



**BALANCED NUTRITION PRACTICED WITH LIMITATIONS DURING THE COVID-19 PANDEMIC:
AN EXPERIENCE IN SUBANG, WEST JAVA**

*Praktik Gizi Seimbang dengan Keterbatasan selama Pandemi COVID-19:
Suatu Pengalaman di Subang, Jawa Barat*

Phan Ju Lan, Avita Aliza Usfar
Dakra Consultant, Jakarta
E-mail: avita.usfar@dakraconsultant.co.id

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ABSTRACT

Balanced Nutrition is a national program for all, declared to combat non communicable diseases especially for Indonesian people from young age until elderly stage at any situation. The objective of this study was to assess knowledge, attitude, and practices of Balanced Nutrition messages among parents before and during the COVID-19 pandemic era. Google online survey platform was used for data collection, distributed in September 2021 and September 2022. The top three Balanced Nutrition messages selected by the parents (n=71), as a proxy indicator for their knowledge, were drinking adequate and safe water, consuming variety of staple foods, eat plenty of vegetables and fruits (from total 10 questions). Parents had positive attitude toward drinking water, consuming a variety of staple food, washing their hands, and engaging in physical activity (from total 8 questions). An increase was shown in the proportion of parents who practiced for above four activities in September 2021, while a decrease in proportion of parents who consumed fruit, vegetable, and animal protein was found (from total 12 questions on practice). In September 2022, the following practices were implemented by a higher proportion of parents compared before and during the pandemic era, namely consumption of adequate water, daily physical activity, and daily fruit consumption. Parents who consumed vegetables daily and washing their hands at 4 critical times declined again in September 2022. Parents had some knowledge and positive attitudes, but their implementation faced limitations during the pandemic era. Online messaging can be an alternative method of intervention delivery method, as well as through the pre-school setting. Support and investment of the local government would improve health and provide economic benefit eventually.

Keywords: balanced nutrition, COVID-19, knowledge, attitude, practices, Indonesian parents

ABSTRAK

Gizi Seimbang merupakan program nasional, untuk mengatasi penyakit tidak menular terutama untuk masyarakat Indonesia dari usia dini sampai lanjut usia. Tujuan dari studi ini adalah menilai pengetahuan, sikap dan praktik pesan Gizi Seimbang pada orang tua sebelum dan selama pandemi COVID-19. Pengumpulan data dilakukan dengan memanfaatkan platform survei daring google, dibagikan pada September 2021 dan September 2022. Tiga pesan Gizi Seimbang yang paling banyak dipilih oleh orangtua (n=71), sebagai pendekatan pengukuran pengetahuan, adalah minum air cukup dan aman, konsumsi beragam pangan pokok, makan banyak sayuran dan buah (dari total 10 pertanyaan). Orang tua memiliki sikap positif terhadap minum air, konsumsi beragam pangan pokok, mencuci tangan, dan terlibat di aktivitas fisik (dari total 8 pertanyaan). Pada September 2021 terdapat peningkatan proporsi orang tua yang mengonsumsi buah, sayur dan protein hewani dibanding sebelum pandemi (dari total 12 pertanyaan perilaku). Pada September 2022, lebih banyak proporsi orang tua yang mengonsumsi cukup air, melakukan aktivitas fisik, dan makan buah dibandingkan sebelum pandemi. Orang tua yang mengonsumsi sayuran tiap hari dan mencuci tangan pada 4 waktu kritis kembali menurun pada September 2022. Orang tua memiliki pengetahuan dan perilaku positif namun praktiknya selama pandemi mengalami keterbatasan. Pesan daring merupakan cara alternatif menyampaikan pesan, juga melalui jalur sekolah anak usia dini. Dukungan dan investasi dari pemerintah setempat akan meningkatkan status kesehatan dan akhirnya memberikan manfaat ekonomis.

