INTERVENTION STUDY ON IMPROVING THE ABILITY OF HEALTH CADRES IN THE PRACTICE OF CARING FOR LOW BIRTH WEIGHT (LBW) INFANTS

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Abstract

This study aims to evaluate the impact of LBW infant care training on the ability of health cadres to practice LBW infants care in the East Jakarta area. The study used a quasi-experimental design without a control group by measuring before and after being given treatment. The research population is health cadres in 10 sub-districts in East Jakarta. The sample was selected purposively from 65 villages (10 sub-districts) with a total of 109 health cadres. The treatment given was training on LBW infants care. The method used is an interactive discussion about LBW infants care, especially Kangaroo Method Care (KMC), demonstration of infection prevention, KMC, and breastfeeding positions. The media used are modules and booklets about LBW infants care. Paired T Test was used to evaluate changes in health cadres in the practice of caring for LBW infants before and after the intervention. The results of the analysis showed that there was a significant increase in the average value of knowledge by 14.30%, attitude by 6.38% and practice by 15.45%. The change in value (p=0.000) proved that the intervention in the form of education and assistance to cadres had a significant impact on increasing the ability of health cadres to practice LBW care. The final model of the study showed that the variables for being a cadre, education status, employment status and post-training attitude were factors that significantly (p=0.000) influenced the value of LBW care practices in health cadres. The limitation of this study is the pandemic situation which causes the measurement of LBW care practices to be carried out online. Some cadres have difficulty in carrying out proper educational practices, especially the KMC redemonstrations. The results of this study are expected to contribute to reducing.

Key Words: Health Cadre; LBW infant; Practice of caring; Training

1. Introduction

Low birth weight infants (LBW) contribute to neonatal mortality by 60-80% (WHO, 2014). LBW globally continues to be a significant public health problem and is associated with a variety of short-term and long-term child health consequences. Based on data from Riset Kesehatan Dasar (Riskesdas) Indonesia, in 2013 it was reported that the percentage of LBW was 10.2%, a slight decrease compared to 2007 of 11.5% (Riset Kesehatan Dasar, 2019).

The survival of LBW in the hospital is increasing, which is characterized by the return of LBW to home. The transition of LBW from hospital to home should be prepared as an important step for the subsequent survival of LBW (Gupta et al., 2019). Sustainable care to the community and home is considered to be an important component in improving the quality of health care, especially for

vulnerable patients, such as LBW (Jefferies et al., 2014). One that has an important role is the support system of the community.

In Indonesia, health services at the community level are mostly supported by a large number of health cadres. Health cadre is a support system that has an important role to support health in the community, and can contribute to interventions to improve infant survival (Aliganyira et al., 2014). Health cadres have been widely involved in infant and toddler health services in the community through Posyandu, but there has not been much reported on the role of health cadres in LBW services in the community. The results of the field analysis reported that the majority of health cadres have never been exposed to LBW or how to care and monitor in the field. This is what underlies the research carried out with the aim of evaluating how much impact LBW care training has on the ability of health cadres to practice LBW care in the East Jakarta area.

2. Literature review

Babies are said to have LBW if their birth weight is less than 2500 grams, which is weighed within one hour after birth or twenty-four hours after birth. It is estimated that 15% to 20% of all births worldwide are LBW, representing more than 20 million births per year. This number continues to grow every year (WHO, 2015). Although the survival of LBW infant is increasing and the baby can be sent home when the condition has stabilized even though the weight has not reached 2500 grams, in reality, mothers and families are not necessarily ready to take care of LBW at home. As stated by Jefferies et al.(2014)which states that although parents receive health education while in the hospital, basically parents often feel not ready to care for their babies at home.

Several studies report that the success of mothers in practicing LBW infant care is influenced by family and community support. The family as the closest person to the mother can help reduce maternal anxiety in practicing LBW infants care at home (Pratomo et al., 2018). Health cadres have an important role as activators and providers of health information for the community around their environment. An analysis showed that 41-72% of newborn deaths could be prevented by existing interventions such as family, community and clinic based. Approximately 50% of preventive interventions carried out are community-based by involving health volunteers in the community (Gladstone et al., 2015).

