

Strengthening community roles to reduce stunting in COVID-19 pandemic in Indonesia rural areas: capacity building program for cadres and local government



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ABSTRACT

Introduction: The COVID-19 pandemic has impacted the community's disruption of nutrition and health services, including the closure of an integrated healthcare center (*posyandu*) in many areas in Indonesia. *Posyandu* plays an important role in nutrition services, particularly in detecting and managing growth and development disorders, such as stunting. This study aims to identify the improvement of knowledge in health cadres and community leaders in areas with high cases of severe acute malnutrition (SAM), namely, Temon, Kalibawang, and Dekso subdistricts in Kulon Progo, DIY, which followed a capacity-building program about strengthening the role of the community in the delivery of nutrition programs.

Methods: The program was conducted through interactive online seminars to ensure the continuity of essential nutrition care services during this pandemic. This study used a one-group pre-test and post-test design. Knowledge measurement was conducted in three consecutive online seminars with 180 participants: health cadres/volunteers, village heads, community leaders, nursery/early years teachers, and academicians. The pre-test and post-test questionnaires were spread through Google Forms before and after online seminars and assessed using the Wilcoxon Signed Ranks Test.

Results: The results showed that the participants improved their knowledge in webinars I and III (p -value 0.001). However, there was no significant improvement in the participants' knowledge in webinar II (p -value 0.251).

Conclusions: Multi-sectoral collaboration among the government, community leaders, health cadres, health professionals, non-government organizations, institutions, and nursery/early years teachers are needed to reduce stunting, particularly in pandemic situations.

Keywords: *community role, COVID-19 pandemic, nutrition program.*

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BACKGROUND

In 2020, stunting affected approximately 22% or 149.2 million children under five globally.¹ Indonesia holds the 115th position out of 151 countries in 2020 regarding stunting prevalence.² Despite experiencing a decrease in prevalence from 27.7% in 2019 to 24.4% in 2021.³ The prevalence of stunting in Indonesia based on WHO limits is still within the high category.² In the last three years, Daerah Istimewa Yogyakarta (DIY) has made various efforts to reduce the prevalence of Protein Energy Malnutrition (PEM) in children under five, but the target has not been achieved optimally. The prevalence of PEM in children under five in DIY in 2015 was 7.24% and increased to 7.58% in 2019. It indicates

that the efforts to reduce the prevalence of PEM in children under five in DIY have not been maximally achieved.⁴ The area with the highest prevalence rate of PEM in children under five is the Kulon Progo Regency at 9.89.⁴

Adequate nutrition is one of the determinants of health and quality of life.⁵ Therefore, stunted children may begin their lives at a disadvantage, such as learning difficulties in school as well as lower immunity to protect them against various diseases, especially infectious diseases, that can interfere with their growth and physical development.^{1,6} In later life, adults with a history of stunting earn less, face barriers to contributing to their communities, and may experience of unfavorable maternal reproductive outcomes.^{1,7}

The impact of COVID-19 has likely exacerbated the stunting prevalence due to the decrease in household wealth and disruptions to the availability and affordability of nutritious food and essential nutrition services.² The pandemic has disrupted community nutrition and health services, including the closure of integrated healthcare centers (or locally called *posyandu*) in many areas in Indonesia.⁸ *Posyandu* has an important role in nutrition services and preventing the risk of stunting as they provide various programs such as nutritional counseling, provide supplementation, as well as valid, reliable, and up-to-date data by anthropometric measurement, which allows for the early detection and management of growth and development disorders, such as stunting.⁹

Posyandu activities are conducted by and for the community to improve their quality of life through immunization, basic health services, and health education.¹⁰ The Ministry of Health of the Republic of Indonesia (2011) reported that since 1986 the launch of *posyandu*, the Maternal Mortality Rate (MMR) and Infant Mortality Rate (IMR) had been reduced (307/100,000 and 37/1,000 in 2003 to 228/100,000 and 34/1,000 in 2007, respectively) and the average life expectancy of the Indonesian people had increased (70.5 years in 2007 to 72 years in 2014).¹¹ The operational activities of *posyandu* involve community cadres (health volunteers) supported by health professionals and the local government.¹¹ However, the rate of participation of the cadres has been reported to decrease from 43.3% to 36.2% since 2005 due to the economic crisis, the boredom felt by cadres due to the less attractive and monotonous monthly routine of *posyandu* activities, and rare visits from health professionals or community leaders.¹² The rate of cadres' participation and performance in *posyandu* may be worsened due to the COVID-19 pandemic.