Kata kunci: gizi seimbang, COVID-19, pengetahuan, sikap, praktik, orang tua Indonesia

INTRODUCTION

The Food and Agriculture Organization of the United Nations (FAO) and World Health Organization (WHO) had promoted the Food-Based Dietary Guideline (FBDG) since 1992. Since then, specific advice on healthy diets and lifestyles has developed based on the country's public health and nutrition priorities.¹ The universal messages across 90 countries are to consume a variety of foods; to consume fruits and vegetables, legumes, and animal-source foods; and to limit sugar, fat, and salt.² A more current piece of advice, the WHO guideline on Healthy Diet, promoted, among others, to consume fruits, vegetables, legumes, nuts, and whole grains, and to limit the consumption of free sugar, fat, and salt.³ In practice, however, our diets are still not healthy. Fruit and vegetable intakes are about 50% below the recommended level of five servings per day and our legume and nuts intakes are more than two thirds below the recommended two servings per day.⁴ On the contrary, red, and processed meat intake are above the recommended one serving per week and consumption of sugary drinks increased.⁴ The global recession triggered by the Coronavirus disease 2019 (COVID-19) pandemic in January 2020 had caused unemployment, income lost, lower chance of earning additional income, and less purchasing power. A decline in income reduced demand for food and changed the mix of products consumed, such as less consumption of nutrient-rich foods (animal-sourced food, fruits, vegetables), but more in calorie-rich foods (grains and sugar).⁵

The Indonesian Balance Nutrition Guidelines, which consists of four pillars and 10 messages have been continuously campaigned by the government. The four pillars are eat a variety of foods, practise a clean and healthy lifestyle, have an active lifestyle and exercise, and maintain an ideal body weight.⁶ There are 10 messages embedded in the guidelines. Knowledge-Attitude and Practice (KAP) studies in Indonesia among 56 adult women found that 29 percent had low knowledge, 17 percent low had attitude and 81 percent had poor balanced diet practices.⁷ One study found that good KAP of mothers contributed positively to the implementation of balanced nutrition among their children.⁸ Global evidence suggests that

parents play an important role in determining children's dietary habit,^{9,10} including in Indonesia.¹¹ Consumption of variety of staple foods, drinking adequate water, and eat plenty of vegetables and fruits were the top three Balanced Nutrition messages pointed out by pre-school teachers.¹² An previous systematic review study found that good dietary diversity practices among adults, low practice of handwashing, and varied findings on physical activity had been identified.¹³

The negative effect of the pandemic on diet quality and food insecurity was identified in 35 studies from 13 countries.¹⁴ The pandemic has disrupted Indonesia's economic and social system as well. An online survey in June 2020 found that 78 percent of respondents had decreased income, 89 percent reported that the pandemic had impacted to their food consumption, and 50 percent had reduced their food diversity.¹⁵ The objective of the study is to assess knowledge, attitude, and practices of Balanced Nutrition messages among parents before and during the COVID-19 pandemic. Furthermore, we study differences between parents who attended nutrition training and those who did not attend any nutrition training.

METHOD

Design, location, and time

Google online survey platform was used for data collection. The study focussed on parents of pre-schools who reside in Subang district, West Java province. The questionnaire was distributed in September 2021 and September 2022. The period "before the pandemic", which referred to the time before March 2020 was asked in September 2021 (Figure 1). During the pandemic" referred to September 2021 and September 2022. We distributed information about the survey and the link of the questionnaire to the network of parents who had participated in nutrition parenting sessions in 2019 and 2020. The questionnaire was in Indonesian language, consisted of socio-demographic information and knowledge, attitude, and practice of Balanced Nutrition before and during the COVID-19 pandemic era. The questionnaire had several types of possible answers, namely one choice answer, yes/no,

agree/disagree, or multiple answers. The KAP questions were developed around the 10 messages of Balanced Nutrition. The respondents had the freedom to participate in the survey. Those who participated should answer consent question at the beginning of the questionnaire. The study received ethical approval from Atmajaya University number 0029V/III/LPPM-PM.10.05/09/2021.

Data collection

The information of the study was disseminated through social media, direct messaging, and indirect requests. The announcement of the survey and the questionnaire link were posted in a Face-book with a total of 1,104 members on September 23, 2021. The announcement was reposted on October 4 and 12, 2021. The Face-book group was established in 2020 for communication related to online training on balanced nutrition to teachers and parents.

