

# The Effectiveness of Hand Washing Training Based on Kirkpatrick's Theory on Nurses

VinnaAmaliaResiDamayanti<sup>1</sup>, Ernawaty<sup>1\*</sup>

<sup>1</sup>Departement of Health Policy and Administration, Faculty of Public Health, Universitas Airlangga, Surabaya, East Java, Indonesia

\*Corresponding Author: Ernawaty

Department of Health Policy and Administration, Faculty of Public Health, UniversitasAirlangga, Surabaya, Indonesia

Campus C,Jl. Dr. Ir. H. Soekarno, Mulyorejo, Mulyorejo, Surabaya, East Java, Indonesia postal code 60115

\*Email: [ernawaty@fkm.unair.ac.id](mailto:ernawaty@fkm.unair.ac.id)

**Abstract:** Hospitals have an obligation to provide education and training to staff who are potentially exposed and have direct contact with patients. This research was conducted because the number of hand washing non-compliance in 2017 still become the high standard set by the hospital at 0%. The study aims to analyze the elements of hand washing training on nurses based on the training effectiveness by Kirkpatrick's 2- Level theory. This research was descriptive, using a questionnaire to know the effectiveness of the training and the effectiveness of knowledge. The sample consisted of the nurses at DKT GubengPojok Hospital Surabaya. The sampling technique was total sampling with 14 nurses who participated in the training and also 20 nurses who did not attend, and there were 34 respondents. Fourteen nurses who participated in the training had an adequate reaction level about the training they get and supported by an average score of 78.29 had good knowledge and ability to remember the training material, compared with 20 nurses who did not attend the training. This research concludes that the identification of each element of training gets effective results. Moreover, the result showed the comparison of the knowledge level between the participating nurses and those who did not participate in practice as they received different grades.

**Keywords:** *effectiveness, hospital, nurses, training*

## 1. Introduction

Human resources are dominant for the success or failure of the company in achieving its objectives for human resources or employees in carrying out the tasks assigned. Therefore, all the things of development are powerful that have been transformed into people who are responsible for employees have the spirit of work manifested in high performance. According to the standards of the hospital accreditation committee (KARS) in 2012, hospitals must facilitate all activities related to infection prevention and control programs (PCP). It aims to identify and reduce the risk of infection acquired and transmitted by patients, staff, health professionals, contract workers volunteers, students and visitors [1].

Hand hygiene training is one of the infection prevention and control programs that must involve doctors, nurses and professionals infection control staffs. The intended infection prevention and control program includes the latest scientific programs needed for understanding and referring to the standards listed, namely WHO hand hygiene. According to the 2012 hospital accreditation standards, hand washing and disinfection procedures must be used correctly throughout the hospital area. Based on the initial data collection activities, the authors conducted secondary data collection related to hand washing training for all medical and non-medical hospital employees [1].

The number of non-compliance of hand washing in nurses in the first quarter of 2017 was 7.82, which meant that grade still exceeded the standard of 0%. If the number of non-compliance of hand washing is always above the norm, then some nurses do not comply in the application of hand washing. Meanwhile,

the compliance of hand washing is done by all medical members who handle patients or who interact with patients [table 1]. Training is the process of enhancing employee knowledge and skills, which includes changing attitudes so that employees can do their work more effectively [2]. Kirkpatrick's model, which is one of the best-known models for evaluating the effectiveness of training courses, provides a comprehensive, practical and straightforward approach for use in many training situations and is known as a benchmark in the field [3] According to Kirkpatrick:

1. Level 1 – *Reaction*: The degree to which participants find the training favorable, engaging and relevant to their jobs
2. Level 2 – *Learning*: the degree to which participants acquire the intended knowledge, skills, attitude, confidence and commitment based on their participation in the training
3. Level 3 – *Behavior*: the degree to which participants apply what they learned during training when they are back on the job
4. Level 4 – *Result*: the degree to which targeted outcomes occur as a result of the training and the support and accountability package

## 2. Material and methods

### 2.1 Research design, population, sample and variables

This type of research is a descriptive study with a cross-sectional method conducted from May to June 2017 at the DKT GubengPojok Surabaya hospital, located at GubengPojok No. 21 Surabaya street. The population for the research consisted of 34 nurses who are in DKT GubengPojok Surabaya Hospital. This study uses total sampling. The sample that researchers took in this study was comprised of 34 people.

### 2.2 Instruments

Data collection in this study was done through a questionnaire about training evaluation using Kirkpatrick's theory at level 1 (one) and level 2 (two) by using the variables of time, materials, method, trainer, training place at level 1 (one). At level 2 (two) researchers wanted to see nurses' level of knowledge at DKT GubengPojok Surabaya Hospital. The nature of the questionnaire in this study is closed and open.

