NUTRITIONAL INTERVENTION TRIALS MODEL IN POOR AREAS OF BALI PROVINCE (Studies in Karangasem and Bangli Regency)

Kadek Tresna Adhi[1], Ni Wayan Arya Utami[1], I Made Suka Adnyana[2]

[1]Public Health Study Program, Faculty of Medicine, Udayana University,
Jl. PB. Sudirman, Denpasar Tel / Fax: (0361) 255379, E-mail: ktresnaadhi@unud.ac.id
[2]Medical Education Study Program, Faculty of Medicine, Udayana University

Abstract The result from food utilization analysis in 2015 showed that a needed for a community based nutrition intervention model to decrease malnutrition cases among under five years children. This was non experimental study using pre-post test approached, conducted in Karangasem and Bangli regency. Samples were selected by purposive sampling method. Data were collected by questionnaire and observation. Nutrition intervention model was arranged in the form of training module given to society's figure and integrated post service's cadres. Result from trial of training module I showed no significant difference between means of knowledge before and after training with p-value (1,00) > α (0,05), meanwhile in the trial of training module II showed significant difference between means of knowledge before and after training with p-value (0,048) < α (0,05). Needed a model for socialization the nutrition intervention's module which actively involved society's figures and integrated post service's cadre and ad vocation to policy maker thereby it can support the success of community nutrition improving program.

Keywords: cadre, community leader, module, nutrition intervention, training

I. INTRODUCTION

Food is one of the essential needs for human life. The national availability for sufficient food does not guarantee the regional or domestic/individual food security [1]. Based on reference [2], vulnerability to food insecurity is mainly caused by the high poverty rate, no electricity access, high underweight cases in children under five years of age, no roads access for four-wheel vehicles, no source of clean water, and the normative consumption ratio per capita to cereal availability is still increasing. Based on the Socioeconomic Survey conducted the Central Statistics Agency (BPS) of Bali, there are 4.56% of poor population in Bali province where two (2) districts showed the highest poverty rate are Karangasem (6.43%) and Klungkung (6.10%). The high poverty rate in both districts supported by the data of their high malnutrition rates in children under five. Based on the results of Bali Provincial Basic Health Research in 2010 showed the prevalence of malnutrition in children under five were 19.8% in Karangasem and 12.9%. in Klungkung. Stunting children cases was also quite high, 39.0% and 28.3% in in Karangasem and Klungkung, respectively [3]. No information about the food utilization profile of poor areas in Bali Province. It is important to analyze the food utilization, nutrition and nutritional intervention model of poor areas in Bali province.

II. METHODS AND PROCEDURE

Based on the first phase of study results a module was compiled as a nutritional intervention model to be executed on the second phase study at the selected location. The second phase was a non-experimental study with pre-posttest study design. Samples were collected using purposive sampling. Data was collected by questionnaires, observations a depth interview. Intervention model was prepared in a module that consists of two modules, modules for so called Posyandu (integrated public health program) cadre and modules for community leaders. Module draft trials were done in Karangasem and module trials was done in Bangli district. The trial village was selected based on infant growth monitoring data (SKDN) Bangli District Health Department which D/S coverage below 83% and there were more than 30% of poor households (RTM). This study data analysis was done descriptively and analytically by first conducting a normality test (Kolmogorov-Smirnov)

and homogeneity of variance then the Wilcoxon Signed Rank Test for each intervention group.

III. RESULTS AND DISCUSSION

The results of the survey and in-depth interviews in the first phase study showed that primary intervention as well as the most feasible thing to do was to increase the capacity or skills of cadres and also the involvement or support of community leaders, especially in active case finding strategies for the early detection malnutrition in children under five. Under these conditions, nutritional intervention model developed in the form of training modules for Posyandu cadre and community leaders.

Modules I trials was conducted to community leaders in Peninjoan village, District Tembuku, Bangli. Beside it, other communication media was also made such as a flip chart contained the characteristics and effects of malnutrition in children and the referral plot if there found toddlers with malnutrition. The meeting was conducted gradually, by providing pre-test and lecture with slides and video playback about abroad malnutrition prevention attempts. Furthermore, they were divided into two small groups discussing about malnutrition flip charts that was designed by the authors. Training for a quick nutritional status screening in children under five in the community was performed by using *Lila* tape. Post-test was done in the end of the training.

Data analysis was conducted on subjects who completed the pre-posttest questionnaire. A total of 15 subjects completed the questionnaire given. The others were incomplete because they were coming late and went back early during the training.

Table 1.
Subject's Characteristics of Modul I Trials

Variable	F	%
Age		
< 30 years	3	20.0
30 – 40 years	4	26.7
> 40 years	8	53.3
Additiona work		
Housewife	2	13.3
Employee (goverment/private)	1	6.7
Trader	2	13.3
Farmer	8	53.4
Others	2	13.3
Educational Level		
Senior High School	12	80.0
University	3	20.0
Length of Service as Community Leader		
< 5 years	10	66.7
5 – 10 years	3	20.0
> 10 years	2	13.3

In Table 1. showed 53.3% of subjects aged> 40 years. Most of the additional work was farmers (53.4%) beside as village's public figure. At the educational level, most subjects completed senior high school (80.0%). The length of community leader service showed that the majority of subjects had become a community leader for <5 years (66.7%).