The link to the questionnaire was sent to 314 parents who attended a two-day online training on balanced nutrition in November 2020 or between September 28 and October 3, 2021. Parents with no access to WhatsApp (WA) were informed via a Short Message Service (SMS). A reminder message was sent via WhatsApp or SMS again on October 7, 2021. The link to the questionnaire was closed after three weeks or on October 14, 2021.

Requests to inform other parents who have pre-school age children were made in Face-book and through WA to the parents. This procedure was repeated again during reposting in the Face-book and a reminder message through WA or SMS on Oct 7, 2021.

A link of the questionnaire in September 2022 was distributed to 64 parents who participated in the 2021 survey. The survey was opened on September 8 and closed on October 4, 2022.

The questionnaire consisted of 10 knowledge, 8 attitude, and 12 practice questions (Table 1 and 2). All responses were recorded in a Google Form database. Each parent could only answer once as double answers were screened through identification of phone numbers. Parents were asked if they have attended any kind of nutrition-related training organized by the government or private institution. The answers remained anonymous no names were recorded.

Data analysis

The data was analysed using Microsoft Excel Software Version 2010 (Microsoft.com, USA). T-test was performed to analyse the difference in knowledge, attitude, and practice between parents who attended vs. not attended nutrition training, as well as practices before vs. during the pandemic.

RESULTS

Socio-economic Characteristics

We analysed 71 responses of whom were mostly (99%) females. Thirty-four of the parents attended the training either in 2020 or 2021 and 37 parents did not attend the training but participated in the facebook discussion created after the training. The average age of the parents was 32 years (ranging 21 to 49 years), with the majority (85%) having one to two children. About half of the parents were high school graduates (45%), majority was housewife, and their husbands worked as entrepreneurs (48%), e.g. sales, farmer. The average monthly food expenditure before the pandemic was IDR 1,450,704 (approximately USD 97.00), while the average monthly food expenditure during the pandemic (Sept 2021) was IDR 1,332,394 (approximately USD 89.00) per household. Reduction of the number of families who belong to the middle range food expenditure category happened and an increase in the number of families in the lowest food expenditure category were noted. No change in the proportion of families who belong to the highest food expenditure category.

Knowledge, Attitude, and Practice of Balanced Nutrition by Parents

The top three messages which were selected as part of Balanced Nutrition messages by the parents were 'drinking adequate and safe water' (85%), 'consuming a variety of staple foods' (75%), and 'eating plenty of vegetables and fruits' (73%) (Table 1). The majority of parents acknowledged that consuming high protein source food (72%), washing hands with soap and running water (70%), and eating breakfast (65%) were also part of Balanced Nutrition messages. The two least-selected messages were: enjoy a variety of foods and read food labels.

Table 1
Parent's Knowledge and Attitude on Balanced Nutrition

Messages	Parents attended training (%) (N=34)	Parents not attending training* (%) (N=37)	Total % (N=71)
Knowledge on 10 Balanced Nutrition Messages (parents who identified the messages)**			
We should drink adequate and safe potable drinking water	85	84	85
We should consume a variety of staple food	76	73	75
We should consume a lot of vegetables and fruits every day	76	70	73
Wash hands with soap	71	70	70
We should consume high protein source food	68	76	72
Eat breakfast	65	65	65
Limit intake of salt, sugar, and oil	50	57	54
Sufficient physical activity and maintain ideal body weight	50	49	49
Enjoy a variety of food	44	41	42
Read label of processed food	38	32	35
Attitude on Balanced Nutrition Messages (parents with positive attitude)			
I should drink a minimum of 8 glass of water per day (those who answer true)	100	100	100
Sweet potato is a variety of staple food (those who answer true)	100	97	99
In my opinion, nutritious food does not have to be expensive	100	95	97
In my opinion, vegetables can be obtained by home gardening	97	100	99
I should consume 1-2 portion of fruit or vegetable per day (those who answer true)	97	97	97
In my opinion, if my hands were not dirty, then it is not necessary for me to wash my hands with soap (those who disagree)	97	95	96
In my opinion, the pandemic can increase risk to be overweight due to less physical activity (those who agree)	59	73	66
I should do exercise minimum once a week (those who answer true)**	88	84	86

* Parents who did not attend nutrition training either in 2020 or 2021 but participated in the facebook discussion created after the training.

