



Implementation of Integrated Management of Sick Infant in the Stunting Prevalence Area, Kupang Regency, East Nusa Tenggara Province, Indonesia

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Abstract

One of the strategies to reduce morbidity due to malnutrition and under-five mortality is the implementation of Integrated Management of Child Diseases (IMCI). Stunting is a form of pain due to acute malnutrition that occurs in the long term so that it has an impact on the growth and development of children. The province of East Nusa Tenggara is one of the regions that contributes to the high prevalence of stunting in Indonesia. This study aims to determine the effect of the competence of health workers and health system management on the implementation of IMCI. Data of the study were derived from a cross-sectional study conducted at Community Health Centers (CHC) of Kupang district from March to April 2021. Structured interviewed was applied to obtain information from 80 informants of IMCI healthcare workers. Quantitative data were analyzed using Chi-square Analysis and Multiple Logistic Regression. Based on chi square test showed that there was a significant association between healthcare workers competence variables such as knowledge (pvalue=0.026), attitude (pvalue=0.045), skill (pvalue=0.043), training (pvalue=0.000), and health system management variable namely supervision (pvalue=0.045) against the implementation of IMCI. Health system management variables that had no significant association with the implementation of IMCI were the availability of logistic, record keeping and reporting system, and fund allocation. Competence of IMCI health workers and Health System Management are variables that have a statistically significant relationship with the implementation of IMCI. Simultaneously it is known that the variables of IMCI training and supervision of IMCI have a significant influence on the implementation of IMCI.

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Keywords : health system management; healthcare workers competence; imci; prevalence stunting.

1. Introduction

According to United Nations International Children's Emergency Fund (UNICEF), World Health Organization (WHO), the World Bank Group and the United Nations Department of Economic and Social Affairs (UN DESA)-Population Division reported that there were about 6.6 million or there were about 18.000 children per day worldwide in 2012 died before reaching their fifth birthday[1,2,3]. In 2012, it was indicated that 400 children under five years old die every day[4]. Most of these deaths was brought about by preventable causes such as: pneumonia, diarrhea, malaria, measles, malnutrition or combination of these[4,3]. Data from Indonesia Health Demographic Survey (IHDS) in 2012 showed that the child mortality rate in Indonesia was not much decrease dcompared to the results IHDS 2007. Infant Mortality Rate is just down from 44 per 1,000 live births to 40 per 1,000 live births. It is stillfar from the goal to MDG 4 which states that the mortality rate of children under fiveare expectedto fall to23/1000 live births in 2015[4].

The situation of child mortality in East Nusa Tenggara province indicated that the year 2011 were 1,272 cases, in 2012 were 1,350 cases and 2013 were 1,286 cases. The incidence of childhood illnesses associated with IMCI di Kabupaten Kupang in 2012 were 3,701 in 2013 were 3,143 cases, and in 2014 were 3,865 cases[5,6]. Hence, there is a need to overcome these problems by applying a specific intervention that aims to improve the quality of health-care services for children [7]. Regarding with the challenges, WHO/UNICEF proposed a comprehensive single efficient and effective approach to manage childhood illnesses i.e. Integrated Management of Childhood Illness (IMCI)[7,8].

IMCI is an integrated approach to child health that focuses on the well-being of the whole child. The aims of IMCI are to reduce death, illness and disability, and to promote improved growth and development among children under five years of age. IMCI involves both preventive and curative aspects that are implemented by families and communities as well as by health facilities[9,10,11]. The IMCI strategies include tree main components: Improving case management skills, improving overall health systems, and improving family and community health practices[12,13].

IMCI gives a detailed explanation about the management of common illness among infants and children. It covers not only curative aspects such as the management of pneumonia, diarrhea, and measles, but also the preventive aspects, such as counseling at every visit and vaccination[12,7]. IMCI approach has been successfully in improving the quality of child care services[14–17]. In accordance with the government programs to reduce mortality rates among infants and children under five years old, the Ministry of Health Republic of Indonesia firstly adapted IMCI in 1996. The guideline of IMCI was further developed and adopted in 1997 and [5,6]. Then in 2003 a recommendation letter from Ministry of Health was sent to all CHC to endorse IMCI implementation[18], however, the regulation of IMCI as an essential component of infant and child health was released in 2013. The effective implementation of IMCI depends on the competence of IMCI healthcare workers such as knowledge, behavior, skill, and training and also supported by health system management such as fund allocation, logistic availability, record keeping and reporting system, and supervision.

2. Material And Method

Population and Samples

The study was conducted in Kupang District which has 26 CHC. From these 26 CHC, 12 CHC were selected which composed of 6 CHC in remote area and 6 CHC in the town. The total number of health workers of the 12 CHC were 329. Using Multistage Cluster Proportional Random Sampling formula by Slovin[19], then multiplied it with its weight for each CHC the total selected number of samples were 80 respondents (see Table 1). The study was conducted from April - May 2021.