In Indonesia, the type of service that involves health cadres is maternal and child health, including guidance and counseling regarding newborn care, danger signs in babies and toddlers. Although health cadres have been heavily involved in health services for babies and toddlers in the community, through Posyandu, there have not been many reports of the role of health cadres in LBW infants services in the community. The extent of the role of health cadres to monitor the ability

of families to practice LBW care at home has not been widely reported in Indonesia. Meanwhile, health cadres can be an important support system for LBW mothers and their families, by providing assistance and support for mothers to practice LBW care properly. The practice of LBW care in question is essential care that must be carried out on babies, including the implementation of Kangaroo Method Care (KMC), Exclusive Breastfeeding, Hand Washing, Newborn Hygiene Care and Immunization (Kementerian Kesehatan RI, 2010).

The purpose of this study was to determine the extent to which changes in the ability of health cadres in carrying out LBW infants care practices after training as an effort to help improve the behavior of mothers in carrying out LBW infant care at home. The urgency of this research is the need for continuity of care for LBW infant from the hospital to home with support from the environment around LBW mothers. The involvement of health cadres as public health drivers to monitor the health of LBW infant by assisting mothers and families in carrying out proper LBW infant care is expected to reduce morbidity and infant mortality, especially LBW infants.

3. Research methodology

Study setting

The study was conducted in East Jakarta from July to October 2021. This research has received an ethical review from the Polytechnic Ministry of Health Jakarta III Ethics Commission with certificate number PKJ3/061/VIII/2021. The implementation of research activities has also obtained permission from the East Jakarta Sub Department of Health.

Study design

The study used quasi-experimental design without control group by measuring pretest before given treatment and posttest after given treatment. The treatment provided in the form of LBW care facilitator training which includes the implementation of Kangaroo Mother Care (KMC), exclusive breastfeeding, hand washing with soap, newborn hygiene care and Immunization. The training is conducted online and offline in accordance with local government policies.

Sample

The research population is health cadres in 10 sub-districts in East Jakarta. The research samples were representatives from each sub-district who met the following criteria: (1) actively carrying out their duties as cadres in the past year, (2) at least graduated from junior high school, and (3) willing to be involved in monitoring or mentoring mothers who have low birth weight, at least once a week. The sample was selected purposively from 65 villages (10 sub-districts) with a total of 109 health cadres. The determination of the selected health cadres also obtained approval from the Posyandu

coordinator at the Puskesmas and the local sub-district head.

Intervention

The intervention provided was training for LBW Care facilitators in the Community. The training participants were the head of the Family Welfare Empowerment (PKK) at the sub-district level, the head of the the Mother and Child Health (KIA) Pokja in the sub-district, the head of the sub-district and village-level cadres and health cadres. The training lasts for 2 days within 7 hours/day, from 8 a.m. to 3 p.m. The material presented was an introduction to LBW infants and LBW infants care at home. The method used in the training is the delivery of information or education about LBW care, especially Kangaroo Method Care (KMC), interactive discussions, and demonstrations (infection prevention, KMC, breastfeeding position).

The media used in the training were modules and booklets about caring for LBW babies at home. This media was developed from the guidelines for LBW infants and Maternal and Child Health of the Indonesian Ministry of Health and the results of expert discussions. The modules and booklets contain information on the Kangaroo Method of Care (KMC), breastfeeding and hand washing techniques. Prior to use, the modules and booklets were tested to determine the level of attractiveness, completeness, acceptance, trustworthiness, relevance, persuasiveness and involvement to match the expected results. The KMC demonstration was carried out using a doll and a long cloth or KMC sling.

Measures

Measurements were carried out 2 times, namely before the start of the training and after receiving the training. The data collected were assessed through interviews using a questionnaire that included demographics (age, education level, employment status, length of time being a cadre and trainings that cadres had attended), knowledge, practices and attitudes towards the care of LBW infants. The questionnaires were tested for validity and reliability on 20 health cadres in the Jatiwarna Sub-district, Bekasi. Prior to data collection, written informed consent was obtained from all health cadres.

