# Kesmas

Volume 17 Issue 2 *May* 

Article 4

5-31-2022

# Local Wisdom Enriching Complementary Feeding Practices during Disaster Situations in Indonesia

#### Astuti Astuti

Department of Pediatric Nursing, Faculty of Nursing, Universitas Indonesia, Depok, Indonesia, astutiastuti1994@gmail.com

## Happy Hayati

Department of Pediatric Nursing, Faculty of Nursing, Universitas Indonesia, Depok, Indonesia, happy@ui.ac.id

## Fajar Tri Waluyanti

Department of Pediatric Nursing, Faculty of Nursing, Universitas Indonesia, Depok, Indonesia, fajar\_tri@ui.ac.id

#### Dessie Wanda

Department of Pediatric Nursing, Faculty of Nursing, Universitas Indonesia, Depok, Indonesia, dessie@ui.ac.id

Follow this and additional works at: https://scholarhub.ui.ac.id/kesmas

Part of the Biostatistics Commons, Environmental Public Health Commons, Epidemiology Commons, Health Policy Commons, Health Services Research Commons, Nutrition Commons, Occupational Health and Industrial Hygiene Commons, Public Health Education and Promotion Commons, and the Women's Health Commons

#### **Recommended Citation**

Astuti A , Hayati H , Waluyanti FT , et al. Local Wisdom Enriching Complementary Feeding Practices during Disaster Situations in Indonesia. *Kesmas.* 2022; 17(2): 105-112

DOI: 10.21109/kesmas.v17i2.5452

Available at: https://scholarhub.ui.ac.id/kesmas/vol17/iss2/4

This Original Article is brought to you for free and open access by the Faculty of Public Health at UI Scholars Hub. It has been accepted for inclusion in Kesmas by an authorized editor of UI Scholars Hub.

# Local Wisdom Enriching Complementary Feeding Practices during Disaster Situations in Indonesia

Astuti, Happy Hayati, Fajar Tri Waluyanti, Dessie Wanda\*

Department of Pediatric Nursing, Faculty of Nursing, Universitas Indonesia, Depok, Indonesia

#### **Abstract**

This study aimed to analyze complementary food fulfillment during disaster situations in Indonesia since it frequently experiences natural disasters and young children face unique challenges related to their feeding needs in disaster situations. This qualitative case study based on the Mount Merapi eruption and Sumedang landslide in 2021 collected data using observations, forum group discussions, and in-depth interviews; then, a thematic analysis was conducted. This study involved 17 participants, including Non-governmental Organizations (NGO) activists, health workers, residents involved in making complementary foods, and primary caregivers of children aged 6–24 months. This study found that there were five themes generated from the data analysis; 1) the donation of home-based complementary foods based on local wisdom, 2) inadequate complementary feeding, 3) limited resources to manage the complementary feeding, 4) clean versus dirty conditions, and 5) mothers' endeavour in complementary feeding practices. This study concluded that the complementary feeding practices during a disaster in Indonesia were supported by NGOs, residents, and nearby healthcare workers and thus represent a form of mutual cooperation among the Indonesian people.

Keywords: complementary feeding, disaster, local wisdom

#### Introduction

Due to its location between three tectonic plates, Indonesia is vulnerable to earthquakes, tsunamis, volcanic eruptions, and other geological disasters. In January 2021, several disasters occurred in Indonesia, including the eruption of Mount Merapi and landslides in the Sumedang District. Crucially, infants and young children require more attention during disasters than other age groups. Nutritional assistance is one of their most pressing needs. Nutrition for children aged 6–24 months is fulfilled by complementary foods that are adequate, safe, timely, and given appropriately.

Some research showed that complementary feeding practices in refugee camps might not be appropriate or adequate. 5-10 Problems with practices in other countries include early complementary food feeding, inadequate food variation that does not meet the World Health Organization (WHO) recommendations, insufficient infrastructure and water supplies, and hygiene issues. 5 In addition, instant complementary foods may be disproportionately consumed. For example, one Croatian-

Serbian refugee camp contained five tons of instant solid food that had almost expired.<sup>6</sup> The mass feeding of instant complementary foods was also found in Ukrainian refugees.<sup>7</sup> Furthermore, inadequate complementary food variety was found in Somalian refugee camps, where as many as 85% of children aged 6–23 months received complementary foods with minimum variation.<sup>8</sup> Likewise, post-earthquake Nepalese refugee camps had limited cooking facilities, high prices for ingredients, and uncertain arrival times for food aid, which led to child hunger.<sup>9</sup> During a flood, young children in a Dhaka refugee camp experienced difficulties obtaining food due to distant public kitchen facilities and food shortages.<sup>10</sup>