Moreover, the level of participation and activeness of *posyandu* cadres is influenced by the educational level, knowledge, and type of work, as well as attention from the government in the form of providing developmental training and incentives.¹⁰ During the pandemic,

the cadres could not receive much training due to social distancing.¹³ Therefore, this study was conducted to identify if there was an increase in cadres' knowledge, although the training was conducted online. Moreover, the program given in this study, i.e., capacity building, aims to strengthen the role of the health cadres and community leaders in three subdistricts in Kulon Progo, DIY, which have a high case of severe acute malnutrition (SAM), namely, Temon, Kalibawang, and Dekso subdistricts. This program was in the form of delivery of nutrition programs to ensure the continuity of essential nutrition care services during this pandemic to prevent malnutrition in children under-five in both acute phase and long-term risk reduction.

METHOD

This research is a quantitative study with a pre-test and post-test design. This study aims to obtain information on whether there was a change or progress before and after the study.¹⁴ Knowledge measurement was conducted in three webinars with 51, 70, and 59 respondents in webinars I, II, and III, respectively. The webinars were held on three consecutive dates, 17 July, 31 July, and 7 August 2021, via Zoom Meeting Clouds. The webinars lasted for around two hours each and consisted of presentations by professional speakers and question and answer (Q&A) sessions with audiences.

The researchers invited and selected community cadres and leaders from three subdistricts in Kulon Progo, DIY, with a high case of severe acute malnutrition (SAM), Temon, Kalibawang, and Dekso subdistricts, as the participants of the webinars. This program involved 'Aisyiyah' cadres as many were *posyandu* cadres, village heads, community leaders, nursery or early years teachers, and academicians. The inclusion criteria for webinar participants were all cadres and community leaders in the Temon, Kalibawang, and Dekso sub-districts, Kulon Progo, DIY. While the exclusion criteria were cadres and community leaders in the Temon, Kalibawang, and Dekso sub-districts, Kulon Progo, DIY but refused to be respondents.

Before the webinars began, the

committee spread the Google Form link of the questionnaire via the chat room in Zoom. The researchers encouraged all audiences to participate. However, whether they were willing to complete the questionnaire depended on them. The questionnaires consisted of respondents' characteristic data and multiple-choice questions (webinar I = 15 questions, webinar 2 = 15 questions, and webinar 3 = 20 questions) retrieved from the speaker's materials. The speakers validated the contents of the questionnaires before the webinars. Each webinar had its own questionnaire that was distributed for the pre-and post-test.

Lastly, the answers of the participants' seminar who filled both the pre-and post-test were calculated using SPSS and then assessed using the Wilcoxon Signed Rank Test to determine whether the webinars have caused any changes in the participants' knowledge.

RESULT

As much as 98%, 97%, and 98% of the respondents were female in webinars I, II, and III, respectively. Although the composition of respondents changed in every webinar, most of them attended diploma IV or bachelor's degree (61%, 70%, and 72% in webinars I, II, and III, respectively). The mean of participants' age in webinars I and II was 47 years old, while there was a slight difference in webinar III being 48 years old. The overall age range was from 21 to 65 years old for the three webinars. Characteristic data of the webinar respondents who filled both the pre-and post-tests are shown in Table 1.

The researchers adjusted the participants to the webinar materials and targets to be achieved so that some participants' backgrounds or institutions varied for each webinar. Webinar I, with the main topic of "Modeling of Strengthening Community Roles in Integrated Management of Malnutrition during the COVID-19 Pandemic," was attended by 51 participants by the village heads of Kulon Progo District, 'Aisyiyah' cadres, *Pimpinan Ranting 'Aisyiah* (PRA – female community leaders), *Pimpinan Ranting Muhammadiyah* (PRM – male community leaders), and MMCC-UMY

(institution). The participants of webinar I who completed the pre-and post-test were 51 people, which consisted of PRA (27 people or 60%), 'Aisyiyah cadres (15 people or 33%), village heads (2 people or 5%), and a member of the MMCC (1 person or 2%).