Analysis

Paired T Test was used to evaluate changes in health cadres in the practice of caring for LBW infants before and after the intervention. Multiple Linear Regression Analysis was used in assessing the Final Model of the Impact of LBW infants Care Training on LBW infants Care Practices in Health Cadres. Data processing was carried out with the help of a computer and using SPSS 22.0.

4. Results and discussions

Results

Health Cadres Assessment skills to practice LBW care are as follows:

Description of Health Cadre Characteristics

The number of health cadres as the research subjects were 109 people. Most of the cadres are 50 years old (65%), secondary education level (57.8%) unemployed (59.6%) and the majority have served as health cadres for more than 5 years (57.8%) (Table 1).

Table 1. Overview of Health Cadre Characteristics, Year 2021

Variable	Total (n=109)	Percentage (%)
Age		
< 45 years old	44	40
45 years	65	59
Educational status		
Elementary (No school and elementary school)	41	37.6
Intermediate (junior and high school)	63	57.8
High (Higher Education)	5	4.6
Cadre period		
< 2 years	23	21.1
2-5 years	23	21.1
5 years	63	57.8
Job status		
Doesn't work	65	59.6
Working	44	40.4

The Effect of LBW infants Care Training on Health Cadres

Using the Paired T Test, the effectiveness of the training intervention on health cadres was evaluated (Table 2). The knowledge of health cadres before and after training about LBW care was significantly different, with an average difference of 1,450, according to the findings of the pretest and posttest statistical knowledge tests, with a value of p = 0,00 (p<0,05). The training results in a 14,30% increase in knowledge. The application of LBW infant Treatment likewise showed a significant difference, with an average score difference of 2,486 indicating an intervention effect of 15.45%. There was a substantial difference in scores on the importance of cadres' attitudes toward LBW care, with an average score difference of 1,450 and an intervention impact of 14.30%. The fact that there was a significant difference in values between measurements taken before and after the training intervention shows that the intervention's influence on health cadres's knowledge, behaviors, and attitudes about LBW infants care was significantly increased.

Table 2. The Effect of LBW infant Care Training on Health Cadres, 2021

Variables	Mean ± SD			P value
	Before Training Intervention	After Training Intervention	Difference average	
Knowledge	10.14±1.803	11.59±1.916	1.450	0.00
Intervention Effect: Pre-Post	14.30%			
Practice	6.73±1.798	7.77±1.405	1.073	0.00
Intervention Effect: Pre-Post	15.45%			
Attitude	39.00±4.166	41.49±4.008	2,486	0.00
Intervention Effect: Pre-Post	6.38%			

In the following stage, bivariate selection is done to identify the factors that influence cadres' capacity to provide LBW infants care in order to assist mothers and families who have LBW in providing LBW care at home. If there are factors that are significantly extremely important associated to the LBW infant care practice variable but have a p value > 0.25, then these variables can be included in the multivariate model. Variables that have a p value (p value) 0.25 will then be included in the multivariate modeling.

For the variables of cadre age, length of time as a cadre, knowledge and attitude of health cadres towards LBW infants care, were analyzed using the correlation test. Analysis of education variables and working time as cadres (in weeks) using the Anova test. Job status variable analysis was carried out using the T test.

Based on the results of bivariate selection, the variables included in the multivariate modeling are:

Table 3. Candidate Variables for Multivariate Modeling

No	Variable	p value	Information
1	Cadre age	0.416	Not Candidate
2	Time serves as a cadre	0.095	Candidate
3	Educational status	0.001	Candidate
4	Working time as a cadre	0.511	Not Candidate
5	Employment status	0.000	Candidate
6	Knowledge of post training cadres	0.859	Candidate since substantially related to the value of LBW care practice
7	Post-training cadre attitude	0.135	Candidate

Based on table 3, the variables that are included in the multivariate modeling are the length of time being a cadre, education, job status, knowledge and attitude of post-training cadres.