Applying standardized complementary feeding during disaster periods is important to support children's health. The use of complementary foods in refugee camps must be studied in Indonesia because it is a disaster-prone country that requires special efforts to improve services during and after natural disasters. In light of this, a qualitative case study was conducted to assess the feeding practice of complementary food during recent disasters

Correspondence\*: Dessie Wanda, Department of Pediatric Nursing, Faculty of Nursing, Universitas Indonesia, Depok, Indonesia, E-mail: dessie@ui.ac.id, Phone: +62 821-7884-9120

Received: October 31, 2021 Accepted: March 04, 2022 Published: May 31, 2022 in Indonesia.

#### Method

The authors applied a qualitative case study design. The case studies focused on the scope, process, and methodological characteristics that emphasized the empirical nature of an investigation and recognized the context's importance. <sup>11</sup> Furthermore, a case study could treat a unique and specific case, including a natural disaster, as its intrinsic case. <sup>12</sup>

The authors selected the sample using purposive sampling. This study included Non-governmental Organizations (NGO) activists in the humanitarian and disaster field, community leaders, health cadres (consisted of housewives in the disaster area), health workers with experience being in charge of feeding groups of infants and children in disaster situations, and parents with children aged 6-24 months when a recent disaster occurred. The general inclusion criterion for prospective participants was that they needed to be willing to participate in the study. Initially, 17 participants were recruited. Six participated in the focus group discussion (FGD), and 11 participated in in-depth interviews. One participant was then excluded because the interview was not recorded. After data saturation was reached for the remaining 16 participants, one more participant was recruited and interviewed to ensure that the data were completely saturated. All participants were interviewed once.

The study was conducted from October 2020 to July 2021. Data were collected through field observations of one of the Sumedang landslide evacuation sites, the online FGD, and semi-structured online interviews. The authors did participants observations by helping prepare the kitchen and observing anything about complementary feeding in the landslide area, then taking photos and writing field notes. The authors were also acted as facilitators in the FGD session and as an interviewer in the interview sessions. The authors used the interview guidelines to guide the interview and the FGD guideline during the discussion process. According to each participant's consent, interviews were conducted in their homes or workplaces using Zoom Meeting, WhatsApp, and phone calls. The FGD was conducted using Zoom Meeting. All interviews were recorded.

All authors were female, had qualitative study training, and carried out the qualitative study used in this study. Prior to data collection, all authors explained the details of the study and the participants' rights. The authors carried out data collection after the participants gave their consent. The FGD was conducted for 1.5 hours, whereas the interviews lasted 25–55 minutes. The FGD was run with one co-moderator, who was in charge of managing the technical course of the discussion. The moderator introduced and explained the function of the

co-moderator to the FGD participants before starting the discussion. During each interview and the FGD, one author wrote field notes.

The authors analyzed the data using an inductive thematic analysis approach for transcripts from FGD, interview, and field notes. After these transcripts were searched for meaningful statements, a coding scheme was created. The coding scheme and themes were compiled using NVivo 12 plus software. The interviewer conducted member checking to determine the validity of the data. Each temporary coding scheme was matched to each participant. If clarification of the participants was required, the interviewer discussed the matter with the participants to agree on the most appropriate joint coding for the conditions in the field. This author terminated contact with the participants after the coding was approved.

The process continued with two authors creating thick descriptions. In addition, the authors made an overview of the location and background of the disaster. These texts were expected to help summarize the results and ensure their validity when applied to the same location or background. The data triangulation used the data obtained from the observations, FGD, interviews, and study notes. Three authors conducted this triangulation by forming a common theme with their coding scheme. The themes generated from the FGD and interview data were checked to ensure they aligned with the observations and research notes. All of the authors wrote reflective notes during the study journey.

#### Results

Table 1 and 2 contains the participants' characteristics who were involved in FGD and interview sessions according to their sex, age, education, occupation, role in infant and young child feeding (IYCF) management and time started work on IYCF in disaster areas.

The five themes resulting from this study are shown in Figure 1; 1) the donation of home-based complementary foods based on local wisdom, 2) inadequate complementary feeding, 3) limited resources to manage the complementary feeding, 4) clean versus dirty conditions, and 5) mothers' endeavour in complementary feeding practices.