Slovin formula [19]

$$n = \frac{N}{1 + N(d^2)}$$

$$n = \frac{329}{1 + 329(0.1^2)} = 76.6 \approx 80$$

Where :

n = total sample

N= total population

d = margin error 10%

N_i= total population for cluster CHC.i (i = 1,2,....., 12)

$$n_i = \frac{N_i}{N} \times n \quad n_1 = \frac{21}{329} \times 80 \approx 5 \quad n_2 = \frac{26}{329} \times 80 \approx 6 \quad \dots\dots\dots \quad n_{12} = \frac{25}{329} \times 80 \approx 6$$

$$n = \sum(n_1 + n_2 + \dots\dots\dots + n_{12})$$

Table 1: The Total Number of Health care Workers and The Total Number of Sample per Each CHC in the Town and in the Remote Area in Kupang District, 2021.

CHC	Total Number of Health care Workers per CHC	Number of Sample
In the Town	1 21	5
	2 26	6
	3 28	7
	4 26	6
	5 28	7
	6 38	9
	7 28	7
In Remote Area	8 29	7
	9 28	7
	10 25	6
	11 27	7
	12 25	6
Total	329	80

Data Analysis

Data collected from the respondents were entered using SPSS 13 software[20].

Quantitative data were analyzed using Chi-Square analysis [21] to know the association between healthcare workers competence variables such as knowledge, behavior, skill, training, and health system management variables such as fund allocation, logistic availability, record keeping and reporting system, and supervision with the implementation of IMCI.

In order to know the effect of healthcare workers competence and health management system towards the implementation of IMCI, logistics multiple regression [20,21] was applied.

3. Results

1. Characteristics of IMCI officers

The results of this study are illustrated in the Table 2 shows that more than half of healthcare workers are a woman that is equal to 53.8%, while the male health workers amounted to only 46.2%. These data indicated a significant difference between the proportion of female health workers and men. There are more women than men who are working at CHC. Nevertheless, health services provided should be able to present satisfactory services for patient.

The study shows that the majority of health workers have educational attainment 3 years diploma in Midwife 47.5%, and 3 years Diploma in Nurse 36.2%, while there are 10 High School in Nurse (12,5%) and 3 medical doctors (3.8%).

Table 2: Characteristic Distribution of IMCI Healthcare Workers at CHC in Kupang District, 2021.

Characteristics of IMCI Healthcare workers	f	%
Sex		
• Male	37	46.2
• Female	43	53.8
Education Attainment		
• Nurse High School	10	12.5
• Diploma III in Midwife	38	47.5
• Diploma III in Nurse	29	36.2
• Medical Doctor	3	3.8
Experience		
• ≤ 5 years	31	38.8
• > 5 years	49	61.2

2. Competence Distribution of IMCI Healthcare Workers and Health System Management at CHC

Table 3: Competence Distribution of IMCI Healthcare Workers and Health System Management at CHC in Kupang District, 2021.

Indicators	f	%
IMCI Healthcare workers Competence		
A. IMCI Healthcare workers Knowledge		
Less	21	26.2
Enough	26	32.5
Good	33	41.2
B. IMCI Healthcare workers Atitude		
Poor	42	52.5
Good	38	47.5
C. IMCI Healthcare workers Skill		
Novice	18	22.5
Intermediate	31	38.8
Advanced	31	38.8
D. IMCI Healthcare workers Training		
Never attend the training	46	57.5
Attend the training	34	42.5
Health System Management		
A. IMCI Logistic Availability		
Not or Poor Available	32	40.0
Available	48	60.0
B. IMCI Fund Allocation		
Not Available	47	58.8
Available	33	41.2
C. IMCI Recording System and Reporting		
Not Complete	9	11.2
Recording System Available	14	17.5
Recording System and Reporting Available	57	71.2
D. IMCI Implementation Supervision		
Low	48	60.0
High	32	40.0

In the Table 3 above describes the knowledge manager IMCI almost half (41.2%) good knowledge, 52.5% negative attitude towards the management skills IMCI IMCI and 38.8% are in the category of capable and proficient. Forvariable management of a large partof health system managers have not been trained IMCI. Most (60%) stated IMCI managers provided logistical IMCI while 58.8% expressed no special allocation for IMCI.

3. The Association Between The Competence of IMCI Healthcare Workers and Health System Management with the Implementation of IMCI

The results of bivariate analysis using Chi-square analysis showed that IMCI healthcare worker's competence variables such as knowledge, attitude, skills and training statistically has significant association with the implementation of IMCI while health management system variables that hasa significant association with IMCI is only supervisionby the head ofthe health center/health department. Results of multivariate logistic regression analysis elded two determinant variables of IMCI implementation at CHC in Kupang district namely IMCI healthcare worker straining and IMCI supervision by the head of CHC and the Department of Health.