** Eat a variety of staple foods, eat high protein foods, drink adequate and safe water, wash hands with soap and running water, perform adequate physical activity and maintain an ideal body weight, limit consumption of sweet, salty, and fatty foods, took breakfast, read food labels, enjoy a variety of food, and eat plenty of vegetables and fruits (MOH 2014). ** Assumed that parents who chose 'false' answer were those having the attitude that they should exercise more than once a week.

Parents' attitude toward the following five Balanced Nutrition messages were positive, namely for drinking water, variety of staple food, daily consumption of vegetables and fruits, and washing hands with soap when hands are dirty

(Table 1). Knowledge, attitude, and practice of drinking water were found adequate and consistent. All parents agreed that they should drink a minimum of 8 glasses per day. The practice of drinking at least seven glasses of

water daily was implemented by the majority (85%) of parents (Table 2) before the pandemic.

In September 2022 the majority of the parents drank more than 8 glasses of water per day

Table 2
Practice of Balanced Nutrition before and during the Pandemic

Type of practice	Before the pandemic	During the pandemic	
	Before March 2020 n=71	September 2021 n=71	September 2022 n=30
Included rice as one of the staple food components (%)	93	97	100
Include noodle as the two top staple food choices (%)	32	35	33
I consumed vegetables every day (%)	77	55	33
Portion of vegetable-bowl consumed per day (%)	Less than 1 bowl: 11	Less than 1 bowl: 25	Less than 1 bowl: 10
	1 bowl: 55	1 bowl: 42	1 bowl: 60
	2 bowls: 27	2 bowls: 24	2 bowls: 20
	3 bowls: 7	3 bowls: 8	3 bowls: 10
I consume fruits every day (%)	46	42	50
	Less than 1 bowl: 31	Less than 1 bowl: 35	Less than 1 bowl: 60
	1 bowl: 35	1 bowl: 45	1 bowl: 60
	2 bowls: 22	2 bowls: 16	2 bowls: 27
Portion of fruit-bowl consumed per day (%)	3 bowls: 6	3 bowls: 3	3 bowls: 13
	>3 bowls: 6	>3 bowls: 1	>3 bowls: 0
Drinking water per day (%)			
< 7 glasses	16	13	33
7-8 glasses	55	60	
> 8 glasses	29	27	67
Washing hands during 4 critical period (%)*	59	62	53
I consume animal protein every day (%)	75	62	Not assessed
Type of animal protein consumed	Fish	Fish	Egg
	Chicken	Chicken	Chicken
	Egg	Egg	Salted fish
	Beef	Beef	Fresh fish
Implement physical exercise at least 30 minutes per day (%)	51	56	73
Frequency of snacking per day (%)	n = 63	n = 62	Not assessed
Once	27.0	41,9	Not assessed
Twice	44.4	35,5	Not assessed
Three times	20.6	11,3	Not assessed
More than 3 times	7.9	11,3	Not assessed
Daily meal frequency (%)			
Once	0	0	3
Twice	20	41	27
Three times	80	58	63
More than 3 times	0	1	7

*The suggested four critical times for handwashing with soap were: (1) before eating, (2) after defecating and using the toilet, (3) after changing diapers and cleaning a child who defecated or used the toilet, and (4) before, during, and after preparing food (MOH 2020).