According to a volunteer, the IYCF kitchen in one refugee camp was used as a special kitchen for toddlers. Around 4:00 pm, the authors arrived at the kitchen. The cooking process had finished, and the food was being distributed. Cooking utensils had been tidied up on the tiled floor, which looked clean and not stepped on by dirty footwear, such as sandals or shoes. The kitchen manager stated that the ingredients for each menu were purchased every morning before cooking. The kitchen managers were the health cadres, and the kitchen organ-

Table 1. Data and Characteristics of the Participants in Focus Group Discussion Session

Code	Sex	Age (year)	Highest Education	Occupation	Role in IYCF Management	Time Started to Manage IYCF in the Disaster Area (year)
P1	M	35	High school/equivalent	Private employee	Head of NGO in humanitarian field	2020
P2	M	25	High school/equivalent	Private employee	Fundraising coordinator of the NGO	2020
P3	F	39	Diploma 1/2/3 (D1/D2/D3)	Nurse	Member of the NGO, nutritional adequacy rate team	2020
P4	M	25	High school/equivalent	Private employee	Member of the NGO, transportation and distribution team	2020
P5	M	27	High school/equivalent	Private employee	Member of the NGO, a public kitchen preparation team	2020
P6	M	26	High school/equivalent	College student	Member of the NGO, logistics and warehousing team	2020
P7	M	39	High school/equivalent	Entrepreneur	Member of the NGO, home food distribution team	2021

Notes: IYCF = Infant and Young Child Feeding, NGO = Non-governmental Organization.

Table 2. Data and Characteristics of the Participants in Interviews Session

Code	Sex	Age (year)	Highest Education	Occupation	Role in IYCF Management	Time Started to Manage IYCF in the Disaster Area (year)
P8	F	26	Diploma 1/2/3 (D1/D2/D3)	Health Program Staff	Coordinator of one of the NGO, nutrition program	2021
P9	F	19	High school/equivalent	College student	Member of distribution team	2021
P10	F	55	High school/equivalent	Homemaker	Member of IYCF kitchen team, health cadre	2021
P11	F	55	High school/equivalent	Homemaker	Member of IYCF kitchen team, health cadre	2021
P12	F	39	High school/equivalent	Private employee	Parent of a 19-month-old child	-
P13	F	45	High school/equivalent	Homemaker	Parent of an 18-month-old child	-
P14	F	36	Bachelor (S1)	Doctor	Personal in charge of NGO's IYCF program	2020
P15	M	24	Diploma 1/2/3 (D1/D2/D3)	Nutritionist	On-site health service nutrition worker	-
P16	F	43	Diploma 1/2/3 (D1/D2/D3)	Midwife	Midwife in charge of toddler health in the affected village	-
P17	F	27	High school/equivalent	Homemaker	Parent of a 21-month-old child	-

Notes: IYCF = Infant and Young Child Feeding, NGO = Non-governmental Organization.

izers were from the NGO. The food was placed on a plate or in a food container. The completed food boxes were then placed on a table, and each table was set on the clean, dry terrace of a local resident's house.

The refugee tents looked neat inside, without mud or a strong odor. Several tents had a gallon of mineral water with a water dispenser for the occupants. In addition, they had several ready-to-eat foods, such as instant complementary food (instant baby porridge) and manufactured complementary foods. Various brands and flavors of manufactured complementary foods were available. While the researchers were still at the location, a group of donators came with multiple items. One donator explained to the refugees that they had brought various manufactured complementary foods and formula milk brands.

# Theme 1. The Donation of Home-Based Complementary Foods Based on Local Wisdom

Local Wisdom Food Availability

Various local wisdom-based home-cooked foods were served in the disaster area. In this context, local wisdom means the daily cuisine of the affected community groups, such as fried tempeh marinated with salt and garlic or stir-fried carrots and beans. Another typical local food children usually consume was porridge with tofu and eggs seasoned with yellow spice (turmeric, a local spice). Local desserts such as mung bean porridge with coconut milk, sumsum porridge (made with rice powder and pandan, served with coconut milk and brown sugar), and other sweet-tasting porridges were also served as the main dishes there. One participant stated that the local food was helpful "because [the taste of the provided food or drink] is the most acceptable [to the survivors on the slopes of Mount Merapil" (P1). Another participant even mentioned the specific ingredients of one dish: "Sometimes it includes bay leaves, galangals (a local spice), and then... What is it called?... Onion, garlic.... Salt" (P5), which strengthens the statement that the local food was helpful in the disaster area.

