The Effectiveness of Neonatal Care Training in Early Detection of Newborns at risk for Health Workers at Ulee Kareng Health Center, Banda Aceh

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Abstract: _Background_: *Mortality rate is one of the indicators used to illustrate the health status of a country. Infant mortality rate in Indonesia is quite high, and newborns have an even higher mortality rate compared to older infants. The low competence of the community in early detection of newborns at risk is considered as one of the factors that causes belated treatment. _Objective_: to increase the participation of the community in early detection of newborns at risk by providing training for neonatal care. _Method_: a quasi-experimental quantitative method, with one-group pretest-posttest design. The sample of the research is 45 health workers in Ulee Kareng Health Center, Banda Aceh. _Result_: the result of the research revealed the increased competence in knowledge, attitudes and skills of the health workers with p value 0,0000 before and after the neonatal care training. _Conclusion_: neonatal care training will increase the competence (knowledge, attitudes and skills) of health workers in early detection of newborns at risk.*

Keyword: newborns treatment, health workers, competence, early detection

1. Introduction

In developing countries, children and infant mortality rates are still high. The mortality rates of children under the age of five almost touch ten millions every year. Most deaths are caused by diseases that commonly affect children which can be prevented and treated. Generally, the causes of deaths are five primary cases: pneumonia, diarrhea, malaria, measles, and malnutrition [1].

World Health Organization [2] recorded that around 44% of infant deaths in 2012 happened in the first 28 days after birth. The deaths of newborns, especially of age one day to two months, are relatively higher than older infants, both with or without complication, and 78,5% of deaths happen in the first week after births.

About 36% of infant deaths in Indonesia are caused by neonatal problems (asphyxia, low birth weight, premature birth, newborn infection), followed by diarrhea 23%, pneumonia 17%, and malaria 1%. In some regions, malnutrition during pregnancy and during the first few years after birth has the biggest contribution for one-third of deaths globally [3].

Data from the Ministry of Health [4] show that the infant mortality rates have begun to decline since 2015 to the first semester of 2017. The number of cases of infant death dropped from 33,278 cases in 2015 to 32,007 cases in 2016. Meanwhile, in the first semester of 2017 there were 10,294 cases of infant death. Nevertheless, the aim of *sustainable development goals* (SDGs) in 2030 is still difficult to be achieved, because the target for neonatal mortality rates is 12 / 1,000 liveborn infants.

Looking at the problems, it can be concluded that quality service for children, especially newborns, in all health service settings, is a great challenge. Health workers must be competent in handling all newborns at risk quickly and accurately. Another important factor is to encourage the role of the community, especially of the health workers, in early detection of children's health problems, especially newborns.

According to WHO and UNICEF, 80% of infant deaths happen at home (with little or without contact with health workers). Community empowerment activities in early detection of newborn at risk are urgently needed. One way is by increasing the knowledge of health workers about neonatal care. Therefore, the health workers can take a role in fostering families and communities in the health sector, especially in dealing with problems related to neonatal health.

One of the efforts to maximize the role of workers in the community in carrying out early detection of newborns at risk is by conducting training. Training is a determining factor in developing limited human resources (in this case workers who do not have health education background), and is a prerequisite in executing government programs. Training can change a person's behavior (knowledge, attitudes and skills) in order to work better and effectively. [5]

This is in line with the research conducted by Wijaya [6] about the development of a gender-based participatory training model in improving the competence of the workers regarding maternal and child health in Bandung. The results obtained were an increase in the competence of the workers in maternal and child health after participating in the gender-based participatory training.

2. Research Method

This study applies a quasi-experimental quantitative method, with *one group pretest and posttest design* [7]. The research sample was 45 health workers in the working areas of the Ulee Kareng Health Center, Banda Aceh. The research design is described as follows:

	Pretest	Training	Posttest
Health workers	O_1 ------	X	-------- O_2

This study assessed the change in the competence (knowledge, attitudes and skills) of the health workers before and after neonatal care training. The research site was the working areas of the Ulee Kareng Health Center which consists of nine villages. The research population was all active health workers in the working areas of the Ulee Kareng Health Center, Banda Aceh, consisting of 79 people from the nine villages. The sampling technique used was *independent size mean sample*. From the calculation, 44 samples were obtained. To anticipate drop outs, 10% was added so it reached 48 samples.