Webinar II with the main theme of "Strengthening the Role of Cadres in Supporting Mothers to Prevent Stunting" was attended by 'Aisyiyah cadres, PRA, PRM, nursery and early years teachers, and MMCC-UMY. A total of 70

participants completed the pre-and post-test questionnaire of the webinar, which consisted of 'Aisyiyah cadres (23 people or 33%), nursery and early years teachers (23 people or 33%), PRA (22 people or 31%), PRM (1 person or 2%), and MMCC (1 person or 2%).

The institution or background of participants in Webinar III, with the main theme "Balanced Nutrition and Eye Health to Prepare the Excellent Generation," was the same as in Webinar II. 59 participants completed the pre-and

post-test questionnaire of Webinar III, which consisted of 'Aisyiyah cadres (24 people or 41%), nursery and early years teachers (9 people or 15%), PRA (21 people or 36%), and MMCC and others (5 people or 8%). The material given by the professional speakers in the three webinars is summarized in [Table 2](#).

In webinar I and III, the participants' knowledge regarding the materials given by the speakers was significantly enhanced ($p < 0.001$), while in webinar II, there was no difference between pre-and post-test knowledge among the participants ($p > 0.251$). However, it is worth noting that in webinar II, the total number of participants who gained knowledge improvement was slightly higher at 28 people, while the rest of the 17 people experienced stagnant knowledge, and 25 respondents experienced a decline in knowledge. The results of the questionnaires completed by webinar participants can be seen in [Table 3](#).

DISCUSSION

Stunting is the devastating result of inadequate nutrition in-utero and early childhood, characterized by not attaining children's full possible height and cognitive potential.^{1,7} The researchers ran online seminars on strengthening community roles to reduce stunting because, in Indonesia, community health cadres are given the direct task in the community to improve maternal and child health to drive considerable progress in reducing stunting significantly. Therefore, this program aims to improve health cadres' knowledge so that they are adequately equipped with the knowledge to help the reduction of stunting rates in Indonesia. Transferring knowledge through education is strongly

Table 1. Characteristics of respondents in webinars I, II, and III.

Characteristics	Webinar I (n=51)	Webinar II (n=70)	Webinar III (n=59)
Gender			
Female	50 (98%)	68 (97.1%)	58 (98.3%)
Male	1 (2%)	2 (2.9%)	1 (1.7%)
Level of education			
None	-	-	1 (1.7%)
Senior high school	15 (29.4%)	18 (25.7%)	13 (22%)
Diploma III	2 (3.9%)	2 (2.9%)	1 (1.7%)
Diploma IV/Bachelor	31 (60.8%)	49 (70%)	43 (72.9%)
Master/Doctoral	3 (5.9%)	1 (1.4%)	-
Institution			
Village heads	2 (3.9%)	-	-
'Aisyiyah cadres	21 (41.2%)	23 (32.9%)	24 (40.7%)
PRA	27 (52.9%)	22 (31.4%)	21 (35.6%)
PRM	-	-	-
Nursery/early years teachers	-	1 (1.4%)	-
MMCC-UMY	1 (2%)	23 (32.9%)	9 (15.3%)
Age (year)			
Mean, min-max	47.49 (34-65)	47.31 (31-65)	48.2 (26-65)

Table 2. List of topics in the three webinars.

Webinar/date	Topic
I/17 July 2021	The critical role of the community in handling malnutrition in Indonesia Integrated policies to improve the health of rural communities Communication strategy of cadres to village heads in preventing stunting.
II/31 July 2021	Strengthening cadres' commitment to health services. Cadres' role in supporting mothers' psychosocial needs to provide adequate nutrition for children and family. The roles of UNICEF in supporting integrated programs to reduce malnutrition: strengthening cadres' roles in supporting mothers to prevent stunting.
III/7 August 2021	Utilization of geospatial data and Geographic Information System (GIS) to support stunting prevention programs. Early detection of child growth and development to prevent stunting. The role of breastfeeding and adequate nutrition in preventing stunting.

Table 3. Changes in knowledge among participants after webinars.

Webinar	n	Time	Min	Max	Median	p-value
I	51	Pre	4	11	11	0.001
		Post	8	15	12	
II	70	Pre	4	14	10	0.251
		Post	4	14	10	
III	59	Pre	8	18	14	0.001
		Post	10	19	16	

linked to health and the determinants of health.¹⁵

The results revealed that most respondents had increased knowledge after participating in webinars I and III. A quasi-experimental study by⁹ involving health cadres who were given structured training, one of which was an interactive seminar about integrated healthcare centers and stunting management and nutritional assessment, showed that there was a significant improvement in the cadres' knowledge ($p < 0.001$). Similarly, all webinars in this study were interactive, as all respondents were allowed to ask the speakers questions after the presentation sessions by using the chat feature and the Raise Hand feature on the ZOOM Cloud Meeting application.