## Home-Based Complementary Food Programs

Local wisdom complementary food was served because of some programs initiated by some NGOs in the humanitarian field. One program served complementary foods based on local wisdom-based home-cooked such

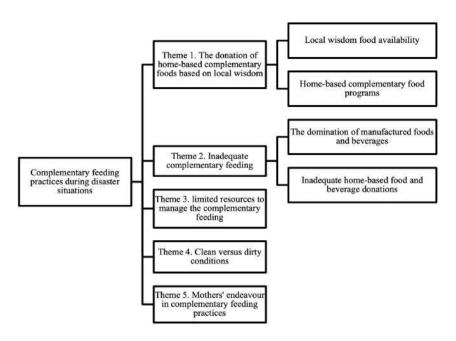


Figure 1. Coding Tree for Thematic Analysis of Complementary Feeding Practices during Disaster in Indonesia

as *jenang* (a kind of sweet porridge) and porridge with tofu or egg as side dishes. The program was given once a day in the morning for several weeks. Another program was to provide rice, side dishes, and vegetables, a typical menu for Indonesians, given twice a day for two weeks. Another NGO provided rice and vegetable soup for toddlers once a day for three days. Their implementation involved collaboration with other humanitarian activists and residents. These programs lasted for only a few days. One participant summarized the situation as follows: "Well, at that time, the NGO B sent the aid three times a day then being cooked by the cadres. That's it" (P10).

#### Theme 2. Inadequate Complementary Feeding

The Domination of Manufactured Foods and Beverages
Manufactured foods and beverages such as instant
complementary foods, formula milk, and Ultra High
Temperature (UHT) milk affected the feeding practices
of children under two. The donations of manufactured
foods from nearby primary health care (PHC) included
snacks and biscuits for toddlers and instant complementary foods. Even instant porridge for adults was given for
the toddlers. One participant observed that the instant
porridge "was given from somewhere in one sachet... So,
one kid, a toddler, got some amount of it" (P11).

Inadequate Home-Based Food and Beverage Donations Home-based food donations such as porridge and rice provided by the NGO had the same texture for all ages. Those were given once a day, twice a day, or two servings at a time. The most inadequate beverage was fruit juice for toddlers. One participant summarized the situation as follows: "Well, we only can generalize it; we cannot tell in detail which food [was] for which children. We lack [knowledge] of it, so we decided to divide the food into two or three [age] categories" (P1).

# Theme 3. Limited Resources to Manage the Complementary Feeding

The term resources in this study refer to infant and young child feeding (IYCF) counselors, breastfeeding counselors, and other nearby primary health care workers (PHCWs) who were limited in the disaster location. The number of PHCWs was limited so that the team could not carry out further food control for complementary foods or tasks related to breastfeeding support. The refugees there were also coming from all ages. One participant said, "This [problem] can be [caused by] the human resources; we lack [the participant paused to talk a few seconds] it, so [the participant paused to talk a few seconds] the [food] controlling [does not always happen.] We are not focusing only on the things to support breastfeeding" (P15).

# Theme 4. Clean versus Dirty Environment

The environmental conditions were generally clean. Moreover, the water and kitchens used, even refugees consumed boiled drinking water when the donator provided no mineral water. The garbage was also being taken care of so that the refugees felt comfortable. One participant observed that "there is always a dump truck once in [a] couple days, so the volunteers collecting the trash, though [it] is quite far from the camp... So, there is no garbage piling up" (P7).

Food quality control was done safely by the NGO activists. Thus, the food was not made using expired ingredients and was covered so that bacteria would not contaminate and not be exposed to rain. However, some parents did not maintain food safety by using the same food for the whole day and storing it at room temperature. One participant said that the situation was "first come, first served. The home-based food which was coming first will be consumed first, [then] we will consume those with the short expiry date" (P6).

# Theme 5. Mothers' Endeavour in Complementary Feeding Practices

The participants stated that children aged one year and over generally fed themselves. The children could eat easily because there were peers at the camp, and they could eat together. The parents also reported that their children ate well. "For my kid, he likes to eat by himself. If he eats by himself, he will finish his meals, at least most of it, but if I feed him, he only eats like two to four scoops, no more than that" (P17).

Meanwhile, the mothers continued to breastfeed. Some participants stated that breastfeeding mothers used a veil to cover their chest when doing the process. This was due to the conditions of the open refugee tents. "Alhamdulillah [thank goodness], I used to breastfeed in a tent. I covered it with my long veil" (P13).

