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RESEARCH STUDY

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## The Analysis of Logic Model Components from Nutrition Care Village Activity to Assist Stunting Reduction in Lamongan District

### *Analisis Komponen Model Logika dari Kegiatan Desa Peduli Gizi untuk Membantu Penurunan Stunting di Kabupaten Lamongan*

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#### Keywords:

Logic model, Nutrition care village, PELITA program, Stunting

#### ABSTRACT

**Background:** The nutrition care village is one of the PELITA program's activities and has goals for reducing stunting in Lamongan District. As stunting cases in Lamongan District decreased from 15.6% in February 2018 to 7.0% in August 2020, the achievement related to toddler undernutrition has increased from 2016 to 2019, namely 4.73%, 4.10%, 5.26%, and 6.87%. That output can potentially affect the quality of human resources or other problems in the future if it not handled properly.

**Objectives:** Analyze the components of the logic model from nutrition care village activity to assist the stunting reduction in Lamongan District.

**Methods:** This study was quantitative research, using questionnaires and observation methods. Then the data were subjected to descriptive analysis. The research sample was nine community health centers selected by purposive sampling.

**Results:** Logic model components in this study consist of inputs, activities, and outputs. Input factors were facilities and infrastructure, SOPs, and human resources. The facilities and infrastructure were fulfilled by coordinating with the community and stating that they do not yet have SOPs in a written document. The number of nutritionists in inpatient community health centers did not meet the minimum standards. The activities were for stunting areas, so they did not cover all villages. The outputs were 6 out of 9 community health centers reach the wasting target.

**Conclusions:** The results of the analysis were quite good. Some community health centers that did not meet the standard need improvements.

#### ABSTRAK

**Latar Belakang:** Desa peduli gizi merupakan salah satu kegiatan yang terdapat pada program PELITA dan memiliki tujuan untuk membantu menurunkan stunting di Kabupaten Lamongan. Seiring dengan penurunan kasus stunting di Kabupaten Lamongan dari 15,6% pada Februari 2018 menjadi 7,0% pada Agustus 2020, capaian terkait gizi kurang balita cenderung mengalami kenaikan pada tahun 2016-2019, yaitu 4,73%, 4,10%, 5,26%, dan 6,87%. Hasil keluaran tersebut berpotensi mempengaruhi kualitas sumber daya manusia atau masalah lain di masa depan jika tidak ditangani dengan baik.

**Tujuan:** Menganalisis komponen model logika pada kegiatan desa peduli gizi untuk membantu penurunan stunting di Kabupaten Lamongan.

**Metode:** Penelitian ini merupakan penelitian kuantitatif, dengan menggunakan metode angket dan observasi. Sedangkan analisis data dilakukan secara deskriptif. Sampel penelitian sebanyak 9 puskesmas yang dipilih melalui metode purposive sampling.

**Hasil:** Komponen model logika pada penelitian ini terdiri dari input, aktivitas, dan output. Faktor input meliputi sarana prasarana, SOP, dan sumber daya manusia. Semua puskesmas memenuhi sarana prasarana dengan berkoordinasi bersama masyarakat dan menyatakan belum memiliki SOP kegiatan desa peduli gizi dalam bentuk dokumen tertulis. Jumlah ahli gizi yang berada di puskesmas rawat inap belum memenuhi standar minimal. Pada aktivitas kegiatan desa peduli gizi hanya ditujukan untuk daerah yang berada pada lokus stunting sehingga tidak dilaksanakan di semua desa. Untuk output, 6 dari 9 puskesmas mencapai target wasting.

**Kesimpulan:** Hasil analisis yang didapatkan sudah cukup baik. Beberapa perbaikan perlu dilakukan bagi puskesmas yang belum memenuhi standar.

**Kata Kunci:** Model logika, Desa peduli gizi, Program PELITA, Stunting

## INTRODUCTION

The nutritional problem in children under five years old is a global priority. It is important to remember that toddlers are in an anxious period and do not gain as much weight as they did when they were infants, body proportions begin to change, head growth slows down, limbs elongate, approach adult size, and the function and their organs' size<sup>1</sup>. For example, the lack of adequate nutrients in the toddler years can become a serious problem and contribute to mortality and morbidity. So, the individual health condition can be affected by the stage in their life at which they were in their toddler years. Globally, there are intervention movement initiatives, such as Scaling Up Nutrition (SUN), which was launched in 2010. Now, 65 member countries have committed and created space to drive global support to scale up nutrition at the country level, enabling governments and their supporters to achieve a better impact<sup>2</sup>. One of the member countries in SUN, Indonesia, sets its targets and has national program priorities by focusing on the critical 1000-day window of opportunity to improve nutrition. It is called The First 1000 Days of Life (1000 HPK) Movement.

