

Difference in Problem-Solving Thought Concerning the Infection Control of Japanese Nurse and Indonesian Nurse: Comparison of the Result by 4M4E Matrix Analysis

Manami Nozaki, Hiromi Ogasawara and Reiko Mitsuya

Abstract In nursing world, the opportunities when a nurse with a different background interchanges increased. Regardless of a country, it may be said that the safety management of the patient is a main premise of the nursing. We focused on the infection management and compared problem-solving thought for the infection management of the Indonesian nurse and Japanese nurse using 4M4E model. As a result, we understood that they were common basically. The nurse Indonesian tended to demand the intervention to an individual and an offer of the knowledge. On the other hand, the Japanese tended to consider systematically. The expansion of each other's fields of vision would be expected by using each strength and continuing cross-cultural communication.

Keywords Nursing · Infection control · Safety management · Cross-cultural communication

1 Introduction

With the economic partnership agreement (EPA) conclusion, the opportunities when a foreign nurse such as Indonesia engaged in nursing practice in Japan increased. On the other hand, we proceed to a nursing theory and the technical guidance to Indonesia from 2011. In nursing world, the opportunities when a nurse with a different background interchanged increased. Actually there is some trouble

M. Nozaki (✉)

Toho University, Omori-nishi 4-16-20, Ota-ku, Tokyo 1430015, Japan
e-mail: fnozaki@med.toho-u.ac.jp

H. Ogasawara

Japan Asia Medical Nurse Association, Nagoya, Japan

R. Mitsuya

Waseda University, Tokyo, Japan

when we tell nursing practice by economic conditions, medical circumstance and the difference of the cultural background. What a nurse is responsible for four of the maintenance increase of the health, the prevention of the illness, restoration to health, relaxation of the pain, association of world nurse (ICN) proposed. Regardless of a country, it may be said that the safety management of the patient is a main premise of the nursing.

In this research, we focus on the infection management in the safety management as the nurse. We think that we can extract the sense of values in the background by asking the thought for the infection management.

2 Purpose

The purpose of this research is to compare the contents the factor and the steps which an Indonesian nurse and a Japanese nurse think about problem situation of the real infection management, and it is to clarify the difference of the viewpoint for solutions of the problem.

3 Methods

3.1 Subject

Indonesian nurse: 13 Indonesian nurse who received training as EPA candidate in Japan to be able to discuss it in Japanese.

Japanese nurse: 9 Japanese nurse who lives in Indonesia as she exposed Indonesian culture. However she does not work as a nurse in Indonesia.

Both was the person that the agreement was provided for research cooperation.

3.2 Data Collection Method

We set the group fivesome as the group discussion. We had them list the content that they talked. There were five scenes: use the dirty swab, add antiseptic solution, hand-washing manual skill is uncertain, the timing of wearing on/off of gloves is bad, the inappropriate action at the time of the gloves wearing. While we showed the photograph of each scene, we explained the situation in Japanese. We supplemented information by Indonesian.

3.3 Data Analyzing Method

We used 4M4E matrix analysis used by medical safety measures about a nursing scene about the infection management that we met with in Indonesian fieldwork, and analyzed it. The 4M4E matrix analysis is technique used for accident analysis in American National Aeronautics and Space Administration (NASA) and then [1]. It is a method to classify measures in from four E (EDUCATION, ENGINEERING, ENFORCEMENT, EXAMPLE) viewpoints for the factor of the accident from a viewpoint of four M (MAN, MACHINE, MEDIA, MANAGEMENT). We compared the result that three Indonesian nurse groups analyzed based on a 4M4E matrix list with three Japanese nurse groups.

3.4 Ethical Considerations

We tried for the exclusion of the compelling force and the protection of the personal information in data collection. In addition, we carried it out with the approval (approval number 2) of the ethic screening committee of Japanese Asian medical upbringing society (Table 1).

4 Results

Discussion contents of Indonesian nurse and Japanese nurse are indicated Table 2. It shows the steps based on 4E in the lower column and the factor based on 4M in the upper column. The common item is no mark, the Indonesian special answer was written down <I>, the Japanese special answer was written in the lower column <N>.

Table 1 4M4E matrix analysis model

<4E>	MAN	MACHINE	MEDIA	MANAGEMENT
<4M>				
EDUCATION				
ENGINEERING				
ENFORCEMENT				
EXAMPLE				

Table 2 Analysis result by 4M4E model

	MAN	MACHINE	MEDIA	MANAGEMENT
	Human	Thing machine	Circumstance	Management
Concrete factor 4M	Problem situation			
	①The use of a dirty swab			
	②The incomplete hand-washing manual skill			
	③The timing of wearing/the desorption of gloves			
	1	1	1	1
		1	1	1
	1<I>	1<N>	1<N>	
		1<I>		
EDUCATION	1			
	1			
ENGINEERING	1<N>	1		1<N>
	1	1<N>		
		1		
ENFORCEMENT	1	1<N>	1<N>	1<N>
	1			1<N>
	1			1<N>
EXAMPLE	1<I>			1<N>

4.1 The Factor Analysis of Steps Based on 4E

It was pointed out for a factor about the problem situation as follows.