### Discussion

Community work and the provision of complementary feeding with local specialties are one of the local wisdom that is applied when a disaster occurs. Local wisdom is a view of life and knowledge as well as various life strategies in the form of activities carried out by local communities in responding to multiple problems in meeting their needs. 13 Community work, known as "gotong royong," is a cooperation model with the principle of mutual agreement that values the spirit of embodiment in selfless individual behaviors or actions. 14,15 This mutual cooperation has been illustrated in many disaster events, such as the Mount Merapi cold lava disaster in 2010. Although the incident occurred without the influence of the residents, the men worked for hand in hand to fix the damaged buildings. At the same time, the women took the initiative to collect food and create an emergency public kitchen. 16 These actions are similar to those of the Mount Merapi refugees in this study; the mothers cooked together to meet the refugees' food needs. "Gotong royong" is

the value of local wisdom for Indonesians and thus distinguishes them from the citizens of other nations.<sup>15</sup>

This study found that the dishes at the camps were made based on the availability of local ingredients and local cuisine menus. This condition is in accordance with the complementary food principle to make foods from the local ingredients available nearby, in the market, and the household. The Study has shown that optimizing household foods made with local ingredients for complementary feeding can help children aged 6–23 months meet their nutritional needs. Similar study has proven that complementary foods made with local ingredients in one rural area in Indonesia and distributed with the assistance of the Integrated Service Post (ISP)/Pusat Pelayanan Terpadu (Posyandu) enhanced the nutritional status of children.

This study found that health workers from NGOs initiated the complementary feeding program. These health workers mobilized volunteers and residents/local communities to cook and provide insights into the food resources availability in the area. The involvement of the local community was one of the supporting factors for program success. In Indonesia, each region has its own food or menu specialty. That was why NGOs outside the region that helped during the disaster situations would find it difficult to find food ingredients and did not always know the local food tastes. Here, the residents/local community who know more about their comfort food would play a role in supporting the program's success.

Furthermore, health workers could educate the local community about complementary feeding as part of disaster programs in disaster-prone areas for the prevention and mitigation stage. So when a disaster occurs, the community can move faster to provide proper nutrition for children aged 6-24 months. Another study asserted that the feeding of complementary foods in emergencies or disaster situations was essential to fulfilling children's human rights in these challenging circumstances and must be done with the cooperation of parties such as community groups, certain communities, NGOs, and health service providers.<sup>20</sup>

Indonesians use the principle of "gotong royong" in disaster situations to bear the same burden. In the context of a disaster, mutual assistance is part of Community-Based Disaster Risk Reduction (CBDRR). The CBDRR is a disaster risk reduction program where residents carry out risk studies, plans, and actions, while outside parties, such as NGOs, act as facilitators. <sup>21</sup> Based on this study's results and the literature, <sup>16,18</sup> formal or informal collaborations between residents to provide appropriate and adequate home-based complementary foods can be a solution to meet the nutritional needs of young children.

The participants reported that some home-based com-

plementary foods were only given to children older than one year. Thus, children aged 6-12 months consumed more manufactured foods than older children. The manufactured foods available were instant solid foods, biscuits, wafers, and instant porridge for adults. Manufactured complementary foods are the most commercially available type, and they are dominated by a mixture of smooth and sweet foods that rarely contain a single food taste. Hence, they cannot meet an infant's need to be exposed to various textures and flavors.<sup>22,23</sup> Moreover, they tend to be high in energy but do not provide the essential nutrients needed for growing children.<sup>23</sup> Manufactured complementary foods also have high salt, added sugar content, and a fatty acid profile that is not internationally recommended.<sup>24</sup> Consumption patterns that prioritize manufactured snacks contribute to the reduced nutritional intake of children under five in developing countries.<sup>25,26</sup> In the refugee camp, feeding formula milk became a daily routine. In fact, formula milk should not be given in emergency or disaster situations because of the risk of diarrhea, malnutrition, and even death caused by dirty bottles and tools.<sup>17</sup> In addition, most formula milk contains additional calorie sweeteners that are not needed by children aged 6-24 months. Various child health practitioners have reported that it is better to avoid formula milk if possible.<sup>27</sup>