Table 3
Practice of Balanced Nutrition before and during the Pandemic of Parents who
Attended vs. not Attended Training

	Parents attended training (n=34)		Parents not attending training (n=37)	
	Before the pandemic (Mar 2020) (%)	During the pandemic (Sept 2021) (%)	Before the pandemic (Mar 2020) (%)	During the pandemic (Sept 2021) (%)
Drink water more than 7 glasses per day	82	85	86	86
Consume rice and other type of staple food	79	97	68	78
Include the following as the two top staple food choice				
Noodle	29	29	35	43
Cassava	21	24	5	11
Potato	6	18	11	5
Rice/wheat-based flour	26	32	51	41
Daily vegetable consumption	74	50	81	59
Daily fruit consumption	53	44	41	41
Portion of fruit-bowl /day				
Consumption of animal protein source daily	71	65	78	59
Frequency of snacking per day	(n=29)	(n=27)	(n=34)	(n=35)
Once	34	56	21	32
Twice	45	30	44	40
Three times	17	11	24	11
More than 3 times	3	4	12	17
Daily meal frequency				
Twice	9	32	30	49
Three times	91	68	70	49
More than 3 times	0	0	0	2

Almost all parents consumed rice before and during the pandemic because rice is the main staple food in Indonesia. About one-third of all the parents included noodles as one of the two main staple foods aside from rice. Other staple foods mentioned were wheat/flour-based processed food and tubers (sweet potatoes, cassava, and potatoes)

About three-fourths of all parents mentioned that they should consume a lot of vegetables every day and this knowledge was practiced by about the same proportion of parents before the pandemic. During the pandemic, practice of consuming vegetables daily was reduced to about half of the parents and reduced again to about one-third of the parents. The majority of them consumed one

bowl of vegetables daily, even before the pandemic started. From parents who did not consume vegetables daily, the majority (75% from 16 parents) consumed them 2 to 3 times per week before the pandemic and the majority (72% from 32 parents) consumed them 2 to 4 times during the pandemic.

In general, consumption of fruits was less than vegetables. Although about three-fourths of the parents recognized the importance of consuming fruits every day, only about one-half of them consumed it on daily basis. From parents who did not consume fruits daily before the pandemic (n=38), they consumed them 2 to 4 times per week. During the pandemic, parents who did not consume fruits daily (n=31), consumed them 1 to 3 times per week.

The practice of washing hands at four critical times was implemented by about half of the parents before the pandemic and slightly increased in September 2021 but decreased to about half of the parents again in September 2022. The Ministry of Health suggested an increase from four to 13 times of handwashing with soap during the pandemic,¹⁶ which could be answered correctly by 45 percent of the parents.

Knowledge about consumption of high source protein is part of a Balanced Nutrition message was recognised by the majority of parents. This knowledge was translated well into practice, as consumption of protein as part of a daily nutritious diet was practiced by the majority as well. During the pandemic, however, the proportion of parents who consumed protein daily decreased by 13 percentage points. The type of protein remained consumed the same, namely egg, fish, and chicken.

The majority of parents had the opinion that they should exercise more. Daily physical activity was practiced by about half of the parents and parents who practiced it slightly increased during the pandemic. As for the other half who did not exercise daily, they exercised four times or less per month. The difference of knowledge, attitude, and practices before and during the pandemic was not statistically significant for all Balanced Nutrition messages.

Knowledge, Attitude, and Practice of Balanced Nutrition by Parents Who Attended vs. Not-attended Training

The proportion of parents who received some kinds of nutrition training were relatively the same as those who did not receive any kind of nutrition training (34 vs 37 respectively). The majority (88%) of the parents attended the training between 2019 to 2021, with about half in 2021. Involvement of preschool teacher association (locally called *Himpunan Pendidik Anak Usia Dini/Himpaudi*) in the training was recognized by majority (71%) of the parents.

The percentage of parents who selected 7 of the 10 Balanced Nutrition messages was higher amongst those who had attended training than it was for those who had not attended any training, with a difference between 1 to 6 percentage points. The top three messages selected by the trained parents were the same

as those selected by the parents in total, namely drink adequate and safe potable water, consume a variety of staple food, and consume a lot of vegetables and fruits every day (Table 3). The six percentage point gaps were for consuming vegetables and fruits, and reading labels of processed food. On the other hand, the parents' knowledge of eating breakfast was the same between the two groups and the knowledge on limit intake of salt, sugar, as well as oil and consumption of high-protein-source food of the non-trained parents were higher. We found no statistical significance for knowledge of parents who attended and not attended training.