The training was conducted on March 31, 2017. Out of the 48 workers invited to be involved as research subjects, the number of participants who attended the training and participated until the end of the training were 45 health workers. In this training, the researcher conducted an evaluation using the instruments provided [8]. The instrument used had been previously tested towards 30 health workers in the working areas of Kuta Alam Health Center, Banda Aceh.

3. Result and Discussion

Before conducting the training, the researcher did a pretest for the knowledge, attitudes and skills of the health workers on neonatal care. The posttest was done one week after the training and data submission was done in the working area of each health workers.

The specifics of the research subjects from the results of demographic data were the number of workers consisting of 45 respondents whose level of education was mostly high school. The employment status of most respondents was not working, namely housewives. The average age of respondents was 40.1 years with the youngest being 23 years old and the oldest 63 years. The average length of time being a worker was 7.7 years, with the shortest period being one year and the longest being 40 years.

The specifics of the research subjects from the results of demographic data were: 1) the number of workers consisting of 45 respondents whose level of education was mostly high school, 2) the employment status of most respondents was not working, namely housewives, 3) the average age of respondents was 40.1 years with the youngest being 23 years old and the oldest 63 years, 4) the average length of time being a worker was 7.7 years, with the shortest period being one year and the longest being 40 years. (**saran dari penerjemah**)

A *paired t test* was conducted to discover the differences of the competence of the health workers, which include knowledge, attitudes and skills about neonatal care before and after the training [9]. The *paired sample t-test* results of knowledge, attitudes and skills of the health workers before and after the training can be seen in the table below:

Table 1: Workers' Competence Score Before and After the Neonatal Training at Ulee Kareng Health Centre, Banda Aceh (n=45)

Competence Worker	Mean±sd	Mean difference	95% confidence interval of the difference		Nilai t	pvalue
			Lower	*Upper*		
Knowledge Before training After training	12,07±2,406 14,62±1,497	-2,556	-3,223	-1,888	-7,718	0,000*
Attitude Before training After training	76,27±6,144 89,29±7,038	-13,022	-15,213	-10,832	-11,981	0.000*
Skill Before training After training	3,18±3,234 15,56±3,086	-12,378	-13,475	-11,283	-22,780	0,000*

Based on the table above, it is known that all competence variables, namely knowledge, attitudes and skills of the health workers before and after the training had a p value of 0,000. Thus, it can be concluded that there were some changes in the competence of the health workers in neonatal care before and after the training. The highest change was in the workers' attitude which was 13.022 and the lowest change was in the knowledge aspect which was 2.556.

Training is a process that can be done to change the behavior and attitudes of a person or a group of people as an effort to develop human beings. Kirkpatrick [10], [11] defined training as an effort to advance knowledge, change attitudes and develop someone's skills.

Health workers are the people who are considered the closest to the community. They are chosen by the community, and are responsible for the local community in helping to deal with health problems in their area. To be able to perform better, health workers are to be given training first [12].

The right training method is one of the most important factors in developing the expected components of a competence. According to the Ministry of Health [13], there are various methods that can be adopted in the training in order to increase the competence. To enhance the knowledge, the appropriate methods that can be implemented are lectures, reading assignments and counseling. For an improve in attitudes, the right methods that can be applied are brainstorming, group discussions, question and answer, and exhibitions. While training methods using demonstration technique and role play are more suitable to improve skills.