The Effect of LBW Care Training on LBW infants Care Practices for Health Cadres

Multivariate analysis was used to assess the impact of LBW care training on LBW care practices. The analysis was carried out using Multiple Linear Regression Test since the dependent variable of LBW Nursing Practice was numerical

Table 4. Complete Modeling of the Impact of LBW Care Training on LBW Care Practices for Health Cadres, East Jakarta, 2021

Variable	□β	SE	P value
R Square		0.587	
Constant	4,620	1,152	0.000
Time serve as a Cadre	-0.039	0.013	0.003
Educational status	-1,490	0.211	0.000
Employment status	0.711	0.247	0.005
Post Training Knowledge	0.102	0.052	0.051
Post Training Attitude	0.090	0.024	0.000

Additionally, the largest p value is gradually removed from the confounder assessment until all p values are 0.05. Post-Training Knowledge was the variable that was omitted (p value = 0.051), and since the outcome was not confounded, it could be excluded. The final model, which is shown after the Post-Training Knowledge variable has been deducted, is shown below because all of the variables have p values less than 0.05. (Table 4).

Table 5. Final Model of the Impact of LBW Care Training on LBW infants Care Practices for Health Cadres, East Jakarta, 2021

Variable	□β	SE	p value
R Square		0.571	
Constant	5,474	1.082	0.000
Time serve as a Cadre	-0.041	0.013	0.002
Educational status	-1,424	0.211	0.000
Employment status	0.684	0.250	0.007
Post Training Attitude	0.098	0.024	0.000

In other words, the four independent factors (having been a cadre for a long time, having a job, having an education, and having a post-training attitude) can explain the dependent variable of LBW care practices by 57.1% in the final model that was developed. Given that the model's p value is

0.000, it can be inferred that the four variables strongly predict the variables related to how LBW infant care is provided by different health cadres.

The equation of the line from the Final Model obtained is as follows:

The Value of LBW Infant Treatment Practices on Health Cadres =5.474 - 0.041(Time serve as a Cadre) - 1.424 (Education Status) + 0.684 (Employment Status) + 0.098 (Post Training Attitude)

Based on the final model of the equation, the value of LBW infants care practices for health cadres is as follows:

a. The lower the experience (long) being a cadre, the value of LBW infants care practice decreased by 0.041 after controlling for variables of educational status, employment status, and post-training attitudes.

b. The lower the education of health cadres, the lower the value of LBW infants care practice by 1.424 after controlling for the old variables to become cadres, work status, and post-training attitudes.

c. The more positive the attitude of cadres towards LBW infants care, the value of LBW infants care practices increased by 0.098 after controlling for the variables of being a cadre, education status and employment status.

d. In cadres unemployed, the value of LBW infants care practice increases by 0.684 after controlling for the old variables to become a cadre, the educational status of cadres and post-training attitudes.

According to the findings, the Occupational Status of Cadres is the factor that most significantly affects the value of LBW infants Care Practices for Cadres.

Discussions

Description of Health Cadre Characteristics

The characteristics of health cadres in this study are in accordance with several other similar studies, which obtained the characteristics of cadres with age ≥ 45 years, length of work > 5 years and not working (Dewi & Martha, 2020 ;Mustikawati, 2019) This indicates that persons who dedicate themselves to being cadres are typically older and unemployed. Age had a substantial impact on knowledge of Posyandu cadres, according to research on the subject done in Magelang. The study's findings also revealed a positive direction (positive r-value), indicating that age positively correlated with the health cadres' skills (Siti Munfarida, 2012). As you age, your grasping capacity and thinking

will also increase, resulting in higher learning outcomes. At a sufficient age, the level of strength and maturity of health cadres increases in thinking and working, yet over time there will be a physical decrease that affects thinking and working due to aging.

Research findings also show that the majority of cadres have a history of serving more than 5 years. The results of research by Siti Munfarida, 2012, showed that there was a significant positive relationship with high strength (r = 0.776), between the length of time being a cadre and the skills of a health cadre, which shows that the longer a person has been a Posyandu cadre, the better the skill level. Lawrence Green in Notoatmodjo (2007) states that one of the predisposing elements that influence a person's behavior is experience. This demonstrates that the health cadres serve the people who visit the Posyandu services for a longer period of time the longer they perform their tasks.