The nutritional problem may exist in various forms such as stunting, underweight, wasting, malnutrition, etc. The malnutrition status of Indonesian children aged 0-59 months according to body weight for age in 2017-2018 has increased from 3.80% to 3.90%<sup>3</sup>. Additionally, the percentage of short and very short toddlers with a thin and very thin toddler at the age of 0-59 months based on Indonesia's Health Profile 2019 tends to increase. The percentage of shorts is from 19.80% to 19.30%, and the very shorts are from 9.80% to 11.50%<sup>3</sup>. Then the percentage of thin stays at 6.70%, and the very thin is from 2.80% to 3.50%<sup>3</sup>. If all of these problems are ignored, it will have an impact on the quality of human resources, such as study at an elementary school in Nanggalo, Padang City showing that there is a relationship between nutritional status (height by age) and student learning achievement, of which 75% of stunting is in children with low learning achievement while 25% of children are in high learning achievement<sup>4</sup>. It is important to know the determination of nutritional status by monitoring all existing indicators following the anthropometry standards<sup>5</sup>. Because the increase in body length or height that is assessed from time to time can be identified immediately as any growth retardation before the occurrence of problems. So, monitoring toddlers' growth by assessing nutritional status can help prevention.

Based on the decision of the Minister of National Development Planning or the head of the National Development Planning Agency number 42/M.PPN/HK/04/2020 regarding the determination of the expansion of districts/cities where the focus of integrated stunting reduction interventions will be in 2021, Lamongan District is included in one of the 260 districts/cities in Indonesia as the focus of integrated stunting reduction interventions that have been set for

2018-2020<sup>6</sup>. Data from Lamongan Health Office, stunting cases in Lamongan have decreased from 15.64% in February 2018 to 7.10% in August 2020. That achievement is quite different from the percentage of malnutrition and undernutrition. The percentage of toddler malnutrition in 2016-2019 is 0.16%, 0.16%, 0.13%, and 0.23%. It is almost the same as the percentage of undernutrition, that is 4.73%, 4.10%, 5.26%, and 6.87%. The data indirectly stated that one of the efforts to improve nutrition, which is helping to reduce stunting, has increased. Its problems are important to solve because they can affect the Public Health Development Index (PHDI) in an area<sup>7</sup>. So, the acceleration of improving community nutritional status and stunting is 1 of 6 important issues contained in tasks and functions at the Lamongan Health Office<sup>8</sup>.

The nutrition care village is one of the toddler nutrition care (PELITA) program's activities. It is a top-down program from the Health Office, so the community health centers implement it and accept the program<sup>9</sup>. The utilization of community health center (puskesmas) is in line with Rhamadani et al.<sup>10</sup> that 61.9% of respondents, who utilize health services in the work area of *Puskesmas* Loa Ipuh Tenggarong, has a strong positive significant relationship to the nutritional status of the toddler according to the standards of weight for age, length for age, and weight for length. Also, the PELITA program is a form of intervention related to increasing nutritional equity that focuses on accelerating stunting reduction by increasing the effectiveness of specific interventions and strengthening sensitive interventions in an integrated manner<sup>11</sup>.

The purpose of this study is to analyze logic model components from the nutrition care village. Based on the U.S. Department of Health and Human Services Centers for Disease Control and Prevention, the logic model component includes inputs, activities, outputs, and outcomes (short-term, intermediate, long-term)<sup>12</sup>. But, in this study, the analysis just focuses on inputs, activities, and outputs components. The use of a logic model can help to frame of the findings and tell a program performance like a story<sup>13</sup>. So, the results provide a clear overview and link to the parts of the program that can be used as a starting point for planning or evaluation to "assist stunting reduction" in Lamongan District. It is not stated to "succeed to reducing stunting" because there are still other programs based on political commitment from Lamongan District, namely Regent Regulation Number 7 of 2019 concerning the Acceleration of Integrated Stunting Prevention. It contains 1000 days of life (PELITA program and cooking class), five pillars of community-based total sanitation, and the Healthy Living Community Movement (GERMAS)<sup>14</sup>.

## METHODS

This study is quantitative research, using a questionnaire and observation methods. Then the data was descriptive analysis. This study was conducted in

May-June 2021 in Lamongan District with population 33 community health centers (*puskesmas*). The sample is nine community health centers was selected by using the purposive sampling method. The samples are from the toddler under-nutrition prevalence (weight for age) achieved by all community health centers in Lamongan District in 2019. The range of lowest and the highest percentage divides into three categories, namely low (0%-8.12%), medium (8.13%-16.25%), and high categories (16.26%-24.38%). The researcher chose each

category with predetermined criteria, that is, two community health centers with the lowest percentage rate and two community health centers with the highest percentage rate (Table 1). The dependent variable is a prevalence of toddler under-nutrition and malnutrition, While the independent variable is the input variable that affects program activities, including facility and infrastructure, standard operating procedure, and human resources.

