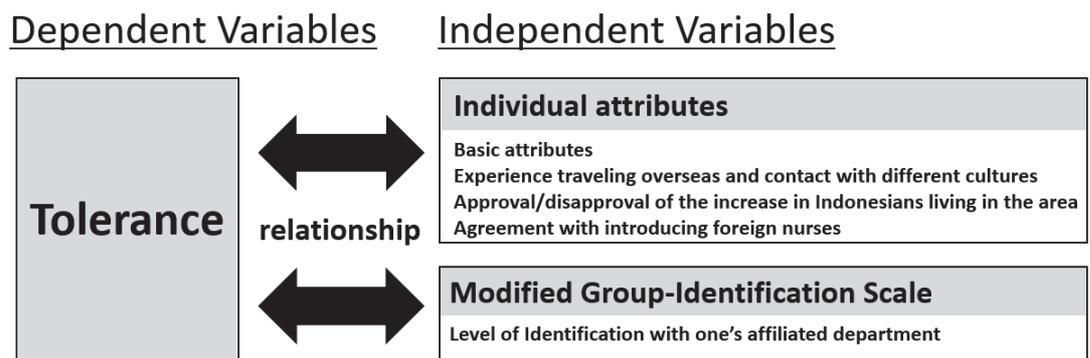
### III. Methods

#### 1. Research Design

The design was cross-sectional quantitative research using a self-administered questionnaire survey.

#### 2. Conceptual Diagram

This study's conceptual diagram is shown in Figure 1. A relationship was assumed between the tolerance scale from previous research (see 3. Survey Content: (2) Tolerance for Indonesian Nurse Trainees among Japanese Nurses), and individual traits (see 3. Survey Content: (1) Participants' Individual Characteristics), and the tolerance scale and the modified version of the group identification scale (see 3. Survey Content: (3) Level of Identification with the Group).



<Figure 1> Concept Diagram

#### 3. Survey Content

##### 1) Participants' Individual Characteristics

For basic attributes, we asked about age, sex, occupation, nursing education institution from which the participant graduated, years of experience as a nurse, department, job title, years of experience working cooperatively, and the desire to cooperate. For experience traveling overseas and situations involving different cultures, we asked about experience traveling overseas; number of foreign friends, excluding Indonesian nurse trainees; appreciation for foreign culture; and academic background studying foreign languages outside of school education. Additionally, we surveyed approval or disapproval of the increase in Indonesian people living in the area and level of approval with the introduction of foreign nurses. Approval levels were divided into approval with Japanese policy and personal views, and we requested responses on a 5-point scale from 1

(Disapproval) to 5 (Approval).

## **2) Tolerance for Indonesian Nurse Trainees among Japanese Nurses**

Japanese nurses' tolerance for Indonesian nurse trainees was measured using the "Tolerance for New Members Scale" (hereafter, tolerance scale). This scale, developed by Uemura (Uemura, 2001) scores how much one is able to accept a new colleague into one's group in interactive situations with others. It measures the receiving side's degree of tolerance for new members and whether differences exist between people who kindly accept new members into an organization or group and people who exclude new members and treat them as outcasts. It comprises 12 items on a 5-point scale; the higher the average score, the higher the level of tolerance. Its reliability was ensured in the previous study (Uemura, 2001).

Note that when we contacted the developers as to whether it was assumed that new members were foreigners and not Japanese, we found that since interpersonal attitudes and reactions were being measured, the scale can be used provided there is no language barrier that prevents someone from being approachable. The EPA nurse trainees visiting Japan received an intensive one-year Japanese language education that combined the time before and after they arrived in Japan, and they can hold daily conversations in Japanese. Therefore, we determined this scale could be used.

## **3) Level of Identification with the Group**

The level of group identification was measured using the "Modified Version of the Group-Identification Scale." This scale is Uemura's modified version (Uemura, 2001) of the "Group-Identification Scale" developed by Karasawa (Karasawa, 1991). To measure the participants' identification with voluntary groups to which they actually belong, Uemura modified the item content deemed inappropriate and wrote instruction sentences. This modified version comprises 7 items on a 7-point scale; the higher the average score, the higher the identification with the group. Its reliability was also ensured in the previous study (Uemura, 2001).

In this study, groups to which the participants presently belong are defined as "affiliated facilities" in the instruction sentences, and responses were sought accordingly.

## **4. Survey Method**

### **1) Target Facility and Participants**

The target facility was one hospital facility, which accepts Indonesian nurse trainees. Participants were 109 Japanese nurses, licensed practical nurses, public health nurses, and midwives (hereafter, nursing staff) working at the facility.

