

## HEALTH COMMUNICATION MEDIUM AND NUTRITION KNOWLEDGE TO REDUCE STUNTING AMONG RESIDENTS OF PEOPLE'S HOUSING PROJECT IN KUALA LUMPUR, MALAYSIA: A PRELIMINARY FINDING

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### ABSTRACT

*Stunting is a subtype of undernutrition that often occurs in children under five years of age that can cause cognitive, physical, and metabolic developmental abnormalities, leading to poor intellectual ability and school achievement. Dietary diversity, which includes plant source foods, such as vegetables, fruits and staples, as well as animal source foods, and breast milk for infants, is vital for growth, development, and good health. This study attempts to investigate the health and nutrition knowledge and identify communication medium suitable for sharing health information among urban poor residents living in People's Housing Project flats in Kuala Lumpur. This study is a cross-sectional study, and respondents were selected by convenience sampling, consisting of heads of household (n=20), young married couples (n=3) and adolescents (n=19). They completed a self-administrated questionnaire, which assessed their preferred communication medium, socio-demography, maternal knowledge of stunting and healthy eating practices. The heads of household reported lower educational level and monthly household incomes (<RM 1500) than young married couples (>RM3500). WhatsApp and Facebook were the most favored communication media among all respondents. Most young married couples have heard of stunting (67%) and the first 1000 days of life concept (67%), while 65% of heads of household have heard of stunting. Heads of household reported that their baby was breastfed for 24 months (80%), while complementary feeding was introduced at six months of age (90%). A higher percentage of heads of household like to eat vegetables (70%) and drink fruit juice (80%) compared to adolescents. Both heads of household and adolescent respondents like to drink water and milk. In contrast, adolescents prefer to consume cereal with milk for breakfast (77%) compared to heads of household. Low socio-economic status and poor nutritional and health knowledge among families are possibly associated with increased stunting among urban poor living in low-cost flats in Kuala Lumpur. These findings have important implications for understanding how to communicate health and nutrition information to the residents of low-cost flats could support developing education modules and nutrition intervention frameworks to reduce stunting. The limitations of our study include that no dietary intake assessments were included, which limits the capacity to generalize valid conclusions between nutrition knowledge and dietary intake.*

Keywords: Children, healthy lifestyle practices, malnutrition, nutrition knowledge, stunting, urban poor.

### INTRODUCTION

Stunting remains a significant worldwide public health challenge, with numerous nations attempting to reduce stunting in children under five to 40% by 2025, referred to as target 2.2 of the Sustainable Development Goal 2 (Boerma et al., 2018; WHO, 2014). Children are considered stunted or too short for their age if height- or length-for-age is below -2SD of the WHO Child Growth Standards median, and those below -3SD are considered severely stunted (WHO 2010). Globally, the prevalence of stunting was 21.3% or an estimated 144.0 million children under five in 2019. More than half (54%) of all stunted children under five years old are from Asia, and two out of five are from Africa (WHO, 2020). According to the National Health and Morbidity Survey for the corresponding year, the frequency of stunting among Malaysian children rose from 17.7% in 2015 to 21.8% in 2019 (Health, 2015, 2016, 2019).

In Malaysia, one in every five children under five is stunted, with the highest rate of stunted children from impoverished urban poor communities. Stunting was significantly higher in rural areas, among boys and children less than five years old (particularly those aged 24-35 months). Stunting was also prevalent in Kelantan, Terengganu and Pahang (UNICEF, 2019). Poor quality and quantity diet and monetary poverty were significant causes of malnourished children in poor urban areas of Kuala Lumpur (UNICEF, 2019). The UNICEF (2018) Children Without report found that about 22% of children under five years old are stunted among the urban population living in poverty and deprivation in low-cost flats in Kuala Lumpur. Meanwhile, the percentage of stunted children aged four years old was 23% compared to 15% of children aged two years old. The prevalence of malnutrition may increase once the children are weaned off breastfeeding or start complementary feeding (UNICEF, 2018).

The above prevalence suggests that nutrition education and promotion should begin at a young age and involve the entire family. Nutrition education and promotion are important for ensuring public knowledge and awareness of health problems that threaten them, providing lifelong skills, and subsequently changing behavioural abilities. Eventually, changing behaviours were identified as the cause of those health problems. Several scientific studies have shown that parents are important role models for children's

nutritional attitudes and behaviours and physical activity (Coto et al., 2019). As a result, parents' ability to act as agents of attitude and behaviour change for the entire family must be strengthened.