This study found that the home-based foods provided to the refugees did not meet the recommended standards. Foods such as soft porridge and rice were supplied with one texture for all children. According to the Ministry of Health of the Republic of Indonesia guidelines, children aged 6–9 months should be provided with thick porridge. children aged 9-12 months can eat family foods that have been chopped or cut into small pieces, and children aged 12-24 months may have sliced food. 13 Infants must experience an increase from thick to plain food textures and a proper transition to family foods by trying a different kinds of textures.<sup>23</sup> The fulfillment of the right texture for children can train them to make more complex, specialized, and structured oral movements enabling them to achieve smooth and effective chewing skills at the age of six.<sup>28,29</sup> The delayed introduction of hard and chewy food textures can lead to underdeveloped muscles and jawbones.<sup>29</sup>

Based on this study's result, the provision of porridge was only accompanied by side dishes like tofu and eggs. This provision did not meet the requirements for the number of variations of complementary feeding. Minimum dietary diversity (MDD) recommendations state that at least one meal must contain four or more foods from seven food groups (carbohydrates, proteins, fats, fiber, minerals, vitamins and water). The solution of porridge was only accompanied to the provide seven food groups (carbohydrates, proteins, fats, fiber, minerals, vitamins and water). A less diverse diet increases the risk of micronutrient deficiencies and prevents children from experiencing various flavor combi-

nations.<sup>23</sup> For the beverage, one of the NGOs donated mango juice with sugar to young children. However, the provision of juice to young children who are still in the complementary feeding category should be limited to avoid replacing more nutrient-rich foods.<sup>23</sup> Giving fruit juice to children under two years of age as a snack can increase their energy intake by 67%, which can increase their weight without providing other essential nutrients.<sup>31</sup>

This study determined that local health workers did not control the provision of foods and beverages. In addition, NGOs activists could not always bring in IYCF or breastfeeding counselors. Ultimately, the government, NGOs, health workers, and residents must prioritize support and assistance to continue exclusive breastfeeding until the age of two or more, provide safe artificial food where breastfeeding is not possible, and provide complementary foods recommended for all infants and young children in an emergency.<sup>32</sup> Recommended complementary foods should be both adequate and safe (e.g., free from bacterial contamination). Hence, complementary foods must be hygienically processed and stored. Dirty locations can contribute bacteria to the solids provided. The evacuation sites in this study were clean. The refugees also could consume clean water because the disaster conditions did not directly impact the water, given that the disaster location was in the highlands. The highland areas are still dominated by forests, and groundwater can become absorbed freely to maintain water quality, so there is no significant change.<sup>33</sup>

Likewise, this study found that responsive feeding, another practice related to complementary feeding, continued despite the situation. Children aged 12-24 months demonstrated independent eating and well. Ideally, feeding young children promotes their independence. However, it can also manage behavioral problems and avoid indulgent practices in children with long-term consequences for their nutrition and health.<sup>23</sup> In addition, structured mealtimes and responsive feeding are associated with better eating behaviors.<sup>34</sup> Based on the observation in this study, breastfeeding practices were still operated as usual for children younger than two years of age amid a disaster situation. Breastfeeding is essential to the health of the infant and young children during a disaster. Crucially, young children who do not get breast milk in disaster situations are at higher risk of being infected with pathogens, malnourished, and threatened with various diseases that can cause death.<sup>35</sup>

The strength of this study was that it involved various parties in providing complementary feeding during a disaster. These parties were not only from health workers or NGOs but also from the recipients (mothers of children aged 12-24 months). In addition, the data from this study were obtained from various methods of collection:

observation, FGD, and interviews. The use of multiple data collection methods and the variety of participants enriched the study data and increased the objectivity of the study.

The limitation of this study is that it did not assess the responsive feeding practices of children aged 6–12 months. This study did not include the parents of children aged 6–12 months during a disaster situation because their contact information was missing. So, this study could not determine how young children aged 6-12 months ate while the disaster happened.

Further study can involve parents with children aged 6-12 months to get a bigger picture of complementary foods. The following study needs to be carried out more deeply to observe the management and provision of complementary foods in natural disasters that often occur in Indonesia (flood, tsunami, and earthquakes). In addition, further authors have to study each component of complementary foods, such as the safety of the cooking process and the kitchen storage, which affects the food's safety.

#### Conclusion

This study concludes that the complementary feeding practices during a disaster in Indonesia were supported by NGOs, residents, and nearby healthcare workers and thus represent a form of mutual cooperation among the Indonesian people. Responsive feeding and breastfeeding practices can fulfill the nutrition requirements of infants and young children amid a disaster, and the participants in this study confirmed that these practices were standard. The results suggest that adequate and safe nutrition can be maintained during a disaster with mutual cooperation that targets home-based complementary foods based on local wisdom. However, health workers must guide and supervise this process to avoid adverse outcomes, including IYCF counselors, midwives, nurses, doctors, and nutritionists.