The results of the study indicate that most cadres have a secondary education. An individual's perspective, in turn, can have an impact on how they behave (Notoatmojo, 2017). The more knowledge someone has, the easier it will be for them to absorb information. On the other hand, having less education can make it difficult for someone to adopt new values.

The Effect of LBW Infants Care Training on Health Cadres

The results showed a significant effect of training on increasing knowledge by 14,30%, on practice by 15,45% and cadres' attitudes towards LBW care by 6,38%. One of the efforts to develop human resources, especially in terms of knowledge, skills, abilities and attitudes is through training.

According to Ariff et al. (2010), training is necessary to advance cadre knowledge and is conducted on a regular basis to improve cadres' capacities to deliver counseling and health services in the public sector, particularly with regard to maternal and neonatal health. The Home Based Neonatal Care Model was used to implement similar training in Gadchirolli, India. Health professionals are involved in identifying and treating babies who were born prematurely or with low birth weight. Cadres receive training to provide newborn monitoring and assistance as well as to spot preterm babies or LBW in their neighborhood. Within 10 years of applying the model, there was a decrease in the incidence of LBW births and neonatal morbidity (sepsis, birth asphyxia, hypothermia and drinking problems). The findings in this study are also in accordance with the results of research from Siti Munfarida, 2012, which reported a significant relationship between training and the level of knowledge and skills of Posyandu cadres ($p < \alpha$ 0.05),

For the activities' objectives to be successfully met, health cadres must be provided with the necessary knowledge and abilities to do their duties. Training is one of the actions done, especially to enhance the role of health cadres in the community. The study's conclusions demonstrated that

cadres were more motivated to teach LBW moms and families how to practice LBW care at home if they had a more favorable attitude toward the significance of ongoing care once the infant had gone home. A positive attitude can be formed by increasing the knowledge and skills of health cadres about LBW care. Several studies have reported that the involvement of health cadres in the implementation of health programs in the community can reduce morbidity and mortality of LBW in the community (Chan et al., 2016).

The Effect of LBW infants Care Training on LBW infants Care Practices for Health Cadres

The findings in the study indicate that the value of LBW infants care practices is lower in cadres with shorter service periods as well as cadres with lower education levels. The more positive the cadre's attitude towards the importance of continuous LBW care when the baby returns home, the higher the cadre's motivation to educate LBW mothers and families to practice LBW care at home. The value of LBW infants care practices is increasing in cadres unemployed.

According to the research's conclusions, health cadres' attitudes play a role in the occurrence of LBW infants care practice activities. Information on LBW infants care knowledge has minimal effect on modifying the behavior of cadres to practice LBW infants care for women or families who have LBW if they do not have a good attitude about LBW infants care. It takes more than just knowledge to change conduct. A health education program must do more than just provide knowledge to be successful. An essential quality that must be developed for behavior modification is a positive attitude. Attitude change is achieved not only by changing one's information or perception of an object, but by changing the underlying motivation. Attitude change is generally considered more difficult to carry out than knowledge change, but is more important because it is more directly related to future behavior (Gadsden et al., 2016). The research findings also show that unemployed health cadres can improve the ability of health cadres to practice LBW infants care. Health cadres unemployed have more time to participate in Posyandu activities

In this study, health cadres who have participated in MCH and nutrition program activities in their region can also help moms and families with low birth weight, including those who are born in the community and those who return from home. This is based on numerous community-based newborn care models. hospital while it was still in operation. Continuous care at home is thought to be a crucial part of enhancing the standard of healthcare, especially for patients who are more fragile, such LBW (Jefferies, 2014). The American Academy of Pediatrics (AAP) recommends that follow-up child care be carried out in a primary health care center or at home (Bang et al., 2005). Several

studies reported that family-based health was carried out in the form of health education programs starting from the hospital to returning home (Jefferies, 2014). Other studies have also shown that education and health assistance for parents carried out by people around the family in the community are very important and effective for increasing infant survival which is characterized by a decrease in the incidence of morbidity and mortality (Lassi et al., 2016).