Moreover, the researchers involved local government bodies, cadres, village heads, nursery and early years teachers, community leaders, and academic institutions in the webinars to reduce stunting effectively. A systematic review by¹⁶ summarized that a combination of multi-sectoral collaboration could succeed in interventions for stunting reduction added that political commitment had a crucial role in nutrition service changes which further influenced the nutritional status of the community, including stunting reduction.¹⁷ Therefore, the researchers invited the Regent of Kulon Progo and the Head of District Health Office of Kulon Progo to give an opening speech in the webinars. Village heads and community leaders were also invited as webinar participants with the expectation that they could better engage and commit to the reduction in stunting.

Additionally, to increase nutritional awareness among mothers and society, the critical role of political commitment needs to be materialized and maintained by a high-level national coordination body for nutrition.¹⁷ Therefore, the

researchers involved UNICEF (an international organization that played a role in improving access to high-impact nutrition interventions for mothers and children) and MMCC UMY (an academic institution) to facilitate multisectoral coherence in action for nutrition and oversee the implementation of a national nutrition program.¹⁸

Nursery and early years teachers were involved in the second webinar with the target that they could realize the importance of adequate nutrition for children's growth and development, have the right understanding of child nutrition, and encourage parents to provide adequate nutrition for their children at their home and also ran a 1-year program, one of which was the health seminar series to help develop primary school teachers to become health cadres to educate school residents as well as the family and the community about child health.¹⁹

Throughout the three webinars, 'Aisyiyah cadres (health volunteers) were the dominant participants to maximize the cadres' role in reducing stunting. They were posyandu cadres who regularly met and visited mothers and their children through monthly screening programs. They provided basic health services, especially for pregnant mothers and children under-five, such as anthropometric measurements of children under-five and distributing additional food for them.¹² By giving the intimate relationship between cadres and mothers, they became the central target of the webinars, and their presence was always scheduled for every webinar.

Furthermore, factors that might cause the result of webinar II to be insignificant could be the institution or position of the online seminar participants. Most of the 17 participants who did not experience a change in knowledge (stagnant) were early childhood teachers (47%). Meanwhile,

of the 25 participants who experienced a decrease in knowledge, the majority were PRA (48%). Another influencing factor was filling out the pre-test randomly by participants and filling out the post-test according to their knowledge during the webinar. PRA's job descriptions included running an organization for general and community development in the fields of religion, education, society, and economics.^{20,21} The conducted research showing that prior knowledge significantly influenced how students could solve learning tasks. It was worth noting that there were no specific tasks related to health or nutrition for PRAs that may cause them to not directly engage with new health and nutrition knowledge from the online seminar. Furthermore, when assessing the pre-and post-test scores of webinar II, the lowest score was obtained in question number 12 related to health, i.e., the definition of stunting. The percentage of correct answers for question number 12 was only 24% and 27% in the pretest and posttest, respectively.²² It suggested that integrating old and new knowledge that existed in one's memory could enhance their understanding of educational subject matter.

The limitation of the research is the webinar was only conducted in one district with participants in the category of cadres and community leaders. Knowledge measurement is only done during webinars. Further findings is holding webinars on a wider scale such as national. the researcher conducted a longitudinal assessment before and after the seminar to analyze the results of the capacity building program.

CONCLUSION

Providing continuous material on stunting and its management through online seminars effectively improved the knowledge of health cadres and village governments. Furthermore, multisectoral collaboration is essential to reducing stunting incidence, especially during the pandemic, as it hampers access to children's health examinations.

CONFLICT OF INTEREST

There was no conflict of interest in this study.

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ETHIC APPROVAL

The studies involving human participants were reviewed and approved by Muhammadiyah University (No. 282/EC-KEPK FKIK UMY/I/2021).

AUTHOR CONTRIBUTION

SW: Concept, Data Provision, Data Analysis, Data and Result In Interpretation, Writing and Discussion, IR : Data and Result In Interpretation, BES : Discussion, GP: Discussion, AW: Discussion, AD: Concept, Discussion, DS: Discussion, S: Discussion, DN: Discussion, AWN: Discussion. All authors contributed to the article and approved the submitted version.

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