#### Abbreviations

NGO: Non-Governmental Organizations; WHO: World Health Organizations; FGD: Forum Group Discussion; IYCFC: Infant and Young Child Feeding Counselling; UHT: Ultra High Temperature; PHC: Primary Health Care; ISP: Integrated Services Post; Posyandu: *Pos Pelayanan Terpadu*; CBDRR: Community-Based Disaster Risk Reduction; MDD: Minimum Dietary Diversity.

#### **Ethics Approval and Consent to Participate**

All participants were first contacted by AA via an online chat platform, and AA then introduced herself and stated her intentions behind contacting them. After being informed of the research purpose, all participants gave their consent via electronic form. To protect their identities, the researcher replaced their names in the data with codes, e.g., P1 for participant 1 and P2 for participant 2. This study was reviewed and ap-

proved by the Ethics Committee of the Faculty of Nursing, Universitas Indonesia (SK-37/UN2.F12.D1.2.1/ ETIK2021).

### **Competing Interest**

The author declares that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

#### Availability of Data and Materials

Not applicable.

#### **Authors' Contribution**

AA and DW conducted the study's ideas and created the study's design. AA and HH collected the data. All the authors (AA, DW, HH, and FT) contributed to the data analysis, created the themes, and finished the manuscript.

#### Acknowledgment

The authors would like to express the appreciation for the support of Kementerian Riset dan Teknologi/Badan Riset dan Inovasi Nasional Tahun Anggaran 2021 (NKB-072/UN2.RST/HKP.05.00/2021). This paper has been presented at the 16th APRU Multi-Hazards Symposium 2021 hosted by Disaster Risk Reduction Center Universitas Indonesia in collaboration with the Association of Pacific Rim Universities.

#### References

- Yanuarto T, Pinuji S, Utomo AC, Satrio IT. Buku saku tanggap tangkas tangguh menghadapi bencana. Yanuarto T, editor. Jakarta: Pusat Data Informasi dan Humas Badan Nasional Penanggulangan Bencana; 2019.
- Jati R. Longsor kembali terjadi, sebanyak 11 warga Sumedang meninggal dunia. Badan Nasional Penanggulangan Bencana; 2021.
- Jati R. Sebanyak 1.115 warga lereng Gunung Merapi masih mengungsi. Badan Nasional Penanggulangan Bencana; 2021.
- 4. World Health Organization. Complementary feeding. World Health Organization; 2021.
- Astuti, Wanda D. Complementary feeding practices in the disaster situation: a literature review. J Per Indon. 2021; 5 (1): 558–75.
   Indonesian.
- Theurich MA, Grote V. Are commercial complementary food distributions to refugees and migrants in Europe conforming to International Policies and Guidelines on Infant and Young Child Feeding in Emergencies?. J Hum Lact. 2017; 33 (3): 573–7.
- Summers A, Bilukha OO. Suboptimal infant and young child feeding practices among internally displaced persons during conflict in eastern Ukraine. Public Health Nutr. 2018; 21(5): 917–26.
- Marcantonio F di, Custodio E, Abukar Y. Child dietary diversity and associated factors among children in Somalian IDP Camps. Food Nutr Bull. 2020; 41 (1): 61–76.
- DeYoung S, Suji M, Southall HG. Maternal perceptions of infant feeding and health in the context of the 2015 Nepal Earthquake. J Hum Lact. 2018; 34 (2): 242–52.
- Goudet SM, Griffiths PL, Bogin BA, Selim N. Impact of flooding on feeding practices of infants and young children in Dhaka, Bangladesh