Table 2.
Pre-Post Test Analysis Results of Modul I Trials

Training	n	Mean	SD	Min	Max	p-value
Pre test	15	82.67	7.988	70	90	1.00
Post test	15	82.67	7.988	60	90	

Table 2 showed the mean of knowledge before and after the training is worth the same, 82.67. Statistical test using Wilcoxon Signed Rank test obtained p value of (1.00)> α (0.05) which means there was no significant difference between the mean of knowledge before and after training on community leaders. The absence of differences between them was because the respondents already had a good knowledge regarding the importance of children's growth monitoring and join Posyandu or Puskesmas. This appeared from the discussion during the training. Participants could directly provide correct responses to questions related to nutritional problems in toddlers. Compared with the D/S data in Peninjoan Village in October 2016 amounted to 72.99% or below D/S target coverage by Health Department of Bangli Regency which was 83%, indicating that they required real effort of community leaders to be able to motivate and mobilize communities to join posyandu. This real efforts for instance making community agreement to impose sanctions in the form of paying fines for families with children under five who did not join the Posyandu or even give special treatment to the Posyandu cadres in the village suppose exempt from dues and others. Those examples were well received by the community leaders and considered in the village meeting or *sangkep*.

One of the Posyandu activities success parameter was based on D/S indicators or the number of public participation to join Posyandu [4]. The results of D/S evaluation in November 2016 in Peninjoan Village showed increasing of D/S coverage by 74.25% or by 1.26% from the previous month. This figure showed that the nutritional improvement program, especially the early detection of malnutrition in children under five by empowering community leaders was very possible to increase the D/S coverage. Study conducted in Pekanbaru (2015) and in Dairi (2013) qualitatively indicated the success of community leaders in improving attitudes, awareness and motivation of family visits to health care and in the prevention of nutritional problems [5], [6].

The discussions with community leaders in the Peninjoan Village result that community participation to join Posyandu was still influenced by the traditional mindset of society, such as not allowed to invite her toddler out of the house before the age of one year. Traditional mindset of the people contributed to the low community

participation to Posyandu, especially in infants aged under 1 year. In addition, people still did not realize the importance of children's growth monitoring regularly every month for nutritional problems screening. If malnutrition with complications or disease has happened to them, then they started to aware and would join to Posyandu or primary health care.

Furthermore, the module II trial was done to Posyandu cadre. The trial was conducted in the Demulih Village, Susut District, Bangli Regency. Thirty Posyandu cadres were invited, but only 20 (66.67%) cadres attended. The absence reason of the cadre was due to religious ceremonies. In this second module trial, the method was performed with a slide lecture, training of KMS (record of child's health) completion, anthropometric measurements of children under five and voluntary role playing, especially to encourage mothers or community to join Posyandu. The characteristics of the cadres in Demulih Village were shown in Table 3.

Table 3.
Subject's Characteristics in Modul II Trials

Variable	F	%
Age		
< 30 years	5	25.0
30 – 40 years	7	35.0
> 40 years	8	40.0
Additional worker		
Housewife	11	55.0
Employee	1	5.0
Trader	5	25.0
Farmer	3	15.0
Education Level		
Elementary School	2	5.3
Junior High School	8	42.1
Senior High School	10	52.6
Length of service as Cadre		
< 5 years	14	60.0
5 – 10 years	4	26.7
> 10 years	2	13.3

Table 3. showed that most subjects aged> 40 years (40.0%). Additional work in addition to being a cadre included housewives (55.0%), traders (25.0%), farmers (15.0%) and employees (5.0%). At the education level characteristic, most respondents graduated from senior high school (52.6%). According to the length of being a cadre, showed that the majority of subjects had become cadres for <5 years (60.0%). The trial in filling KMS practice based on the module cases showed that only 7 (35.0%) of 20 cadres, plotted the appropriate given case. The knowledge and skills of cadres in anthropometric measures was still low at the start of the meeting. Difficulties expressed by the cadres mostly in counseling and inviting people to come to Posyandu. The results of pre-post test trials given to Posyandu cadres were shown in Table 4.

Table 4.
Analysis Result of Modul II Pre-Post Test Trials

Training	n	Mean	SD	Min	Max	p-Value
Pre test	20	95.33	7.524	73	100	0.048
Post test	20	98.67	2.737	93	100	

Table 4. showed the mean of knowledge score was 95.33 before training and increased as much as 98.67 or 3.34 after training. Statistical test results using Wilcoxon Signed Rank test obtained by p value (0.048) < α (0.05) which means that there was a significant difference between the mean of knowledge before and after training of the cadres. This showed that community-based malnutrition prevention training was effective in improving knowledge of cadres.

The volunteers played an important role in mobilizing and motivating the community to come and bring their babies to Posyandu on regular basis as well as in early malnutrition detection in the community. Study related to the evaluation of malnutrition prevention programs through the promotion of growth monitoring of children under five which done in Mataram 2010, showed that the knowledge and skills of cadres in performing measurements and counseling was less and low coverage of weighing activities in Posyandu [7]. An increasing knowledge of Demulih village cadres in this module trials indicated that the module can be implemented as a content or material for cadres training in other areas. This was coherent with the evaluation of D/S coverage of Demulih Village of 69.4% in November 2016 (after the intervention modules) increased by 9.8% compared to the D/S coverage in October 2016, 59.6% (prior intervention module). Module II emphasized on the cadres's knowledge and skills improvement in the malnutrition early detection to children under five. Early detection done by cadres included weighing, height measurement and upper arm circumference (MUAC).

Module generated in this study is expected to be implemented in activities related to nutrition improvement program especially in the context of early detection of malnutrition in children under five in poor areas. The involvement of community leaders in poor areas plays an important role. This is due to the low levels of family education that affect family knowledge about the importance of growth monitoring of children under five.

IV. CONCLUSION

This study produced nutritional intervention model for malnutrition in the form of training modules for community leaders (module I) and Posyandu cadres (module II). There are two training modules and trials in Bangli Regency. The module I trial results showed no significant difference between the mean of knowledge before and after training on public figures, whereas the module II trials showed

significant difference between the mean of knowledge before and after training to the cadres.

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