Numerous studies have shown the coexistence of under- and over-nutrition in nations experiencing fast socio-economic growth. These nations are characterised as being in nutrition transition. Eating patterns shift away from cereals, starchy roots, vegetables, and fish toward refined grains, meat, dairy products, and edible oils (Ihab et al., 2013). Micronutrient insufficiency affects Asian children in addition to protein-energy malnutrition. About 40.0-50.0% of preschool and primary school children suffer from iron deficiency anaemia. According to the National Health and Morbidity Survey of Malaysia in 2019, 30% of women of reproductive age suffer from anaemia (IPH, 2020). In South and Southeast Asia, almost half of the children experience vitamin A insufficiency (Khor, 2003; Stevens et al., 2015). Another significant micronutrient issue in the area is iodine deficiency diseases, which show high goitre rates in India, Pakistan, and portions of Indonesia (Eastman, 2014). While malnutrition continues to be a concern in Asia, particularly in Taiwan, Singapore, urban China, and Malaysia, overweight problems among children have developed.

Communication media are the methods, means, or channels used to transport messages from sender to receiver. Mobile platforms and social media to share health information have become increasingly widespread. Adolescents and young adults are especially susceptible to such solutions since they have high levels of smartphone and social media usage and are thus likely to be open to using these platforms for health (Chau et al., 2018). Most people already use cell phones to seek health information. According to the Malaysia Handphone User Surveys (HPUS), in 2019, the percentage of smartphone usage increased slightly from 74.0 percent (2017) to 76.4 percent (2019). As with smartphone users, smartphone ownership is particularly prevalent among younger generations and those with relatively high income (>RM5000 per month) and education levels (Tertiary education) (MCMC, 2018). For the lower-income group (<RM2500 per month), smartphone usage is still high (80.9%). Mobile Internet access is increasing in popularity in Malaysia. Since 2012, the percentage of smartphone users who access the Internet via their smartphones has increased by 25.8 percent, or at a 5.45 percent annual growth rate. According to the HPUS 2018, 94.6 percent of smartphone users use their phones to go online. Many individuals use the Internet to learn more about their bodies and health. Similarly, individuals may seek additional information on how to address ailments for which they have been diagnosed, as well as materials on how to live a healthy lifestyle. With the Internet's pervasive availability, looking for and discovering relevant information is easier than ever before and mainstream practice.

Stunting consequences impact physiological, psychological and social effects (e.g., severe damage in brain development, impaired motor skills and weak immune systems) that later decrease the quality of life of stunted children at home and in society (Norris et al., 2014). Stunting is the inability to attain potential height for a particular age. Studies have shown that all children worldwide have the same ability to develop during their first five years, irrespective of race or ethnic background (Kok, 2019). Stunting problems are associated with low maternal education background (Akram et al., 2018), decreased body mass (BMI) index (Headey et al., 2015), and poor nutrition before and during pregnancy (Rahman et al., 2016; Tiwari et al., 2014; UNICEF, 2014). Sanitation and demographic characteristics were also important risk factors for childhood stunting (Bekele et al., 2020; Headey et al., 2015; Kwami et al., 2019; Nshimiyiryo et al., 2019).

The research questions to be answered: what are the PHP residents' level of nutrition knowledge and the best communication tools to convey health information? To answer that questions, need assessment on the communication tools method to receive health information and nutrition knowledge to reduce stunting were explored. Therefore, this study aims to determine the level of knowledge about health and nutrition among urban poor people living in PHP apartments in Kuala Lumpur and identify effective communication methods for delivering health information.

## **METHODOLOGY**

### **STUDY DESIGN**

This study was designed as a cross-sectional study of respondents consisting of the heads of household, adolescents (aged 10-17 years old), and young married couples (wife with reproductive age 49 years old and below) living in PHP flats in the capital city of Malaysia, Kuala Lumpur. A total of three locations of PHP flats in Kuala Lumpur participated in this study. Preliminary data collection was conducted during the event gathering organised by the PHP committee of PHP Laksamana, Jalan Peel, Kuala Lumpur. Respondents who did not qualify for one of these three categories were excluded. Research ethics approval were obtained from the Research Ethics Committee of Universiti Kebangsaan Malaysia (UKM) (UKM PPI/111/8/JEP-2020-515) and the National Medical Research Register (NMRR) (NMRR-20-2413-56980).

### **RESEARCH INSTRUMENTS**

Validated questionnaires were used to assess: 1) health knowledge related to stunting among the heads of household and young married couples, 2) nutrition knowledge among the heads of household and adolescents, and 3) health communication medium used preferred by the heads of household and young married couples. The health and nutrition knowledge questions were related to the first 1000 days of life, breastfeeding and complementary feeding, fruits and vegetable intake, drinking milk and water behaviours, and preferred communication medium. Socio-demographic details were included in the questionnaires to obtain the respondents' personal information.

### **DATA COLLECTION METHOD**

There were four identified stations at the PHP Laksamana for the three groups of respondents to self-administered the data. Data collection was conducted in a day by setting up four stations were: -1) Station A for socio-demographic questionnaire, 2) Station B for the heads of household – only the head of the family was advised to answer the questionnaire on behalf of the family, 3) Station C for young married couples - both are required to answer the questionnaire, and 4) Station D for adolescent respondents.

