

# An online education program for improving parent's knowledge of appropriate complementary feeding and child health

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## ABSTRACT

During the Covid-19 pandemic, its socio-economic impact can disrupt children's state of well-being as a vulnerable group. The changes in income, difficulties in accessing healthy and affordable food may affect the complementary feeding (CF) practices, affect a child's nutritional status, and immunity. Besides, the lack of CF knowledge results in an increment of commercial supplements consumption to patch up nutrient deficiencies or prevent the transmission. In this regard, the education program about healthy complementary feeding is essential. The online education program titled "Healthy Complementary Feeding to Protect Child's Health" was attended by 17 of 60 registrants (23,8%). It aimed to improving CF knowledge based on the WHO recommendation on CF, including local food-based CF. The program's evaluation results show that the major of the participants were satisfied, 60% of them strongly agreed that it was informative, and 75% of them strongly agreed that the materials were easy to understand. The follow-up results of 14 participants show that the CF knowledge score increased by 10.5% (The before-after mean score). The topic of children refusing to eat was the most beneficial topic for participants (92.9%). The conclusion is that an online-based CF education program in the pandemic setting can increase the participant's CF knowledge.



## KEYWORDS

Covid-19  
Complementary Feeding  
Online Based Education  
Mother's Knowledge  
Infant Feeding Practices



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## 1. Introduction

During Covid-19 Pandemic, children as a vulnerable group should be protected both in the disease prevention and their nutritional status [1][2]. In addition, children also have a significant risk in their well-being related to the social-economic impacts [3]. These social-economic impacts are explained through an alteration in household income and food-chain disruption. This condition leads to household difficulties to get affordable and healthy food. Further, it will also alter the child feeding practices and their nutritional status [1]. The result of a study in Indonesia showed that during the Covid-19 Pandemic, only one-third of children aged 6-11 months got an appropriate complementary feeding [4]. Hence, a sufficient amount of nutrients is essential for their optimum growth and development, stunting prevention, and also nutrient deficiency prevention, especially in their 1000 first day of life [5]. The children who have experienced stunting in their early life will bring it up throughout their whole life. They have a risk to can not optimizing their physical and intellectual potential [6]. For that reason, UNICEF emphasized that the crisis will impact children's lives for a prolonged period [3]. Lack of knowledge of the relationship between nutrients and the child's immunity resulted in inappropriate ways to prevent the disease, such as giving commercial supplements. This approach is contrary to the statement bu UNSCN that explained that the nutrients needed to maintain human immunity are mainly found in a healthy meal that contains a sufficient amount of fruits and vegetables [7]. In addition, the supplement is allowed in a specific condition and should be consumed under the supervision and counseling process by health

professionals [8]. Also, its utilization can't replace healthy food and is also less beneficial [9]. UNICEF recommends that both in a normal or emergencies, child's nutritional fulfillment specifically for those aged 6-24 mo should be fulfilled from local foods that is easily found (available). The local food for the complementary feeding should minimally consist of four of seven WHO's types of foods [10][11]. In Indonesia, it called as "Four Types of Foods (Empat Jenis Bahan Makanan)" [12]. To optimize the child's feeding practices, an education program to encourage the utilization of local foods for complementary feeding should be conducted [11]. This program is aimed to improve participants' knowledge of healthy complementary feeding to maintain a child's immunity in this pandemic situation.

## 2. Method

We delivered this online education program through a virtual meeting platform, attended by participants with inclusion criteria: the parents of children aged 0-5 years old. It was conducted through several steps; (1) Brainstormed and analyzed the partner problem priority; (2) Decided the form of the program and prepared for its details, including the committee, speakers, materials, and questionnaires; (3) Announced the program nationally and recruited participants using a registration form link available at AIMI DIY social media; (4) Program implementation consists of; Materials delivery by the speakers. The topics in this event were the children's health indicators; the relationship between the children's nutritional intake and their immunity, the WHO complementary feeding principles, Local food-based complementary feeding, and the child's feeding during the pandemic; watched a video about how to texture a meal based on the child's age; Discussion, in the end of the program, the knowledge improvement of the participants was assessed using the participant's self-assessment form of the topics. The program evaluation was also examined using a likert-scale evaluation form.