The facility has 111 beds (105 general beds, 6 sub-acute-stage beds); there is a 7-to-1 patient-nurse ratio, and the nursing method is a combination of primary nursing and team nursing. Since 2009, two Indonesian nurse trainees have been accepted each year,

and, in May 2015, when we requested this questionnaire, the facility was in its sixth year of accepting Indonesian nurses.

## **2) Data Collection Methods**

An overview was provided to the facility's nursing director, hospital president, and hospital director; we received written consent. Through the nursing director, we distributed research cooperation request documents to the research participants along with the self-administered questionnaire (hereafter, questionnaire). It was agreed that responses would be made by general mail and questionnaires would be posted.

## **3) Data Collection Period**

May 21, 2015 to June 13, 2015

## **5. Analysis Methods**

Univariate analysis was performed to establish the relationship between the tolerance scale measurement, which is the starting dependent variable, and each independent variable. During analysis, we performed a Shapiro-Wilk normality test, and the modified version of the group identity scale and tolerance scale had normal distribution; all others had non-normal distribution. For the normal-distribution tolerance scale, the high-score group was defined as the group with higher-than-average scores and the low-score group was defined as the group with lower-than-average scores. The Mann-Whitney U test was used to test for the difference in bivariate medians with non-normal distribution. For bivariate correlation analysis, Spearman rank correlation coefficient was used. For the association between the two groups of nominal scales, a chi-squared independence test was used.

Next, to examine the influence of factors associated with the tolerance scale, multivariate analysis was performed using variables found to be related in the univariate analysis as independent variables.

IBM SPSS Statistics 23 was used for all analysis. The significance level was 5% and the confidence interval was 95%.

## **6. Ethical Considerations**

This study was performed after obtaining approval from the Saga University Faculty of Medicine Ethics Committee (Approval number: 27-8). It was explained in writing that participants could choose to participate, there were no disadvantages to refusing to participate, participation was anonymous and individuals would not be identified, and this study was not an evaluation of individual nurses or medical institutions. Mailing of the questionnaire was considered consent.

## IV. Results

We received responses from 97 out of the 109 participants (response rate: 89.0%, valid response rate: 100%); 97 valid responses were used for analysis.

### 1. Overview of Participants

The participant characteristics are shown in Table 1.

#### 1) Basic Attributes

Ages ranged from 20 to 63 years with a median of 35.0 years old; the interquartile range (IQR) was 27.0–44.5 years old. A total of 88.7% of the participants were female and 11.3% were male; 78.4% were nurses, 19.6% were licensed practical nurses, 2.1% were public health nurses working in medical examination departments, and 0% midwives. A total of 87.5% received their basic nursing education from a vocational college, 3.1% from a junior college, 0% from a university, and 9.4% from another institution. Regarding the length of basic nursing education, we found that 19.6% were licensed practical nurses with less than three years of education, and 80.4% were nurses and public health nurses with at least three or more years of education. Years of experience as a nurse ranged from 0 to 42 years, and the median was 10.5 years (IQR: 5.0–20.8 years). Regarding affiliated departments, 61.9% belonged to a hospital ward, and 38.1% belonged to a department other than a hospital ward (outpatient department, examination department, etc.). A total of 84.5% had the job title of general staff and 11.3% were in management. Years of experience working cooperatively ranged from 0 to 6 years, and the median was 2.0 years (IQR: 0.0–3.9 years). Meanwhile, 26.0% had no experience working cooperatively and 74.0% had experience working cooperatively (1 to 6 years); 19.4% had no desire to cooperate, and 80.6% had a desire to cooperate.

#### 2) Overseas Travel Experience and Contact with Different Cultures

A total of 52.1% had no overseas travel experience; 47.9% did. Total number of countries visited (hereafter, total number of countries) ranged from 0 to 6 countries, and the median was 0.0 countries (IQR: 0.0–1.0 countries). The total number of days overseas (hereafter, length of stay) ranged from 0 to 391 days, and the median was 0.0 days (IQR: 0.0–5.0 days). The number of foreign friends, excluding Indonesian nurse trainees, ranged from 0 to 3 people, and the median was 0.0 people (IQR: 0.0 people). A total of 45.8% did not appreciate foreign cultures, such as foreign music and films; 54.2% did. Meanwhile, 89.6% had no academic background studying foreign languages outside of their school education; 10.4% did.