**Table 1.** Research sample at nine community health centers in Lamongan District

Community Health Center ( <i>Puskesmas</i> )	Undernutrition (weight for age) in 2019	Category
Lamongan	0.11%	Low
Brondong	1.28%	Low
Sugio	7.81%	Low
Dermolemahbang	8.11%	Low
Karang Pilang	8.51%	Medium
Dradah	8.58%	Medium
Kedungpring	12.11%	Medium
Sukorame	12.11%	Medium
Kalitengah	24.37%	High

The primary data are through observation and a questionnaire. The research questionnaire has been ethically reviewed and has received an ethical feasibility certificate from the Health Research Ethics Committee, Faculty of Dentistry, Airlangga University, number 200/HRECC.FODM/IV/2021. The observation variables in this study were the availability of SOPs, facilities, and infrastructure. It observes by checking on written documents of the nutrition care village SOPs stored in community health centers and the required facilities and infrastructure. The researcher conducted observation activities when the respondent filled out the questionnaire for 20 minutes. There was no scoring on the observation questionnaire but in their availability percentage. The instrument's validity in this research is content validity (face validity). It is to assess the

feasibility of the content questionnaire and only concerns the judgment of test users. That was in two community health centers in Lamongan (outside the research sample). The respondents were given an explanation and informed consent before filling out the questionnaire. The secondary data were a study from Health Profile data in Indonesia, Lamongan Health Office, books, journals, regulations, and news to discover the problem and other information.

## RESULTS AND DISCUSSION

Based on observations and questionnaires, the analysis of implementation in nutrition care village activities is presented in the following tables:

### Characteristics of Respondents

**Table 2.** Distribution of respondents' characteristics at nine community health centers in Lamongan District

Characteristics	f	%
<b>Age (year)</b>		
17-25	2	22.22
26-35	1	11.12
36-45	2	22.22
46-55	2	22.22
56-65	2	22.22
>65	0	00.00
<b>Gender</b>		
Female	6	66.67
Male	3	33.33
<b>Level of Education</b>		
High School/Equivalent	0	00.00
D3	5	55.56
D4/S1	4	44.44
Master/Specialist	0	00.00

The characteristics of the respondents in this research are age, gender, and education level shows in Table 2. The age of respondents in this study is divided into six categories based on the Indonesian Ministry of Health in 2009<sup>15</sup>. The categories are 17-25 years (Late

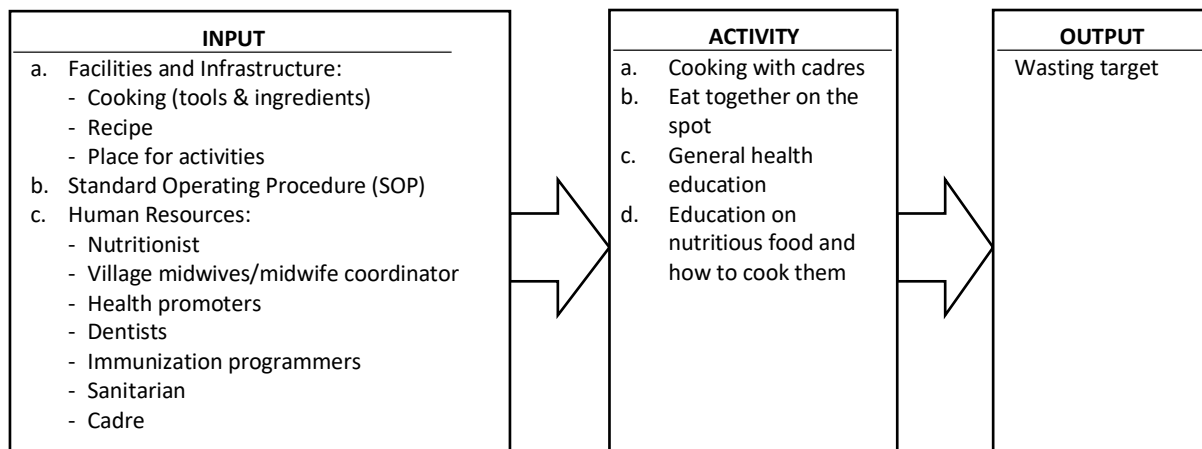
Adolescence), 26-35 years (Early Adulthood), 36-45 years (Late Adulthood), 46-55 years (Early Elderly), 56-65 years (Late Elderly), and >65 years (Seniors). Based on Table 2, most respondents are spread into almost all age categories. The results showed that 44.44% of

respondents were at the age of >45 years. That category is for the early elderly and late elderly. With increasing age, it is possible for the older health workers to be more highly motivated to work than younger ones because they are well-integrated into the community<sup>16</sup>. The longer a person works, the more experiences they will gain, and their sense of belonging arises. Furthermore, in the end, it can affect their productivity. This statement aligns with the research on the number of times nurses work in the Rokan Hilir district, which positively impacts their productivity<sup>17</sup>. However, this does not reduce the fact that human resources with much experience will resign or retire and will be replaced by new employees. The respondents are nine health workers working for a minimum of one year in charge of the nutrition program or implementing the PELITA program in the community health centers. Based on the information from respondents, there is one respondent who will retire in 2021, one respondent who will retire next year, and two other respondents who have only worked for two years.