Health cadres are extensions of the public health center in the community in carrying out the public health center program. Minister of Home Affairs Regulation No.19 of 2011, concerning Guidelines for the Integration of Basic Social Services in Integrated Service Posts (Posyandu) states that Posyandu and community health cadres are organized so that the community can obtain basic health services to accelerate the reduction of maternal and infant mortality. Health cadres are a support system that has an important role to support health in the community, and can contribute to interventions to improve infant survival (Amelia et al., 2021). According to one analysis, family, community, and clinic-based interventions can avert 41-72% of neonatal fatalities. An estimated 50% of preventative interventions are community-based and involve community health volunteers. In their study, Yam et al. (2010) found that home-based interventions, intense health education and counseling, multidisciplinary health services, and telephone follow-up care can all help maintain continuity of care for patients.

Increased efforts to mobilize the community need to be supported by government and non-government can be the key for sustainable interventions for LBW infants care in the community, one of which is the involvement of health cadres as formal cadres in the public health system (WHO, 2015) Another effort in the community movement is the involvement of the participation of existing organizations in the community. Women's community organizations such as the Family Welfare Development group (PKK) can play a role in promoting LBW care practices in the community. Several studies report the success of the participation of community organizations in maternal and infant health. A combined analysis of RCTs from Bangladesh, India, Nepal, and Pakistan, involving women's community support groups as part of a community health intervention, showed that women's involvement in the intervention led to a 30% reduction in neonatal mortality. The reduction in neonatal morbidity also occurs through the promotion of efforts and early initiation of breastfeeding and health-seeking behavior (RR=1.87; 95% CI= 1.36–2.58) (Bhutta, 2017). Another study, which was a 2013 systematic review, showed that the support of a group of women who practiced participatory learning and action, specifically identifying and prioritizing maternal health problems during pregnancy, childbirth, and the postpartum period had an impact on a 23% reduction in maternal mortality and a decrease in maternal mortality. neonatal by 20% (Prost et al., 2013).

The study's findings indicate that continued care including the closest support system to LBW mothers and their families is required to ensure the sustainability of their ability to carry out LBW care practices. Posyandu cadres, also known as health cadres, are proof of the community's involvement in shaping community health as a whole. To promote the health of mothers and newborns, health cadres must become volunteer health workers in the community. When it comes to reporting instances involving health issues in nearby public health center inhabitants, health cadres have strong social connections with the nursing staff. To equip health cadres for overseeing LBW infants cases and aiding LBW women and families, cross-sectoral collaboration between public health center and sub-districts is required. Community-based interventions are an important platform for improving health care delivery. Community-based care is an important component of sustainable care using community resources (Marston et al., 2013).

5. Conclusion

Health cadres who attend LBW infants care training are mostly ≥45 years old with elementary school education, unemployed and have served as cadres for more than 5 years. There was a significant increase in the value of knowledge, practices and attitudes of health cadres before and after the training. The increase in the average value of cadres ' knowledge about LBW infants care before and after the training intervention amounted to 1,450 (14.30%), LBW infants care practices amounted to 2,486 (15.45%), and attitudes towards LBW infants care amounted to 1,450 (6.38%). The final model of the study showed that the variable length of cadres, education status, employment status and post-training attitudes are factors that significantly affect the value of LBW infants care practices in health cadres. The lower the (old) experience of the cadre and cadre's education, the lower the value of LBW care practices, while the more positive the cadre's attitude towards LBW infants care, the better the value of LBW care practices. In non-working cadres, the value of LBW infants care practices will also increase after other controls. Based on the four variables, the biggest influence is the employment Status of cadres. Based on the objectives set, the training provides the effect of improving the knowledge, practices and attitudes of health cadres towards LBW care.

Limitation and study forward

The limitation of this study is that the pandemic situation causes the measurement of LBW infants care practices to be carried out online. Some cadres have difficulty practicing properly, especially Kangaroo Mother Care (KMC), which is a new thing for health cadres. Providing videos on how to conduct KMC is one solution to overcome the problem of limited practice of KMC directly. The results of this study for the future are expected to contribute to the implementation of health

programs in the community in reducing the morbidity and mortality of LBW in the community by involving health cadres to achieve these goals.

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