<Table 1> The participant characteristics

		Persons	%	Median (IQR)	range
Age	20s	33	34.0	35.0 (27.0~44.5)	20~63
	30s	30	30.9		
	40s	12	12.4		
	Over 50s	22	22.7		
Sex	male	11	11.3		
	female	86	88.7		
Occupation	nurse	76	78.4		
	licensed practical nurse	19	19.6		
	public health nurse	2	2.1		
	midwife	0	0.0		
Nursing education --Institution--	vocational college	84	87.5		
	junior college	3	3.1		
	university	0	0.0		
	another institution	9	9.4		
Nursing education --Length--	less than 3 years	19	19.6		
	at least 3 or more years	78	80.4		
Years of experience	0 year ---- 4 years	21	21.9	10.5 (5.0~20.8)	0~42
	5 years --- 9 years	20	20.8		
	10 years --- 19 years	29	30.2		
	20 years --- 29 years	16	16.7		
	more than --30 years	10	10.4		
Affiliated department	hospital ward	60	61.9		
	other than a hospital ward	37	38.1		
Job title	general staff	82	84.5		
	management staff	11	11.3		
	other	4	4.1		
Cooperation experience --Length--	0 year (no experience)	25	31.0	2.0 (0.0~3.9)	0~6
	1 year	6	6.0		
	2 years	12	15.5		
	3 years	19	22.6		
	4 years	7	7.1		
	5 years	14	16.7		
Cooperation experience	no experience	25	26.0		
	had experience	71	74.0		
Desire to cooperate	no desire	18	19.4		
	had a desire	75	80.6		
Overseas travel experience	no experience	50	52.1		
	had experience	46	47.9		
Total number of countries	0 country	50	53.2	0.0 (0.0~1.0)	0~6
	1 country	23	24.5		
	2 countries	11	11.7		
	3 countries	5	5.3		
	4 countries	3	3.2		
	5 countries	1	1.1		
	6 countries	1	1.1		
Length of stay	0 day (no experience)	50	54.9	0.0 (0.0~5.0)	0~391
	within 1 week	28	30.8		
	within 2 weeks	2	2.2		
	within 3 weeks	7	7.7		
	within 4 weeks	1	1.1		
	more than 4 weeks	3	3.3		
The number of foreign friends	0 person	88	91.7	0.0 (0.0)	0~3
	1 person	2	2.1		
	2 persons	2	2.1		
	3 persons	4	4.2		
Appreciate foreign cultures	not appreciate	44	45.8		
	appreciate	52	54.2		
Studying foreign languages -- outside of school --	didn't study	86	89.6		
	studied	10	10.4		

The increase of Indonesians living in the Area	disapproval	13	14.6		
	approval	76	85.4		
Approval levels for such Japanese policies	1.Disapproval	1	1.1	4.0	1~5
	2.Rather disapprove	6	6.3	(3.0~4.0)	
	3.Neither	40	42.1		
	4.Rather approve	35	36.8		
	5.Approval	13	13.7		
Approval levels as an individual opinion	1.Disapproval	0	0.0	4.0	2~5
	2. Rather disapprove	9	9.4	(3.0~4.0)	
	3.Neither	30	31.3		
	4.Rather approve	39	40.6		
	5.Approval	18	18.8		

### 3) Approval/Disapproval of the Increase of Indonesians Living in the Area

A total of 14.6% disapproved of the increase in Indonesians living in their residential area; 85.4% approved.

### 4) Level of Approval Toward Introducing Foreign Nurses

Approval levels for such Japanese policies ranged from 1 (Disapproval) to 5(Approval). The median was 4.0 (IQR: 3.0–4.0). Approval levels as an individual opinion ranged from 2 to 5; the median was also 4.0 (IQR: 3.0–4.0).

### 5) Modified Group-Identification Scale

The Mean  $\pm$  SD was  $4.17 \pm 0.87$ .

### 6) Tolerance Scale

The Mean  $\pm$  SD was  $3.56 \pm 0.50$ .

The average value based on analysis methods was 3.56, and people with a score below 3.56 were defined as the low-score group (hereafter, low group); those with a score above 3.56 were defined as the high-score group (hereafter, high group). A total of 52.7% were in the low group; 47.3% were in the high group.

## 2. Factors Related to Tolerance of Indonesian Nursing Trainees

First, we examined the following three items in terms of the relationship between the tolerance scale and each attribute. Next, we examined Item 4 regarding the relationship between the tolerance scale and the modified version of the group-identification scale. Last, we conducted multivariate analysis (Item 5) to examine the influence of factors related to the tolerance scale.