The gender characteristic in this research is divided into male and female. The results showed that 66.67% of respondents were female. The difference in gender in the workplace is not just similar to the demand for physical strength. This statement aligns with the research conducted in three rural districts in Zambia that health workers have a significant relationship between work motivation and the female gender<sup>16</sup>.

Various nutrition programs in community health centers also require high motivation to achieve program goals, especially those related to community nutrition improvement.

A study from Rosita, Nurlinawati, and Lamid<sup>18</sup> stated no relationship between education and the implementation of nutrition service management in West Bandung District and Depok City. However, if assessed separately based on management elements, Nutrition Implementer Personnel (TPG) with nutrition educational backgrounds allow for incorporating the knowledge they have learned into the planning process of program activities. In contrast, the backgrounds other than nutrition need to learn more to incorporate planning according to their knowledge. Regarding the level of education, 55.56% of respondents have the latest educational background of D3, and 44.44% of respondents have the latest education of D4/S1. It showed that 100% of the respondents met the standards for the level of education according to Indonesian Law Number 36 of 2014 concerning health workers that has a minimum qualification of Diploma 3 for health workers, except for medical<sup>19</sup>. This standard is appropriate and sufficient for the community health center as a first-level health service facility and does not provide specialist services. In addition, respondents in this study were not asked about the ownership of a nutritionist registration certificate (STR).



**Figure 1.** A Logic model for the nutrition care village

Figure 1 describes the logical model for nutrition village activities consisting of inputs, activities, and outputs. The input factors studied only include infrastructure, SOPs, and human resources. In addition, the researcher did not conduct an assessment of several input factors in terms of environmental factors, health office, budget funds, outcome, and other variables. Differences in environmental factors like socio-cultural and social support in each community at the community health center (*puskesmas*) are quite difficult related to program assessment indicators. The factors of the health office in policy, communication, and budget lead

to broader research, which creates ambiguity and variable insensitivity. Likewise, the involvement of the village fund budget requires a detailed, broad, and comprehensive analysis study from each village in their respective working areas<sup>20</sup>. It is because the nutrition care village is a part of community empowerment, in which empowerment is one of the objectives from the village fund. In the description of the nutrition care village it is easier for readers to analyze the components of the logic model as a program evaluation tool and even its use in planning (Table 3).

**Table 3.** Analysis of the nutrition care village at nine community health centers in Lamongan District

Variable	Realization			Result
	Low Category (Lamongan, Brondong, Sugio, and Dermolemahbang)	Medium Category (Karang Pilang, Dradah, Kedungpring, and Sukorame)	High Category (Kalitengah)	
<b>INPUT</b>				
a. Facilities & Infrastructure	All community health centers fulfilled the facilities and infrastructure with the communities, especially for cooking tools, ingredients, and providing a place. Meanwhile, the cooking recipes were provided by a nutritionist (1 recipe/day).			Community health centers in all categories coordinate the fulfilment of facilities and infrastructure with the community.
b. SOP	All community health centers stated that they do not have the SOP in a written document.			All categories are still lacking in the availability of SOPs in the form of documents stored at each community health center
c. Human Resources	Only Lamongan Community Health Center has the number of nutritionists by the status of a non-inpatient health center (meet the standard of one person). In quality, 100% nutritionists is in the category of good knowledge. Meanwhile, 50% of nutritionists stated that they had attended training from the Lamongan Health Office (2-3 times).	All community health centers have an inpatient status and only have one nutritionist (which does not meet the minimum number of two people for the nutritionists). In quality, 100% nutritionist is in the category of good knowledge. Meanwhile, 75% of nutritionists stated that they had attended training from the Lamongan Health Office (2-3 times).	All community health centers have an inpatient status and only have one nutritionist (which does not meet the minimum number of two people for the nutritionists). In quality, 100% nutritionist is in the category of good knowledge. Meanwhile, the nutritionists stated that they had attended training from the Lamongan Health Office (>3 times).	Almost all community health centers in all categories did not meet the standard for the number of nutritionists. There was only one community health center (low category) that met the standard. In quality, the majority of all community health centers in all categories do not have problems, but their knowledge and skills must continue to be improved.
<b>ACTIVITY</b>				
	Only Sugio Community Health Center stated that there were no nutrition care villages' activities in their working area (until accepting the research questionnaire).	All community health centers have conducted nutrition care villages already in cross-sectoral collaboration, and the average participation rate is 9-12 days.	All community health centers have conducted nutrition care villages already in cross-sectoral collaboration, and the average participation rate is 9-12 days.	There is one community health center in the low category that does not carry out village nutrition care activities. It is not a problem because not all villages are included in the stunting locus area. As for the activities carried out in caring villages, attention needs to be paid to their activities.
a. Cooking with cadres	The community health center that stated it did this activity is Dermolemahbang and Brondong.	The community health center that stated it did this activity is Karang Pilang, Kedungpring, and Dradah.	All of the community health centers stated to do this activity.	
b. Eat together on the spot	All of the community health centers stated that they did eat together on the spot.			
c. General health education	The community health centers that stated they did this activity is	All of the community health centers stated to do this activity.	All of the community health centers stated to do this activity.	