1. MAN (human being): The two countries were common, that was “left washing at the time of the hand-washing”, and one item was pointed out.
2. MACHINE (thing, machine): The two countries are common, that is “cannot keep a sterilization effect”; the dirty bottle of the antiseptic solution and then two items were pointed out. Furthermore, one item “that there was a problem about the tool” for indication peculiar to an Indonesian was pointed out.
3. MEDIA (environment): The two items that “a medicine was not kept adequately” and “recycled the bottle of the antiseptic solution” were pointed out in both common. Furthermore, one item to “keep a different kind medicine to a bottle” as a Japanese special item was pointed out. It was extracted one item a reason to “be in danger of bacteria propagating as for adding” it as an item peculiar to an Indonesian.
4. MANAGEMENT (management): The two items that “be in danger of oneself being contagious” and “oneself became the infection course” were pointed out in both common. One item that “the understanding of the rule and principal was lack” as a Japanese special item was pointed out.

4.2 *The Analysis of Steps Based on 4E*

There was the following suggestion for steps to problem situation

1. EDUCATION (education/training): The two items that “teach hygienic hand-washing” and “explain a timing of wearing/the desorption of gloves” were suggested in both common.
2. ENGINEERING (technology/engineering): The three items that “establish the substitute method”, “arrange a disposable product” and “use up antiseptic solution” were pointed in both common. As a Japanese special item, three items that “manage every time limit”, “arranged a sterilized article” and “arranged the expiration date, and to display” was suggested.
3. ENFORCEMENT (reinforcement/enforcement): Three items that “observed right hand-washing/sterilization method”, “carried out instructions at the time of the gloves wearing thoroughly” and “carried out 1 gloves thoroughly for 1 measures” was suggested. Five items that “made a rule not to confuse a medicine”, “confirmed each other in a post”, “examined a safekeeping method with the person concerned”, “put the contents which careful, and wanted to rouse it on the poster” and “arranged an appropriate article near a use scene” was suggested as a Japanese characteristic item.
4. EXAMPLE (model/example): One item that “sponsored an opportunity to confirm a concept of the infection prevention, action mechanism of the sterilization” was suggested as an Indonesian characteristic item. That “checked the enforcement situation with a machine regularly in a post” as a Japanese special item was suggested.

5 Discussion

5.1 *Differences of the Consciousness to the Problem*

The Japanese and Indonesian analyzed it by four viewpoints equally in common. Furthermore, the Indonesian turned interest to MACHINE. On the other hand, the Japanese tended to grasp the problem by the large fields of vision such as environment or the management. We guess that this result is originated in an environmental difference surrounded the medical care including economic conditions.

As practicing medical materials that are not deployed abundantly in Indonesia, the interest may always go in MACHINE. On the other hand, the latest medical materials are abundant in Japan, however by the introduction of [2] inclusion payment system Bundled payment of the medical examination and the use of time and thing without waste is demanded. Therefore they may come to be always conscious of cost. In addition, team medical care is demanded in the Japanese medical scene, and cooperation with the many type job is emphasized. As a result,

they come to observe the whole and think that their field of vision may have been expanded.

5.2 *The Difference in Thought of the Problem Solution*

Both Japanese and Indonesian focus on the personal intervention to MAN in common. Furthermore, what the Japanese nurse tended to solve the problem systematically was shown. We think that this depends on a difference of the nursing basic education. The difference of the nursing education between the two countries in the background existed in the background [3, 4]. For example, an organized thought may grow up to learn nursing management from a nursing basic education course in Japan. The nurse Indonesian demanded an offer of right knowledge. On the other hand, the Japanese nurse demanded the making the structure for evaluation. It is guessed that there is difference in the nationality or the maturity degree of the occupation between the backgrounds of these difference.

6 Conclusion

The basic critical consciousness concerning the infection management was the same, and we confirmed the common tendency on thinking the intervention to an individual. Furthermore, in a critical consciousness, a thought for problem solution, a strength was recognized each country. We would exchange information in future by continuing cross-cultural communication and expect it that we lead to the expansion of the field of vision each other.

References

1. Yoshiko, S. et al.: Process of a Kind and the Analysis of the Analysis Technique, Safety Management, pp. 39–40 (2013) (in Japanese)
2. Ministry of Health, Labor and Welfare insurance bureau medical care section: Summary of the 2014 medical examination and treatment reward revision (2014) (in Japanese). <http://www.mhlw.go.jp/file/06-Seisakujouhou-12400000-Hokenkyoku/0000039616.pdf#search=%E5%8C%85%E6%8B%AC%E6%89%95%E3%81%84%E5%88%B6%E5%BA%A6>
3. Hiromi, O.: Nursing technical education of the everyday life support in Indonesia. *Sci. Nurs. Pract.* **38**(11), 69–72 (2013)
4. Hiromi, O.: The nursing technology acquisition degree of the EPA of Indonesian nurse who plan to visit to Japan—focus to understanding and the sense of purpose of the point of the skill. *Sci. Nurs. Pract.* **39**(5), 67–71 (2014) (in Japanese)