### 1) Relationship between Each Attribute and the Tolerance Scale

A chi-squared independence test was performed on the relationship between each attribute and the tolerance scale's high and low groups (Table 2).

For "length of education," the group with three or more years of basic nursing education (nurses and public health nurses) had a significantly higher frequency of

people in the tolerance scale's high group ( $p = 0.040$ , adjusted standardized residual +2.1) compared to the group with less than three years of basic nursing education (licensed practical nurses). Compared to the group with no experience traveling overseas, the group with experience traveling overseas had a significantly higher frequency of people in the tolerance scale's high group ( $p = 0.022$ , adjusted standardized residual +2.3). Compared to people with no foreign language study background, people with foreign language study background had a significantly higher frequency of people in the tolerance scale's high group ( $p = 0.005$ , adjusted standardized residual +2.8).

<Table 2> Relationship between Each Attribute and the Tolerance Scale

		Tolerance scale (persons)		p-value residual
		Low group	High group	
Sex	Male	8	3	n.s.
	Female	41	41	
Occupation	nurse	35	37	n.s.
	licensed practical nurse	14	5	
<b>Nursing education --Length--</b>	less than 3 years	14	5	<b>.040 *</b>
	at least 3 or more years	35	39	<b>+2.1</b>
Affiliated department	hospital ward	34	24	n.s.
	other than a hospital ward	15	20	
Job title	general staff	43	35	n.s.
	management staff	4	7	
Cooperation experience	no experience	12	12	n.s.
	had experience	36	32	
Desire to cooperate	no desire	11	7	n.s.
	had a desire	34	37	
<b>Overseas travel experience</b>	no experience	30	17	<b>.022 *</b>
	had experience	18	27	<b>+2.3</b>
Appreciate foreign cultures	not appreciate	26	15	n.s.
	appreciate	22	29	
<b>Studying foreign languages -- outside of school --</b>	didn't study	47	35	<b>.005 **</b>
	studied	1	9	<b>+2.8</b>
The increase of Indonesians living in the Area	disapproval	7	5	n.s.
	approval	36	37	

## 2) Comparison of Median Values (IQR) of Each Attribute and Tolerance Scale

We performed a Mann-Whitney U test for the median values (IQR) of each attribute in the tolerance scale's low and high groups (Table 3).

The median values for the total number of countries visited were significantly higher ( $p = 0.005$ ) in the tolerance scale's high group. The median values for the total length of stay were significantly higher ( $p = 0.001$ ) in the tolerance scale's high group.

<Table 3> Comparison of Median Values (IQR) of Each Attribute and Tolerance Scale

	Tolerance scale		Median (IQR)	p-value
	Low group	High group		
Age	34.0 (25.0-44.0)	36.0 (27.3-50.0)		n.s
Nursing education --Length--	10.0 (3.0~18.8)	12.0 (7.0~22.0)		n.s
Cooperation experience --Length--	2.0 (0.0~4.8)	2.0 (0.0~3.5)		n.s
<b>Total number of countries</b>	0.0 (0.0~1.0)	1.0 (0.0~2.0)		<b>.005 **</b>
<b>Length of stay</b>	0.0 (0.0~3.0)	3.5 (0.0~12.0)		<b>.001 **</b>
The number of foreign friends	0.0 (0.0)	0.0 (0.0)		n.s.
Approval levels for such Japanese policies	3.0 (3.0~4.0)	4.0 (3.0~4.0)		n.s.
Approval levels as an individual opinion	3.5 (3.0~4.0)	4.0 (3.0~4.0)		n.s.

### 3) Correlation between Tolerance Scale and Each Attribute

We searched for the Spearman rank correlation coefficient of the correlation between the tolerance scale and each attribute (Table 4).

Here was a weak positive correlation between the total length of stay abroad and the average value on the tolerance scale ( $p = 0.033$ ,  $r = 0.23$ ).