In general, the attitude of the parents toward Balanced Nutrition was already positive. The lowest attitude for both groups was on the opinion of higher risk of overweight due to less physical activity. Because rice is the main staple food in the area, there is basically no difference in the consumption of rice of the trained vs. untrained parents before and during the pandemic.

The majority of the parents in both groups consumed vegetables daily before the pandemic, although proportion of the non-trained parents who consumed it was slightly higher. About half of the trained parents consumed fruits daily before the pandemic, which is more than the percentage of the non-trained parents who consumed it daily. The proportion of parents who consumed vegetables daily was reduced from three-fourth to about half during the pandemic. The proportion of the trained parents who consumed fruit daily was reduced during the pandemic, while the proportion of the non-trained parents who consumed it daily remained the same. Although the majority of the parents consumed animal protein daily, a reduction of parents who consumed it daily was found during the pandemic – with more reduction in the non-trained group.

DISCUSSION

The least favorable opinion was on the risk of being overweight due to lack of physical activity. This is consistent with their low knowledge on the link between physical activity and ideal body weight. The Indonesian basic health research 2018 identified that about two-

third (67%) of the population aged 10 years and above had minimum 30 minutes moderate-to-vigorous physical activity per day, at least five times a week.¹⁷ Our study found about half of the parents implemented physical exercise at least 30 minutes per day, a similar finding to teachers implementing physical exercise daily during the pandemic.¹² Carrying out household chores, such as sweeping the floor and washing clothes, are usually inadequate. Some examples of physical activity are walking, jogging, running, cycling, swimming, and badminton. Aerobics is an example of moderate intensity physical activity. In the Indonesian Balanced Nutrition guideline, recreational exercises, which includes "active" traditional dances can be counted as physical activity as well, e.g., *saman*, *kecak*, *poco-poco*, *line dance*.⁶

Campaigns to drink more water, eat more fruits, wash hands with soap often, and increase physical activity were made throughout the pandemic period by the government, private entities, and civil societies. A study in Banten found a similar result, 66 percent respondents increased their water consumption during the pandemic.¹⁸ The Indonesian president promoted the increased consumption of locally produced vegetables and fruits.¹⁹ Messages such as improvement of nutrient intake, keeping yourself healthy, and preventing illness were widely disseminated. However, not all good promotions lead to improved practices as can be seen from our study. One study in found that message such as limiting sweet, salty, and fatty food was less implemented, although in general, the implementation of nine Balanced Nutrition messages was more than 90 percent female adult respondents.²⁰ In this study, it is found no relationship between perception on food quality and practice of consuming nutritious food. There is no relationship as well between food expenditure and the practice of consuming nutritious food.

The hand-washing campaign was shared through social media by many health personnel at the beginning of 2020, using blogs, Twitter, Face-book, WhatsApp, and on-line to reach the public. Posters and banners can be seen in many public places and public transportation. The promotion consisted of three points: using masks, social distancing, and washing hands with soap.²¹ The campaign continued

consistently until 2022, including an appeal made by the President. Government offices down to the village levels and the private companies had their share of promotion, as well. The Ministry of Health re-campaign of Balanced Nutrition messages during the pandemic reiterated washing hands with soap and running water as being one of the actions for preventing infection.¹⁶ The association of environmental health experts (*Himpunan Ahli Kesehatan Lingkungan Indonesia*) organised a hand-washing campaign in 10,000 locations in 2021 across the country.²²

Washing hands with soap has been part of a community-based sanitation promotion since 2008,²³ but its implementation seemed to be a challenge. A national basic health survey in 2018 noted that 50 percent of respondents aged older than 10 years washed their hands with soap and running water.¹⁷ This rate is close to the result of our study (59% before the pandemic). However, when we analysed the data further for each of the four critical times of washing hands (before eating, after using the toilet, after changing the diaper, and before preparing food), the responses were above 69 percent, with the highest response of 90 percent "before eating". Parents who washed their hands with soap before eating were consistent at 90 percent during the pandemic. Washing hands after defecation and changing diapers was also consistent at about 80 percent and 77 percent consecutively before and during the pandemic. Washing hands is more routinely practised before eating, but less after using the toilet. Unlike this study, the practice of washing hands before and during the pandemic was statistically and significantly increased in a study among pre-school teachers.¹²