Variable	Realization			Result
	Low Category (Lamongan, Brondong, Sugio, and Dermolemahbang)	Medium Category (Karang Pilang, Dradah, Kedungpring, and Sukorame)	High Category (Kalitengah)	
	Brondong and Lamongan.			
d. Education on nutritious food and how to cook them	Only Brondong Community Health Center stated that they do this activity.	The community health center that stated did this activity is Sukorame, Karang Pilang, and Kedungpring.	All community health centers stated that they do not do this activity.	
<b>OUTPUT</b> Wasting target in 2020, that is 8.1%	- Lamongan = 6.45% - Brondong = 0.00% - Sugio = 7.01% - Dermolemahbang = 6.26%	- Karang Pilang = 8.18% - Dradah = 7.49% - Kedungpring = 11.96% - Sukorame = 9.19%	- Kalitengah = 4.56%	Most of the community health centers in the medium category did not reach the wasting target.

### **Fulfilment of the Facility and Infrastructure for Nutrition Care Village**

Adequate facility and infrastructure are important input factors to fulfill a program. This is in line with Kalundang, Mayulu, and Mamuja<sup>21</sup> that the completeness of nutritional infrastructure has a significant relationship with the success of implementing nutrition programs at 15 community health centers in Manado City ( $p=0.013$ ). That study found a value (OR = 11.200), which means that respondents who work as nutrition implementers with incomplete nutritional infrastructure have a risk of 11.200 times with nutritional programs that are not achieved, compared to the respondents who work with complete nutritional infrastructure. It showed that the fulfillment needs to be done which will not interfere with other activities. This is similar to 61.2% of nutrition staff in West Bandung District and Depok City, who provide nutrition services, have been hampered due to the lack of facilities<sup>18</sup>.

This study showed that the fulfillment of the facility and infrastructure for the nutrition care village was good, sufficient, and carried out together with the community. This fulfillment follows the Regulation of the Indonesian Minister of Health Number 23 of 2014 concerning nutrition improvement. It explained the management of under-nutrition and malnutrition. The actions aimed to recover nutritional status with a priority to reduce morbidity from under-nutrition and malnutrition in children under five. Management of under-nutrition is carried out by the community and healthcare facilities, and management for toddlers with malnutrition must be given a formula where one of the components is a mineral mix, carried out through outpatient or inpatient treatment according to the patient's condition<sup>22</sup>.

Based on Table 3, the fulfillment of facilities and infrastructure in implementing the nutrition care village with the community is providing cooking tools, ingredients, and a place. They all had prior coordination with each other between the nutritionist and cadres. Meanwhile, the cooking recipes were given to participants on the days of the nutrition care village. There are 12 recipes on 12 days or one recipe per day in the form of photocopies of recipes. It is in line with Rahmawati et al.<sup>11</sup> that the PELITA program carried out in Dradah Community Health Center does not have a fixed place, so it usually uses residents' houses every year that have large yards. The involvement with the community shows that there is cooperation, willingness, and the ability to move together and achieve the goals<sup>23</sup>.

In addition to the adequate, it is essential to ensure the feasibility of the function because adequate good quality is needed to achieve the goals. Providing adequate infrastructure, maintenance, and inspection to ensure proper functioning before use is important. Moreover, community involvement shows differences in the use of places. It allows many people to coordinate and affect the availability of facilities and infrastructure. This is in line with the description of the evaluation of the 1000 HPK Movement in preventing stunting at the work area of Bangsri II Community Health Center, Jepara District, that the availability of materials and tools is sufficient. However, some tools are damaged but can

still be overcome by rotating use, such as scales and height measuring devices, which not all *posyandu* have, so they have to take turns<sup>24</sup>.

### **Availability SOP of The Nutrition Care Village**

Standard Operating Procedure is a series of standardized written instructions regarding various processes of organizing the activities, how, when, and where they must be carried out<sup>25</sup>. The availability of SOPs can provide good health services, clarifying the framework for carrying out their activities. The category of availability SOP for the nutrition care village in this research was divided into four, that is very poor ( $\leq 25\%$ ), poor (26-50%), good (51-75%), and very good ( $\geq 76\%$ ). The results showed that all of them do not yet have SOPs in a written document stored in the community health center based on knowledge and understanding. So, the availability of SOP is in the very poor category.