<Table 4> Correlation between Tolerance Scale and Each Attribute

		Avg	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12
Age	<i>r</i>	.09	-.19	-.08	-.03	.07	.17	.11	.07	.08	-.02	.15	.09	<b>.39</b>
	<i>p</i>	.373	.068	.433	.791	.479	.107	.275	.518	.424	.871	.154	.411	<b>.000</b> ***
Years of experience	<i>r</i>	.15	-.20	-.05	.01	.08	<b>.26</b>	.16	.12	.12	.04	<b>.21</b>	.05	<b>.35</b>
	<i>p</i>	.156	.051	.644	.929	.451	<b>.011</b> *	.133	.257	.271	.711	<b>.040</b> *	.618	<b>.001</b> **
Cooperation experience --Length--	<i>r</i>	-.10	.17	-.05	-.12	.21	.01	<b>-.22</b>	-.10	-.15	-.09	-.12	-.02	-.06
	<i>p</i>	.361	.121	.630	.300	.060	.952	<b>.049</b> *	.381	.178	.433	.297	.890	.605
Total number of countries	<i>r</i>	.17	.17	.10	.06	.02	-.01	.19	.11	-.07	.16	.06	-.04	.09
	<i>p</i>	.118	.107	.338	.555	.890	.895	.080	.306	.490	.127	.556	.705	.422
Length of stay	<i>r</i>	<b>.23</b>	.17	.16	.09	-.01	.06	<b>.23</b>	.15	-.02	<b>.23</b>	.10	-.00	.13
	<i>p</i>	<b>.033</b> *	.106	.142	.394	.900	.592	<b>.034</b> *	.161	.877	<b>.034</b> *	.366	.976	.236
The number of foreign friends	<i>r</i>	.09	.14	.10	.07	-.05	-.00	.12	.06	.07	.14	-.00	.05	-.08
	<i>p</i>	.406	.191	.323	.482	.627	.968	.245	.603	.486	.177	.968	.654	.442
Approval levels for such Japanese policies	<i>r</i>	.16	<b>.23</b>	.01	<b>.27</b>	-.10	.14	-.03	.09	<b>.22</b>	<b>.23</b>	.18	-.06	.08
	<i>p</i>	.124	<b>.032</b> *	.926	<b>.010</b> **	.355	.203	.804	.398	<b>.040</b> *	<b>.026</b> *	.093	.603	.455
Approval levels as an individual opinion	<i>r</i>	.14	.20	.03	.16	-.13	.15	-.01	.07	.14	<b>.30</b>	.15	.07	.12
	<i>p</i>	.191	.052	.775	.132	.220	.150	.906	.529	.198	<b>.004</b> **	.160	.513	.267

Spearman rank correlation coefficient \*  $p < 0.05$  \*\*  $p < 0.01$  \*\*\*  $p < 0.001$

Avg = average value on the Tolerance scale, T1~T12 = the question 1~12 of the Tolerance Scale

**4) Correlation between the Tolerance Scale and the Modified Group-Identification Scale**

We used the Spearman rank correlation coefficient for the correlation between the tolerance scale and the modified version of the group-identification scale (Table 5).

No significant correlation was observed between the average values on the tolerance scale and average values on the modified group-identification scale.

Looking at each question item on the tolerance scale, we found a weak correlation between Question 12 on the tolerance scale, “Encourage others to make Indonesian nurse trainees feel comfortable,” and average values on the modified group-identification scale ( $p = 0.001$ ,  $r = 0.34$ ).

<Table 5> Correlation Between the Tolerance Scale and the Modified Group-Identification Scale

Modified version of the group-identification scale	Avg	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	T12
<i>r</i>	.09	-.08	-.01	-.03	-.10	.11	.02	.14	.08	.11	.19	.10	.34
<i>p</i>	.402	.473	.964	.788	.354	.281	.856	.196	.433	.305	.064	.343	.001**

Spearman rank correlation coefficient

\*\*  $p < 0.01$

**5) Influence of Factors Related to the Tolerance Scale Measurements**

Logistic regression analysis was performed by the likelihood ratio and variable increase method with the high-lows of the tolerance scale as dependent variables; the independent variables were factors confirmed as having a significant relationship through the univariate analysis (1–4 above; Table 6).

We looked at the scatterplot of variables beforehand and confirmed that there were no variables with a remarkably linear relationship. In the results from the model chi-squared test,  $p < 0.01$  was significant and each variable was also significant with  $p < 0.05$ . Results from the Homser-Lemeshow test found that  $p = 0.77$  was good, yet the discriminant predictive value of 54.7% was not very good. For the actual measured values, there were no outliers that exceeded the predicted value by  $\pm 3$  SD.

Factors that showed a significant positive relationship with the tolerance scale’s high group were, in descending order of influence, “academic background studying foreign languages,” “level of agreement with policies,” and “years of experience.”

<Table 6> Influence of Factors Related to the Tolerance Scale Measurements (n=75).