## 3. Results and Discussion

### 3.1. Applicant's Characteristics

Based on the analysis of registered applicants, the initial number of participants was 60. Most of the applicants were women (98.3%) and lived in DIY (53,3). Most of the participants were interested in the programs because they need to complementary feeding information and the offered topic was interesting. Table 1 also reveals that this online-based education allows broader participants to join from all regions in Indonesia, such as Borneo, Nusa Tenggara, and Sulawesi.

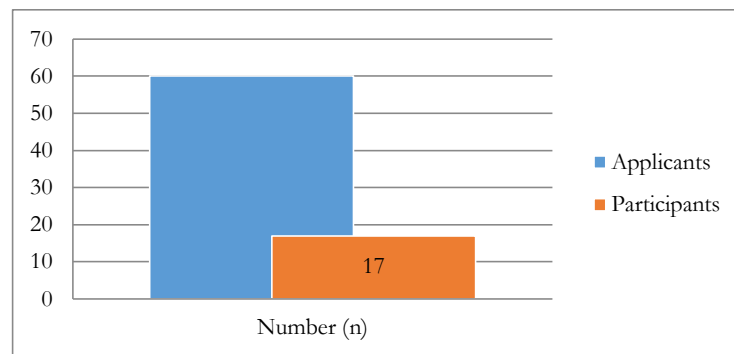
**Table 1.** Applicant's Characteristics

	Characteristics	Number (n)	Percentage
Sex	Male	1	1.7 %
	Female	59	98.3 %
Residential area	DIY	32	53.3 %
	Jawa Tengah	5	8.3 %
	Jawa Barat	5	8.3 %
	Jawa Timur	6	10 %
	DKI Jakarta	2	3.3 %
	Sumatera	3	5 %
	Kalimantan	3	5 %
	NTT	1	1.6 %
	Sulawesi	1	1.6 %
Motivation <sup>a</sup>	Program's topic interest	48	80 %
	Need CF information	51	85 %
	Have CF problems	17	28 %
	Knowledge update	2	3.3 %
	Topic is applicable	1	1.7 %

<sup>a</sup> Each participant could choose more than one options

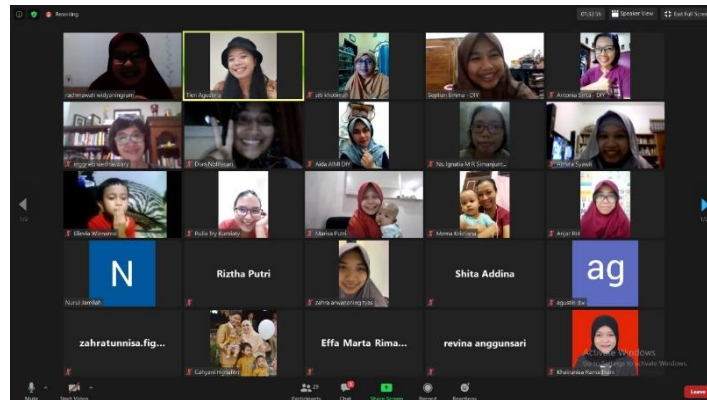
### 3.2. The Percentage of Attendance

Fig 1. shows that from 60 applicants, only 17 persons (28.3%) attended the programs and fulfill the evaluation form.



**Fig. 1.** The Percentage of Attendance

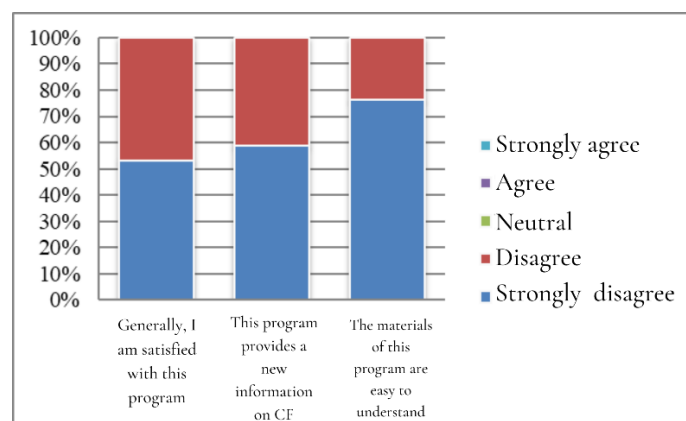
In the participation context, the percentage of applicants who attended the program is low (below 50%). This condition resembles the challenge faced by free online events that the program's public interest is high, Fig 2. Conversely, the attendance commitment is low.