According to the Regulation of Indonesian Minister of Health Number 43 of 2019 concerning community health centers, the health workers who provide health services at community health centers must accord with the professional standards, service standards, standard operating procedures, and ethics profession<sup>26</sup>. Although, in this case, the reference to the regulation does not explicitly explain the SOP details for the nutrition care village, it is relevant because it states that health workers who provide health services in community health centers must work according to standard operating procedures. The observations found that the availability of SOP for the nutrition care village was identical to the community feeding center (CFC). Although an SOP has similar, they still cannot explain the activities in detail. The lack of clarity has a potential to the program constraints such as multiple jobs, miscommunication, no limitations related to the activities and time, and adjustment menu from the recipe book provided by Lamongan Health Office because of the different availability of local food ingredients<sup>11</sup>.

The nutrition care village is a specific activity in Lamongan District. Then it will be better if it has a specific SOP for the PELITA program, which contains all of their activities (one of them is the SOP for the nutrition care village). It is in line with Rahmawati, Husodo, and Handayani<sup>11</sup> that there is no specific SOP because the PELITA program is direct from Health Office to community health centers and forwarded to the cadres and has recipes book that can be practiced. The SOP should be formed as a written document and stored in the community health center, not only technical activity notifications. This is in line with a study from Rosita, Marwati, and Astuti<sup>27</sup> on the implementation of the GEBRAK (Joint Movement to Safeguard Pregnancy and Childbirth) program in Banjardowo Pulo Lor Village, which runs with various mentoring methods because there is no standardized SOP to be used as a reference and is only limited to providing exposure during socialization to health centers and educational institutions. So, the implementer of the activities (health cadres and students) are limited to following the directions of their respective institutions. For health cadres who carry out assistance to high-risk pregnant women, they get directions from the midwife regarding

things to do for pregnant women and records that are documented in accordance with directions from the Jombang Health Office. Meanwhile, for students who carry out mentoring for high-risk pregnant women, they get directions from lecturers regarding the management of assistance including documentation.

### **Adequacy of Human Resources for Nutrition Care Village**

The nutrition care village activities are part of the nutrition improvement in the community, so the measurement of human resources in this research was carried out according to quantity standards for the nutritionist at the community health center. Based on Indonesian Minister of Health Regulation Number 43 of 2019 concerning community health centers, the standard for non-inpatient community health centers is one nutritionist and two nutritionists for the inpatient community health center<sup>26</sup>. The results showed that 1 out of 9 community health centers met the nutritionist standard for a non-inpatient community health center. Meanwhile, the other eight community health centers with inpatient status did not meet the standards because they only had one nutritionist. The number of nutritionists at the health center can be said to be adequate in terms of delivering material for an activity. However, it is said to be inadequate or cause limitations when carrying out individual health and public health activities simultaneously and having an external office and structural position in the community health center. This is similar to a study from Mujiati and Yuniar<sup>28</sup> that the workload of the first-level health facility workers, especially in the community health center, is quite large on the average concurrently with other tasks or work and sometimes exceeds the working hours that have been set so that the services provided are not optimal.

The ideal need for the type and number of health workers based on Regulation of Indonesian Minister of Health Number 43 of 2019 concerning health centers is carried out based on workload analysis, taking into account the number of services provided, the ratio of the population, and their distribution, characteristics of the work area, the size of the work area, the availability of other first-level health service facilities in the work area, and the division of the work time<sup>26</sup>. Regarding the implementation of nutrition care village activities, it was assisted together by the nutritionist, other health workers, and cross-sectoral collaboration such as village midwives, coordinator midwives, health promoters, cadres, dentists, immunization programmers, and sanitarian. According to their competencies, health workers who are not nutritionists will be health educators. However, the technical is assisted by cadres. For example study from Rahmawati, Husodo, and Handayani<sup>11</sup> finds that implementation in the Dradah Community Health Center is carried out by five cadres tasked with cooking, preparing tools and equipment, and shopping for necessities. So, Lamongan Health Office must recalculate the need for health workers to implement programs in the community health centers, especially for nutritionists.

The quality of human resources in this study is seen from the level of knowledge and training

participation. Good knowledge is needed because it can affect the service and treatment provided related to toddler nutrition. The knowledge that includes formal and non-formal education is expected to be an indicator that encourages productive action. This is similar between the knowledge and education of mothers in Rumbai Pesisir Sub-district, Pekanbaru City has a relationship with the nutritional status of children under five<sup>29</sup>. It was found that mothers who have less knowledge will be four times at risk of having toddlers with less nutritional status than mothers with good knowledge, while mothers with low education will be three times more at risk of having toddlers with less nutritional status than mothers with higher education. The better knowledge of health workers, the better quality of work carried out is also expected to be good. In this study, the level of knowledge was divided into four score categories, namely very poor ( $\leq 25$ ), poor (26-50), good (51-75), and very good ( $\geq 76$ ). The results showed that all respondents had very good knowledge regarding nutritional problems for the toddler.