Independent variables	B	<i>p</i> - value	Odds Ratio	95% CI
Studying foreign languages -- outside of school --	2.45	.030	11.61	1.27 - 106.32
Approval levels for such Japanese policies	0.79	.024	2.19	1.11 - 4.34
Years of experience	0.05	.039	1.05	1.003 - 1.11
Constant	-3.91	.006	0.02	

Logistic regression analysis

model chi-squared test  $p < 0.01$ , Homser-Lemeshow test  $p = 0.77$ , discriminant predictive value = 54.7%

## V. Discussion

Previous studies, which targeted residents of a particular area, found that people who are younger, have longer years of study, and have experience with foreigners and foreign culture are more tolerant of accepting foreigners and that women are more tolerant of heterogeneity in others and have little resistance to working cooperatively with foreigners (see I . Background).

In this study of nurses, we found that the more situations for contact with different cultures, such as “experience traveling overseas,” “total number of countries visited,” “total length of stay,” and “academic background studying foreign languages,” the higher the tolerance toward Indonesian nurse trainees. In the “contact hypothesis,” Allport argues that contact experiences with an outgroup, such as different races and ethnic groups, reduce prejudice against individuals from outgroups and promotes a positive attitude (Allport, 1954). In this study as well, it is possible that experience traveling overseas and contact with different cultures reduced prejudice against Indonesian nurse trainees and promoted tolerance. However, no relationship was confirmed between “number of foreign friends,” “sex,” and the tolerance scale measurement. This may be due to the fact that approximately 90% of the survey participants had no foreign friends and approximately 90% of the survey participants were female.

Regarding length of education, it was confirmed that the group with three or more years of basic nursing education (nurses and public health nurses) had a significantly higher tolerance compared to the group with less than three years of basic nursing education (licensed practical nurses). However, when making this interpretation, it is necessary to consider that no participants had a university education and approximately 90% of the participants graduated from a vocational college.

Although the previous study reported a relationship between age and group identification and tolerance (Uemura, 2001), this study did not find a relationship with these factors. However, if we look at Question 12, “Encourage others to make Indonesian nurse trainees feel comfortable,” we see a significant positive correlation to “age,” “years of experience,” and “group identification.” We found a different trend from previous studies in that as age increases, people encourage others to make Indonesian nurse trainees feel comfortable.” In previous studies, there were many surveys targeting residents; however, the nurses targeted in this study are part of a professional group that shares a common aim to provide nursing care to patients and their families. It can be assumed that this difference in the sense of purpose and cohesion influenced this study’s results.

In the logistic regression analysis, we found that an academic background studying foreign languages was more significantly related to tolerance compared to agreement with policies; therefore, studying a foreign language has a stronger influence than whether one agrees or disagrees with policies directly related to introducing foreign

nurses. Motivation and purpose for foreign language study was not surveyed in this study and therefore needs to be clarified in the future; however, we can assume that studying a foreign language has a positive effect.

Mizokami and Shibata state that language functions as an ideological practice that defines and shapes our thinking (Mizokami & Shibata, 2009). Moreover, foreign language study is not merely a simple practice of language skills, but is also an experience of the culture that exists behind the language, which promotes an understanding of others and subjective judgment unbound by conventional knowledge and prejudice that can help one adopt a positive attitude toward heterogeneous others (Mizokami & Shibata, 2009). These findings from previous research can be applied to the nurses in this study as well. Thus, length of education and experience with different cultures are important factors in Japanese nurses' tolerance toward Indonesian nurse trainees. These are important findings to consider for future nursing education and smooth cooperation with foreign nurses.

## VI. Study Limitations and Future Research

This survey's participants were limited to nurses from one local hospital facility, where the total nursing staff is small and the hospital is in its sixth year of accepting Indonesian nurse trainees. Therefore, it is possible that the Japanese nurses' awareness may have been homogenized to some extent. Additionally, analyses could only be undertaken for 97 people; therefore, we should be cautious analyzing the results, as bias was seen in attributes, such as length of education and number of foreign friends.

In future studies, an expansion of the number of facilities and persons targeted for the survey is needed.

## VII. Conclusion

We examined the factors related to Japanese nurses' tolerance for Indonesian nurse trainees and determined the following three points:

- (1) The longer the nurses' basic education, the higher tolerance they had for Indonesian nursing trainees.
- (2) The more overseas travel experience and situations the nurses had with different cultures, the higher tolerance they had for Indonesian nursing trainees.
- (3) An academic background studying foreign languages had a greater influence on high tolerance compared to approval level for policies.

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