### 2.3 Research procedure and analysis

The final results of the questionnaire that the researcher shared with the nurses had an alternative answer using a Likert scale. These are the scoring scales that have been adjusted to the questions:

Scale 1: Very Ineffective (VIE) = 1 - 1.75

Scale 2: Not Effective (NE) = 1.76 - 2.51

Scale 3: Effective (E) = 2.52 - 3.27

Scale 4: Very Effective (VE) = 3.28 – 4

For the measurement of the questionnaire the nurses' level of knowledge and the ability to remember the materials, researchers used a statement from Arikunto (2006), a person's knowledge can be known and interpreted with a qualitative scale that is:

1. Good: If the results are 76-100
2. Good enough: If the results are 56 – 75
3. Not Good: If the results are 40 – 55
4. Bad: If the Results are below 40

### 3. Result

The author has reason to evaluate the effectiveness of training based on Kirkpatrick's theory for 2 (two) levels from 4 (four) training evaluation levels by seeing that in 2017 there is still a level of non-compliance for nurses to do hand washing, which is always above the standard.

**Table 1.** Non-compliance with hand washing of 34 nurses at DKT GubengPojok Surabaya Hospital in 2017

Month	Percentage (%)
January	9.09
February	7.69
March	6.67
Average	7.82

The frequency distribution of respondents' answers to the training can be seen in [Table 2]. It mentioned that most of the nursing education at DKT GubengPojok Surabaya Hospital was in the D3 category, 25 nurses, with a percentage of 73.53%. Then, the most extended working category of nurses was in the category >3 Years, 23 nurses, that is 67.65%. The last is the age category included in the 20-30-year-old category 22 people, with a percentage of 64.71%.

**Table 2.** Participants in the Inhouse Training on Hand washing for Nurses at GubengPojok Hospital Surabaya

Respondents' Characteristics		n	%
Education	D3	25	73.53
	S1	9	26.47
Respondents' Characteristics		n	%
Length of work	< 1 Year	4	11.76
	1 - 3 Years	7	20.59
	> 3 Years	23	67.65
Respondents' Characteristics		n	%
Age	20 - 30 Years	22	64.71
	31 - 40 Years	11	32.35
	41 - 50 Years	1	2.94

#### 1. Level 1 – Reaction

According to Kirkpatrick's theory, the level of reaction in the first variable leads to the researcher has 5 (five) sub-variables. Those sub-variables are training time, training methods, training material, and trainers. It aims to find out about training that can provide useful experiences to employees by looking at the effectiveness of each sub-variable. Furthermore, it uses the results in [Table 3].

**Table 3.** Calculation of the Results- Level 1 - Reaction According to Kirkpatrick's Theory for 14 Nurses Following Training in the Hospital. DKT GubengPojok Surabaya

No	Sub. Variable	N	LEVEL 1 – REACTION	
			Total Compo site	Remarks
1	Times	14	3.09	Effective
2	Methods	14	3.08	Effective
3	Material	14	3.07	Effective

4	Trainer	14	3.02	effective
---	---------	----	------	-----------

There are 3 (three) questions addressed to the nurse to know the timeliness, completeness of the facility before the training process, and the appropriateness of the tool before the training process takes place. From the final results above, we get a value of 3.09 on the number of composites. Therefore, the sub-variable training time has effective results supported by the final result, which is 3.09, which means that the time for the implementation of the training has effective results. The next sub-variable is the method, which explains 5 (five) questions to determine the suitability of the discussion session, interview session, presentation, relevance of the practice session, and question and answer session. In the final result, we get a value of 3.08, which means that this sub-variable is effective. In the material sub-variables, there are 2 (two) questions about the suitability of the material and how easy the content can be understood by the participants, getting a result on the number of composites that is 3.07, which has a practical meaning. In the sub-variable of trainers, there are 3 (three) questions to find out the mastery of the material in the resource person, the delivery of the content by the resource person, the participant's comfort towards the trainer during the training process; the result on the composite number is 3.02, meaning useful information. From the four variables above, it can be concluded that all the variables in the level reaction have effective results.

2. Level 2 – Learning

At this level, you can find out about the development of the training participants to absorb the material by comparing nurses who attended the training with nurses who did not participate in practice. The results of the learning level can be seen in [Table 4].