A study conducted on 150 health workers at hospitals in Uganda showed a positive relationship between training and employee performance<sup>30</sup>. This is in line with Ojaka, Olango, and Jarvis<sup>31</sup> that inadequate skills among health workers affect the quality of services provided and directly impact the motivation and retention of health workers in first-level health facilities in 3 different areas of Kenya. In this study, the training participation was mean to all of the related training for improving nutrition, both held by the Lamongan Health Office or others. The participation was divided into three categories, namely less (1 time), sufficient (2-3 times), and good ( $> 3$  times). The results showed that most respondents' participation in training organized by Lamongan Health Office was adequate, namely 2-3 times during the 2016-2021 period. There is no periodic time specified for training based on the Lamongan Regent's Regulation Number 7 of 2019 concerning the acceleration of integrated stunting prevention. It just stated that the nutrition training is held periodically by the health office. Meanwhile, the respondents stated that they had attended training conducted by other parties. It was related to training for improving nutrition, such as infant and child feeding (PMBA), breastfeeding counsellor, complementary feeding to prevent anemia and iron in toddlers, emotional demonstration (emo-demo) technique, training of growth standards, nutrition management, and management of malnutrition. Nowadays, training is not a strenuous activity because it can be followed independently, both online and offline, paid or unpaid, and organized by various institutions. This is similar to online training for nutrition educators conducted on adults with a nutrition science background that significantly increased educators' knowledge points from 82 to 85 ( $p < 0.01$ )<sup>32</sup>.

### **The Activities of Nutrition Care Village**

Every year, the Ministry of Home Affairs, through the Directorate of Regional Development, determines stunting priority for locus villages in 34 provinces as a form of the implementation of stunting prevention programs that are evenly distributed



throughout Indonesia, where the proposal for stunting locus villages comes from the local government and the number of locus villages per year also adjusts the resource capacity of each district/city<sup>33</sup>. In Lamongan District, there is a “nutrition care village” activity. It is part of the PELITA program. According to the information from Lamongan Health Office, nutrition care village is a term used for activities in Lamongan District that are carried out at the stunting locus area and consecutively for 12 days by cadres, nutritionists, and toddlers. However, based on information from one of the respondents, the term “caring village” is intended for all villages in their working area, not just for stunting locus. The activities are like the PELITA program but are different in the number of activities (four activities are not complete, such as socialization, cooking practice, supplementary food, and nutrition care village). Respondents stated that there had been nutrition care village activities in 1-2 villages (66.67%), 3-5 villages (22.22%), and no villages (11.11%) in their working area (until accepting the research questionnaire). This is possible because the community health centers that were research places have different work area villages; namely, the highest number is Sugio (21 villages), and the lowest number is Karangpilang (8 villages).

The nutrition care village stated that they do various activities. The forms of activities in the nutrition care village are cooking with cadres, eating together on the spot, general health education, education on nutritious food, and how to cook them. This is in line with a study from Amaliyah and Mulyati<sup>34</sup> that analyzed 200 people cadres and other volunteers listed officially in the community health center in Serang City and showed that education and nutrition rehabilitation effectively increased community empowerment in overcoming children with stunting aged less than five years old. Regarding the food menu, some respondents stated that they did not only adjust the reference from the recipe book provided by the Lamongan District Health Office in the Buku Pintar “PELITA LA.” The food that will be cooked is from discussions between cadres and nutritionists (considering the cooking skills, availability of food ingredients, budget funds, and other adjustments). The participation rate in this research is divided into three categories which are not enough (1-3 days), enough (4-8 days), and good (9-12 days). The result showed that the average participation rate is in a good category, 9-12 days. A good level of participation allows participants to improve the better nutritional status of the toddler. However, in the current situation, the nutrition care village has been modified to adapt to the situation during the COVID-19 pandemic to ensure there is no crowd during the implementation. There are some innovative findings reviewed by Friska and Andriani<sup>35</sup> that the community can use, for example, an Android-based application for the prevention and handling of stunting during the COVID-19 pandemic, namely the Stunting Prevention Application. It contains information on preventing stunting from pregnancy to two years of age, easy-to-understand language, and attractive visualizations. It will also make it easier for the public because of the limitations of public activities due

to government policies, so they can access information at any time and be more flexible.

The activities of the nutrition care village are identical to the other prevention and control of nutritional problems such as Nutrition Recovery Parks or *Taman Pemulihan Gizi*<sup>36</sup>, Nutrition Care Post<sup>37</sup>, Community Feeding Center (CFC)<sup>9,36</sup>, Therapeutic Feeding Centers (TFC)<sup>38</sup>, and nutrition classes<sup>39</sup>, but different in the details of the activities and almost the same regarding with gathering of target toddlers, menu preparation and cooking practice, anthropometric measurements, and counselling. The study showed that there were already almost similar activities in Lamongan District, namely Community Feeding Center (CFC). CFC is a community-based program to monitor and address the condition of under-nutrition toddlers in their environment, with the target of under-five children being malnutrition, under-nutrition, and stunting. The study from Rahmawati et al.<sup>11</sup> finds that the CFC in Dradah Community Health Center, Lamongan District, was not carried out because it was considered the same implementation as *posyandu* so it was not very useful.