While the knowledge of consuming vegetables and fruits daily was understood by the majority of the parents, in practice, about one-half of the parents did not consume them on a daily basis. Most parents in our study did not consume three portions or more of vegetables or fruits per day or they were still inadequate in terms of quantity. This is consistent with the result of the Indonesian basic health research 2018, which found 96 percent of the population aged older than 5 years did not consume five portions of vegetables and fruits a day.¹⁷ At a global scale, 77 percent of men and 78 percent of women in

52 low-or-middle-income countries (LMIC) consumed less than the five recommended fruits and vegetables servings a day, with the average intake in low LMIC of 3.6 portions per day.²⁴ Low income is noted as a predictor of inadequate intake of vegetables and fruit at a country level, as well as at the household and individual levels. Purchase of fruit depends on income and the price of the fruits.²⁵ When the price of the desired fruit is expensive, then the consumer purchases other necessities. One study found that there was no increase of vegetables and fruits consumption by 56 percent of the respondents and reduction of consumption by 11 percent respondents during the pandemic.¹⁸ Another study found a slight decrease in teachers who consumed vegetables and animal protein during the pandemic.¹² The findings were the same as our study, whereby reduction of vegetables and fruits are one way to cope with decreasing income or increased price. The majority (72%) of the parents reported that their monthly income decreased during the pandemic and about half (51%) of them decreased their food expenditure.

Further dissemination of Balanced Nutrition messages could be scaled up using digital media, such as smartphone-friendly channels and apps like YouTube, WhatsApp, Face-book, Instagram, and Tik Tok. Most parents or at least one of the family members have hand-phones and belong to at least one social media platform. Nationally, 64 percent of the Indonesians have cellular phones and 48 percent accessed the internet in 2019.²⁶ The parent's nutrition training in 2020 used Facebook as a way of communicating with parents. Socialisation or synthesising of the importance of eating a variety of food should be exposed to the children and the men, as well. Better knowledge by family members would create demand for a greater variety of food served within the household. A home garden can be used more to provide vegetables and fruit for the household. In rural areas, home gardens as a source of vegetables and fruits are still common. Vegetables that could be easily home-grown are spinach, water spinach, tomato, pumpkin, eggplant, mustard green, green beans, and chilli, which are commonly grown in the study area. Families with larger home yards can use them to raise chickens or duck for alternative animal protein sources as

well. Teachers can function as change agents for the preschool students and their parents.²⁷ They have been proven to continuously disseminate messages to the school children even one-year post-training.²⁸

The strength of this study is that it provided actual information on food challenges faced by households during a time of shock. The limitation of the study is that the result is based on a relatively small sample from a concentrated community in one district and the findings prior to the COVID-19 era was answers based on retrospective questions. The potential bias are that parents submitting responses are those familiar with google form, have enough phone credits, and have good internet access.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study provided insights into the decisions made by parents in times of shock. There is Balanced Nutrition knowledge that is still less understood or unknown by the parents. In general, the attitude of the parents toward Balanced Nutrition was already positive. Our study noted a slight increase in the number of parents implementing the following practices during the pandemic: drinking more water, washing hands during four critical periods, consuming more variety of staple food, implementing a 30-minute physical activity daily, and consuming less salt, sugar, and oil. On the other hand, parents consumed less vegetables, fruits, and protein source food. Thus, Balanced Nutrition was practised but with limitations during the pandemic.

Recommendations

Further socialization and nutrition training are required. The messages that need to be reiterated are not only those that can be identified by the parents, but also those that were less identified. Definite improvement is needed not only in increasing the consumption of food, but also consuming the food daily or combining it in every meal.

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