**Table 4.** Results of The Comparison Calculation Level 2 - Learning According to Kirkpatrick's Theory in Nurses at the Hospital. DKT GubengPojok Surabaya

LEVEL 2 –LEARNING							
No	Partici- pant Category	Statement				Average Scores	Remarks
		General know- Ledge		Ability to remember			
		n	Score	n	Score		
1	who took part in the training	14	78.57	14	79.29	78.93	Good
2	who did not take part in the training	20	71	20	64	67.5	Good Enough

In the comparison of level 2 (two), it shows that the result regarding general knowledge for the participants who took the training was 78.57 and regarding the ability to remember the material was 79.93; from these results, it can be said this second level had good results. The participants who did not take part in training received 71 for general knowledge and 67.5 for the ability to remember the material. Thus it can be concluded that participants who are training are better at absorbing the material received

during the training. That means at level 2 Learning gets the best results for the training process that has been carried out.

#### **4. Discussion**

The level-reaction variable has effective results on all sub-variables. For the sub-variables of the training time, got an effective final result of 3.09, for the sub-variable of the training method got an effective final result of 3.08, for the sub-variable of the training material got an effective final result of 3.07, and for the sub-variable of the trainer got an effective final result of 3.02 which are on the 3 (third) scale. It is also supported by the theory from Hamalik who states that the length of the training period, the training methods used, the training materials, and the trainers are influential on the final results of the training that has been carried out. It also affects the participants' level of knowledge and the ability to remember the training material after participating in the training process. From the results above, it can be concluded that the participants' level of knowledge at the level of learning training will be strongly influenced by the sub-variable of level reaction [4].

The statement was also supported by the results of the study from Farjad that the research findings lead to the training presented had been useful, but this effect was not very dramatic in the four levels of Kirkpatrick Model. The factors influenced it are training-based work, training definition based on poor performance, training for organizational goals, the needs of individual learners, staff awareness of the purpose of training courses, continuity of training, application of workplace training, and appropriate training. These lead to increase effectiveness training[5]. Vizeshfar et al. also supports the statement above. They said that the results of this study show that a training program, which included theoretical and practical components, was effective at improving health volunteers' knowledge and performance in administering first aid. Volunteers were satisfied with their participation in the program (level 1), and their partnership led to an increase in knowledge (level 2) and performance (level 3). They evaluated the program as being valid and useful (level 4). Wang who also supports it said that the Kirkpatrick model was used to collect evidence of students' learning achievements in the learning outcomes evaluation study, as the researchers transformed the core cataloging competencies into the students' expected achievement and curriculum teaching objectives [6].

#### **5. Limitation of this study**

This study examined the level that is affected the effectiveness of training based on Kirkpatrick's theory for 2 (two) concentrations from 4 (four) training evaluation levels by seeing that in 2017 there is still a level of non-compliance for nurses to do hand washing, which is always above the standard.

#### **6. Conclusion**

Based on the results of the research and the discussion above, the conclusions the authors obtained are as follows that in the training participant variables, they got results from 34 total nurses at DKT GubengPojok Surabaya Hospital, and only 14 nurses attended hand washing training. The results of participant identification were based on length of work, last education and age. The variable implementation time of training has the results from 14 nurses preferred are according to the "appropriate" answer with the effective final result of 3.09. The variable implementation method of training the results from 14 nurses are under the practical end result of 3.08. The training material variable, the results obtained from 14 nurses, are according to the actual end result of 3.07. The trainer classification variable gets results from 14 nurses, the practical end result of 3.02. The Level 1 variable - Reaction gets the rational analysis of the total sub-variable of 3.06. Knowledge variables get the final result for nurses who took part in training, whose results are better than of those who did not attend practice, with at 71 and 64. On the Level 2 variable, Learning gets the final result for nurses who took part in the training with a useful category of the total sub-variable of 78.93.

## References

- [1] Komite Akreditasi Rumah Sakit, 2012. Standar Akreditasi Rumah Sakit
- [2] Kaswan. 2011. *Pelatihan dan Pengembangan*. Bandung: Penerbit Alfabeta.
- [3] Vizeshfir, F., Momennasab, M., Yektatalab, S. and Iman, M.T., 2017. Evaluation of the effectiveness of a first aid health volunteers' training programme using Kirkpatrick's model: a pilot study. *Health Education Journal*, p. 5.
- [4] Hamalik, O., 2005. *Manajemen Pelatihan Ketenagakerjaan Pendekatan Terpadu: Pengembangan Sumber Daya Manusia*. Jakarta: Bumi Aksara.
- [5] Farjad, S., 2012. The Evaluation Effectiveness of Training Courses in University by Kirkpatrick Model (case study: Islamshahr university). *Social and Behavioral Sciences*, p. 4
- [6] Wang, M.L., 2017. Student Learning Outcomes Assessment for an Information Curriculum Based on the Kirkpatrick Framework. p. 54