**Fig. 2.** The Online Education Program Documentation

### 3.3. Participant's Feedback Results

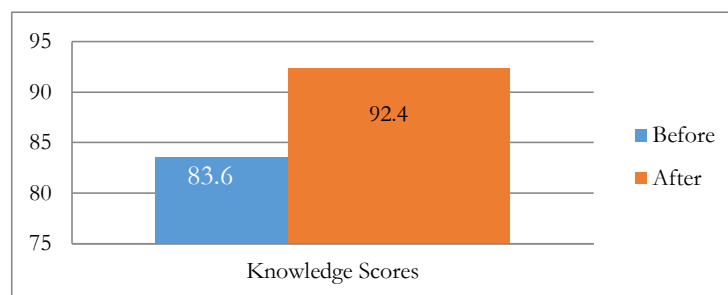
The intervention process started with explanations of each topic that be mentioned in the methodology. Later on, the video entitled "How to texture the meal based on the child's age" was played. Further, Fig 3. shows that from the feedback, it can be concluded that almost half of the participants felt very satisfied with the program. In addition, 60% of them strongly agree that the programs provided new information, and three fourth of the participants think that the material was understandable. In general, none of the participants chose the disagree and very-disagree options. It emphasizes that the program was well delivered.



**Fig. 3.** Participant's feedback results

### 3.4. Participant's Self-assessment Results

From 17 participants who fulfilled the self-assessment form, in general, there was an increase of 8.8 points (10.5%) from the average score before the program was conducted (Fig 4).



**Fig. 4.** The Comparison of Before-After Score of Participant's Complementary Feeding Knowledge

This result is similar to the research result of Arikpo, stated that education affects the increment of caregiver's knowledge of complementary feeding [13]. Also, the previous study shown that the mother's CF knowledge is a strong determinant for an appropriate infant feeding practices [14]. Further, the topic which participants think is most helpful is the approach when children refuse to eat (Table 2).

**Table 2.** Program's Topics that Participant Think Its Useful

Topics	Numbera	Percentage
The characteristics of healthy children	10	71.4 %
The relationship between child feeding and immunity	11	78.6 %
WHO's CF principles	10	71.4 %
CF textures in each age group and how to make it	12	85.7 %
Nutritious CF from local food based family menu	11	78.6 %
Child refuse to eat and the approach to solve	13	92.9 %
Responsive feeding	11	78.6 %
Four types of food for CF	10	71.4 %

<sup>a</sup> Each participant could choose more than one option

In this regard, it figures that a child's eat refusal or commonly called as fussy eating is still a problem in the child feeding process. Fussy eating is a term describing food refusal of one or more food types, limited consumption and variety of food, and/or frequent changes in the food preference. It was found that the child's fussy eathing characteristic is related to child-parents feeding relationship during feeding practices [15]. Further, the Indonesian Ministry of Health stated in their child feeding framework document that about 33% of mothers decided to terminate the eating process when the child refused to eat [5]. The other study in India explained that 48,2% of study participants (n:61) stated that the delayed complementary feeding initiation was because the child refused to eat [16]. In order to take care of a child who refuses to eat, it suggests that caregivers should take an approach without any pressure, try to combine food taste and textures. Caregivers should also avoid devices utilization or anything else that will distract the child's attention to the meal. Mealtime should be fun and contain an exchange of emotional expression between children and their caregivers through eye contact, touch, smile, and talking [17]. In addition, the information related to local CF was also valued as useful information for the participants. A previous study also found that using local food for infant's CF is suitable for catch up infant's proper nutritional status, particularly in a poor family. The recommendation of locally contextual complementary feeding which is affordable, available, easy to process, and rich in nutrition will be more beneficial in the long-term CF practices improvement than the general CF recommendations [18].

## 4. Conclusion

To sum up, we conducted an online-based education about child complementary feeding during Covid-19 Pandemic. This program was quite attractive to society because of the community's information need for complementary feeding practices. In addition, this type of program could cover a wider area

compared with the offline program. Further, the results show that the program could improve the participant's knowledge of CF practices by one tenth per cent and their relation to child health and immunity. The topic which participants think is most useful is the approach when children refuse to eat.

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### Declarations

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**Conflict of interest.** The authors declare no conflict of interest.

**Additional information.** No additional information is available for this paper.

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