The analysis of the competence (knowledge, attitudes and skills) of the health workers in the intervention group before and after the training showed a significant change in value, with a p value below 0.05. This is in line with Kirpatrick's opinion on training evaluation, that training participants are said to have learned if they have experienced changes in attitude, increase in knowledge and improvement in skills. Without a change in attitudes, increase in knowledge and improvement in skills of the health training participants, then the training program can be ruled as a failure.

1) Knowledge of the Health Workers on Neonatal Integrative Developmental Care

From the result of data analysis, it is discovered that there was a difference in the workers' knowledge before and after the training, with the average difference of 2.5. Knowledge is an important foundation in shaping someone's behavior. Behavior that is based on knowledge will last longer when compared to behavior that has no knowledge base. Knowledge is the basis for one's action. Hence, someone's ability and willingness to do something depends on his knowledge [14].

Knowledge is also needed as a support in improving a person's behavior, including attitudes and skills. The health workers' good knowledge of neonatal care will affect their attitudes and skills in early detection of newborns at risk in the community.

This is similar with the research conducted by Miskin et al [15] about the relationship between mothers' knowledge and role of workers with infants' visits in the working area of Pineleng health center, Minahasa. From the research it was found that there was a significant relationship between mothers' knowledge and infants' visits to the health center.

2) The Attitude of the Health Workers on Neonatal Integrative Developmental Care

From the analysis of the competence of the health workers before and after the training, the result revealed that the biggest change happened in the attitude variable, with the average difference 13.0. Attitude is someone's response that is still closed to the stimulus and can be perceived as a readiness and willingness to perform an action.

The process of forming attitudes is influenced by three main components, they are: trust and belief in an object, emotional attachment towards an object, and the tendency to perform action. Attitude is a reflection of a person's perception of his own role. The better the attitude of a person, the more positive perception he has of his task, so it will eventually improve performance during execution [16].

This is similar to the research conducted by Latif [17] on the relationship between the factors of the workers' *predisposing* with the workers' performance in operating Integrated Health Service Posts in the working areas of Wonokerto Health Center in 2015. The research result showed that there was a significant relation between the attitudes of the workers towards the assigned tasks with the performance of the workers in operating Integrated Health Service Posts.

Attitude can be built and developed through learning process. The workers experienced the strongest response a moment after accepting stimulus which in this case is the training. The training technique is considered good when it can produce quick stimulus to the participants. An adequate stimulus given to the workers during training will make the health workers understand the given materials more easily. This will eventually give chance to the health workers to be more skillful in performing early detection of newborns at risk in the community [18].

3) The Skills of the Health Workers on Neonatal Integrative Developmental Care

The result of the analysis also revealed a significant change in the workers' skills after the training of integrated management of newborns with the score of 12.3. Skill is a continuation of the cognitive learning result (knowledge) and the affective (attitudes). The increased skills of the health workers have a strong connection with the increase in knowledge and improvement of the workers' attitude in neonatal care.

A research by Maulidta [19] analyzed about the training conducted for the health workers at the Integrated Health Service Post in Ngaliyan District, Semarang. The training was aimed to improve the skills of the health workers in blood pressure measurement. The result of the research revealed the health workers who had joined the training had a significant skills improvement in blood pressure measurement.

It is also parallel with the research conducted by Putriningtyas [20] on the influence of training towards the skills of the health workers in Bantul. The training that was about early detection of toddlers' growth resulted in the *p value* of 0,0001. Accordingly, it was confirmed that the training had a significant influence on the skills of the health workers in early detection of toddlers' growth.

4. Conclusion

In general, it can be concluded from this research that there is a significant influence of neonatal care training for health workers towards their competence in making early detection of newborns at risk. In specific, it was discovered that there was an improvement in the knowledge, attitudes and skills of the health workers of Ulee Kareng Health Center, Banda Aceh after the neonatal care training.

5. Suggestion

It is expected for the health workers in the working area of Ulee Kareng Health Center, Banda Aceh, to incorporate the results of this training into the activities of the health centers in the community. This is by making the learned training material as an asset of basic knowledge in conducting early detection of newborns at risk.

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