- Slums: What are the coping strategies? Matern Child Nutr. 2011; 7 (2): 198–214.
- Yin RK. Case study research: design and methods. SAGE Publications; 2014.
- Creswell JW, Poth CN. Qualitative inquiry & research design: choosing among five approaches. 4th ed. SAGE Publications. Singapore: SAGE Publications; 2018.
- Njatrijani R. Kearifan lokal dalam perspektif budaya Kota Semarang. Gema Kead. 2018; 5 (1): 16–31. Indonesian.
- Endro G. Tinjauan filosofis praktik gotong royong. RESPONS. 2016;
   21 (01): 89–112.
- Pambudi KS, Utami DS. Menegakkan kembali perilaku gotong-royong sebagai katarsis iati diri bangsa. CIVICUS. 2020; 8 (2): 12–7.
- Gunardo G. Karakter gotong royong warga dalam menghadapi bencana lahar dingin Merapi di Kota Yogyakarta. J Pen Hum. 2013; 18
   (2): 156–65.
- Kementerian Kesehatan Republik Indonesia. Pedoman pelatihan konseling pemberian makan bayi dan anak (PMBA). Jakarta: Kementerian Kesehatan Republik Indonesia; 2019.
- 18. Osendarp SJM, Broersen B, Liere MJ van, De-regil LM, Bahirathan L, Klassen E, et al. Complementary feeding diets made of local foods can be optimized, but additional interventions will be needed to meet iron and zinc requirements in 6- to 23-month-old children in low-and middle-income countries. Food Nutr Bull. 2016; 37 (4): 544–70.
- Susanto T, Sulistyorini L, Yudisianto A. Local-food-based complementary feeding for the nutritional status of children ages 6 36 months in rural areas of Indonesia. Korean Journal of Pediatrics. 2017; 60 (10): 320–6.
- 20. IFE Core Group. Complementary feeding of infants and young children in emergencies. IFE Core Group. 2009: 223–51.
- 21. Habibullah, Pudjianto B. Gotong royong pada program bantuan stimulan pemulihan sosial di Mamuju, Sulawesi Barat. Sosio Kons. 2014; 3 (2): 17–35. Indonesian.
- Beauregard JL, Bates M, Cogswell ME, Nelson JM, Hamner HC. Nutrient content of squeeze pouch foods for infants and toddlers sold in the united states in 2015. Nutrients. 2019; 11 (7): 1–9.
- 23. Lutter CK, Grummer-Strawn L, Rogers L. Complementary feeding of infants and young children 6 to 23 months of age. Nutr Rev. 2021; 79

- (8): 825-46.
- 24. World Health Organization. Ending inappropriate promotion of commercially available complementary foods for infants and young children between 6 and 36 months in Europe. A discussion paper outlining the first steps in developing a nutrient profile model to drive changes to product. World Health Organization; 2019.
- Pries AM, Huffman SL, Mengkheang K, Kroeun H, Champeny M, Roberts M, et al. High use of commercial food products among infants and young children and promotions for these products in Cambodia. Matern Child Nutr. 2016; 12: 52–63.
- 26. Pries AM, Filteau S, Ferguson EL. Snack food and beverage consumption and young child nutrition in low- and middle-income countries: a systematic review. Matern Child Nutr. 2019; 15 (S4): 1–11.
- World Health Organization. Information concerning the use and marketing of follow-up formula. World Health Organization. 2013; 119: 17–9.
- Demonteil L, Tournier C, Marduel A, Dusoulier M, Weenen H,
   Nicklaus S. Longitudinal study on acceptance of food textures between
   and 18 months. Food Qual Pref. 2019; 71: 54–65.
- Marduel Boulanger A, Vernet M. Introduction of new food textures during complementary feeding: observations in France. Arch Pediatr. 2018; 25 (1): 6–12.
- Solomon D, Aderaw Z, Tegegne TK. Minimum dietary diversity and associated factors among children aged 6-23 months in Addis Ababa, Ethiopia. J Equity Health. 2017; 16 (1): 1–9.
- Obaggy JE, English LK, Psota TL, Wong YP, Butte NF, Dewey KG, et al. Complementary feeding and micronutrient status: a systematic review. Am J Clin Nutr. 2019; 109: 852S–71S.
- 32. Carothers C, Gribble K. Infant and young child feeding in emergencies. J Hum Lact. 2014; 30 (3): 272–5.
- 33. Morintoh P, Rumampuk JF, Lintong F. Analisis perbedaan uji kualitas air sumur di daerah dataran tinggi Kota Tomohon dan dataran rendah Kota Manado berdasarkan parameter fisika. J Biom. 2015; 3 (1).
- 34. Finnane JM, Jansen E, Mallan KM, Daniels LA. Mealtime structure and responsive feeding practices are associated with less food fussiness and more food enjoyment in children. J Nutr Educ. 2017; 49 (1): 11-18.e1.
- 35. Bauer B, Hedlund C. Nurture project international: lactation work in crisis. J Hum Lact. 2018; 34 (3): 503–6.