Table 4: The Association Between The Competence of IMCI Healthcare Workers and Health System Management with the Implementation of IMCI. at CHC in Kupang District, 2021.

Variables	IMCI Implementation				Total	X ²	P Value	
	Low		High					
	n	%	n	%				n
The Competence of IMCI Healthcare Workers								
IMCI Healthcare workers Knowledge								
Less or enough	29	61.70	18	38.29	47	100	4.98 ^a	0.026
Good	12	36.36	21	63.63	33	100		
IMCI Healthcare workers Atitude								
Poor	26	61.90	16	38,09	42	100	4.02	0.045
Good	15	39.47	23	60.52	38	100		
IMCI Healthcare Workers Skill								
Novice + Intermediate	13	72.2	5	27.7	18	100	4.09	0.043
Advance	28	45.16	34	58.83	62	100		
IMCI Healthcare workers Training								
Never Attend the training	36	78.26	10	21.73	46	100	31.61	0.000
Attend the training	5	14.70	29	85.29	34	100		
Health System Management								
IMCI Logistic Availability								
Not or Poor Available	15	18.8	17	21.2	32	40.0	0.41	0.523
Available	26	63.4	22	56.4	48	60.0		
IMCI Fund Allocation								
Not Available	26	55.3	21	44.7	47	100	0.75	0.385
Available	15	45.5	18	54.5	33	100		
IMCI Recording System and Reporting								
Not Complete	12	44.4	15	55.6	27	100	0.756	0.385
Complete	29	54.7	24	45.3	53	100		
IMCI Supervision								
Low	29	60.4	19	39.6	48	100	4.036	0.045
High	12	37.5	20	62.5	32	100		

Table 5: Factors Affecting IMCI Implementation at CHC in Kupang District, 2021.

		Variables in the Equation					
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	Knowledge	-.048	.379	.016	1	.900	.954
	Attitude	.419	.604	.481	1	.488	1.521
	Training	2.405	.637	14.232	1	.000	11.073
	RecordReport	-.602	.449	1.803	1	.179	.548
	Supervision	1.882	.679	7.686	1	.006	6.565
	Logistic	-.521	.597	.761	1	.383	.594
	Skill	.303	.389	.608	1	.435	1.354
	Constant	-4.812	2.161	4.959	1	.026	.008

a. Variable(s) entered on step 1: Knowledge, Attitude, Training, RecordReport, Supervision, Logistic, Skill.

Results of multivariate logistic regression analysis yielded two determinant variables of IMCI implementation at CHC in Kupang district namely IMCI healthcare worker’s training and IMCI supervision by the head of the health centers and the Department of Health. The results of the final analysis can be seen in the Table 5.

4. Discussion

1. Chi-Square Analysis Result

Based on chi square test showed that there was a significant association between healthcare workers competence variables such as knowledge, attitude, skill, training, and health system management variable namely supervision against the implementation of IMCI [17,22]. This finding in lines reported that knowledge, attitude, training, skill and supervision of healthcare workers affects IMCI implementation [14]. A study conducted found that even with 7-Day IMCI training course healthcare workers provide good quality performance regarding with IMCI implementation [23]. Meanwhile, [24] found that there is significant differences between health workers who were trained or not trained in IMCI in the assessment of the child, disease classification, treatment, and caretaker communication [25–27]. Nurses trained in IMCI performed as well as, and sometimes better than, medical officers trained in IMCI [10, 28].

$$\ln\left(\frac{\hat{p}}{1-\hat{p}}\right) = -4.812 + 2.405 \text{ IMCI healthcare workers training} + 1.882 \text{ IMCI Supervision}$$

Health system management variables that had no significant association with the implementation of IMCI were the availability of logistic, record keeping and reporting system, and fund allocation. [28] Somehow, indicated that lack of logistic such as drugs and other facilities become the major problems to implement IMCI.

2. Logistic Multiple Regression Analysis Result

The results of multivariate logistic regression analysis yielded two determinant variables IMCI in health centers in the districts of Kupang namely IMCI training and supervision by the head of CHC and the head of Health District Office, The resulting models is:

The result of logistic multiple regression analysis showed that both healthcare workers training and IMCI supervision has significant positive affect towards the implementation of IMCI. The odds ratio of healthcare workers training was 11.073 times than the healthcare workers who did not attend IMCI training yet. While the odds ratio of supervision variables was 6.565 times than the healthcare workers who did not supervised by the head of CHC or the head of Health District Office yet. The findings of the study in line with the research of indicated that shorter training of IMCI has the potential to be cost-effective, have higher program participation, and does not reduce the quality of clinical care, while, that IMCI training improves healthcare worker performance[28] and that improving supervision may lead to better IMCI implementation[15].

5. Conclusion

In conclusion, the IMCI training and supervision and can provide an opportunity to emphasize and encourage good quality and immediate individual IMCI practices by healthcare workers at CHC level in Kupang District

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6. Disclosure

The authors report no conflicts of interest in this work.

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