In this study, there was cross-sectoral collaboration. Based on the information from respondents, the collaboration is with the village. It was providing a place, borrowing facilities, and human resources. It showed that there is participation and caring from the community to solve nutrition problems together with health workers. This is in line with studies from Maulidia and Hidayati<sup>23</sup> that there is a contribution of social capital for the family-based Healthy Indonesia Program at the Siman Sub-district community health center, Ponorogo District, which is reflected in the community's willingness to participate without coercion, mutual trust between health workers and the community, and cooperation through direct presence or communication via gadgets.

#### Wasting Prevalence Target at 9 Community Health Centers in Lamongan District

In 2012, The World Health Assembly (WHA) set six global nutrition targets for 2025. The first target is to reduce by 40% the number of children under five who are stunted, and the sixth target is to reduce and maintain childhood wasting to less than 5%<sup>40</sup>. In general, stunting is a manifestation in the long term, while wasting is obtained based on direct results from anthropometric measurements. The review by Richard et al.<sup>41</sup> in eight cohort studies involving 1,599 children in Africa, Asia, and Latin America indicates that wasting is associated with a higher risk for linear growth, and preventing wasting can increase children's height. In the same study, children aged 0–5 months and 12–23 months have a strong association. Whereas a negative association existed among children under six months, a positive association appeared from 12 months onwards. However, children who were wasted at 0–5 months did not suffer any long-term growth deficit compared to those who were not wasted during any period. This is in line with studies from Gambian Children from 1976 to 2016 that being wasted was predictive of becoming stunted by 3.2 times, irrespective of whether the child was already stunted three months earlier<sup>42</sup>. Both studies

indicate wasting is followed by stunting. Although wasting may not be the primary determinant of stunting.

In this study, the wasting prevalence indicator is one of the indicators in the guidelines for public health program indicators in the national mid-term development plan and strategic plan of the Indonesian Ministry of Health for 2020-2024<sup>43</sup>. According to Regulation of Indonesian Minister of Health Number 2 of 2020 concerning child anthropometry standards, the term wasted or severely wasted in Indonesia is mistranslated as “thin” or “very thin” so that in determining nutritional status in this output it returned to the term appropriate for more specific management, namely under-nutrition for “wasted” and malnutrition for “severely wasted.” The wasting target is obtained from the number of under-nutrition toddlers based on weight for height/length<sup>5</sup>. The results showed that six community health centers achieved the wasting prevalence target in 2020. In this case, there is no minimum target indicator for cases of malnutrition. However, there is only a target percentage (100%) of how capable community health centers are in managing toddler malnutrition, and it is one of the performance indicators of community nutrition development activities<sup>43</sup>. In strengthened efforts to improve community nutrition in Lamongan District, there is a program for giving supplementary food and vitamins to toddlers and pregnant women in poverty that targets all of the 33 community health centers in Lamongan District<sup>8</sup>. This is in line with a study of 34 provinces in Indonesia that finds the higher the poor population in the province, the higher the proportion of underweight, stunting, and wasting<sup>44</sup>.

This study may have several limitations. First, since the data used in this study are only from a few community health centers (*puskesmas*), more future research on the nutrition care village conducted in all *puskesmas* in Lamongan District is needed to better analyze. The adjustment in each community health center toward their work area can be given a potential to be different output. Second, the participants in this study were health workers in charge of the nutrition program or implementation of the PELITA program in each community health center. The others can be considered as research participants for providing a comprehensive analysis of the roles and contributions to the nutritional improvement status, such as communities, village midwives, and stakeholders. Third, the logic model component analysis in this study focused on inputs, activities, and outputs. We did not examine the outcomes of the nutrition care village (short-term, intermediate, and long-term), which would take a long time to determine their success.

## CONCLUSIONS

The analysis of the nutrition care village is quite good, and some aspects are needed for improvement to assist in stunting reduction cases. Using a logical model that nine community health centers carried out in the low, medium, and high categories were not much different from any variables based on input, activity, and output. For input, all community

health centers fulfilled the facilities and infrastructure with the communities. Furthermore, the availability of written SOPs in the nutrition care village is still lacking at each community health center. In addition to the minimum number of nutritionists, almost all community health centers did not meet the standard. However, all community health centers did not have problems in terms of quality, but their knowledge and skills must improve. The activities of the nutrition care village were not carried out in all of the villages but only in the stunting locus area. The forms of their activities are cooking with cadres, eating together on the spot, general health education, education on nutritious food, and how to cook them.

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## CONFLICT OF INTEREST

All authors have no conflict of interest in this article.

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