Respondents were volunteered to participate during the event. Banners were also displayed, and information was displayed at each station to facilitate smooth data collection with the help of data collectors during that day. Pen and paper were provided during the data collection. Respondents were given full cream milk for their participation.

**DATA ANALYSIS**

The data were analysed by SPSS version 22 for Windows (SPSS Inc., Chicago, IL, USA). A one-sample Kolmogorov-Smirnov test for normality was applied to check the distribution of continuous variables. The mean (standard deviation [SD]) of continuous variables with a normal distribution was provided; the median (interquartile range [IQR]) of non-normal variables was reported.

**RESULT**

**SOCIO-DEMOGRAPHIC CHARACTERISTICS**

A total number of 42 respondents volunteered to participate in the survey consisting of heads of household (48%), young married couples (7%) and adolescents (45%). Most of the respondents (heads of household (95%) and adolescents (95%)) were from PHP Laksamana, Jalan Peel, some of the respondents (young married couples (67%)) were from Kompleks Kediaman Kakitangan Awam (Civil Servants Residential Complex), Jalan Cochrane as shown in Table 1. Respondents from the head of the household group mainly were married couples (85%) and a few single parents (15%), median age 41 years old, and more than half were of Malay ethnicity (55%). While all the respondents from the young married couples were married male (100%), median age 34 years old, and all of them were Malay (100%). As shown in Table 1, the adolescent respondents mainly were male (63%), median age 12 years old and their ethnicity were majority Malay (63%) and Chinese (32%). The study shows that most heads of household respondents had completed secondary school (51%), and only 3% had no formal education background. In contrast, young married couples completed tertiary education (66%). In addition, almost half of the heads of household respondents (44%) were self-employed, and most of the young married couples (66%) were government servants. The study location is considered a poor urban area, where the community is classified as the bottom 40% of income earners (B40). As expected, low monthly income (less than RM1,500) was observed among heads of household (62%) as compared to young married couples (50%) who earn higher monthly income (more than RM3,500).

**Table 1: Socio-demographic characteristics among the heads of household, young married couples and adolescents' respondents**

Characteristics		Head of household (N=20); n (%)	Young married couple (N=3); n (%)	Adolescent (N=19); n (%)
<b>PHP flats Jalan Cochrane</b>	Laksamana	19 (95)	1 (33)	18 (95)
	Perkasa	1 (5)	n.a	1 (5)
	Kompleks Kediaman Kakitangan Awam	n.a	2 (67)	n.a
<b>Gender/ Marital status</b>	Male <sup>a</sup> /Couple <sup>b</sup>	6 (30) <sup>a,b</sup>	3 (50) <sup>a,b</sup>	12 (63) <sup>a</sup>
	Male <sup>a</sup> /Separated with partner <sup>b</sup>	2 (10) <sup>a,b</sup>	n.a	n.a
	Female <sup>a</sup> /Couple <sup>b</sup>	11 (55) <sup>a,b</sup>	n.a	7 (37) <sup>a</sup>
	Female <sup>a</sup> /Widow <sup>b</sup>	1 (5) <sup>a,b</sup>	n.a	n.a
<b>Age (Years)</b>	Median	41 [34-52]	34 [32-37]	13 [12-13]
<b>Ethnicity</b>	Malay	11 (55)	3 (100)	12 (63)
	Chinese	3 (15)	n.a	6 (32)
	Indian	5 (25)	n.a	1 (5)
	Bumiputera Sabah/Sarawak	1 (5)	n.a	n.a

<sup>a</sup>= Represents Male/Female for gender; <sup>b</sup>= A questionnaire answered by couple/single parent; n.a= not applicable. Results are expressed as n (%).

Characteristics	Head of household			Young married couple	
	Husband (N=17) n (%)	Wife (N=17) n (%)	Single parent (N=3) n (%)	Husband (N=3) (%, n)	Wife (N=3) (%, n)
<b>Education Level</b>	Uneducated	n.a	n.a	1 (3)	n.a
	Primary	1 (3)	2 (5)	n.a	n.a
	Secondary	9 (24)	8 (22)	2 (5)	1 (17)
	University/College	7 (19)	7 (19)	n.a	2 (33)
<b>Profession</b>	Government servants	1 (3)	4 (10)	n.a	2 (33)
	Non-government servants	8 (22)	6 (16)	n.a	1 (17)
	Self-employed	8 (22)	5 (14)	3 (8)	n.a
	Unemployed	n.a	2 (5)	n.a	n.a
<b>Monthly Household Income</b>	Low (<RM1500)	10 (27)	11 (30)	2 (5)	n.a
	Moderate (RM1500-RM3500)	6 (16)	5 (13)	1 (3)	n.a
	High (>RM3500)	1 (3)	1 (3)	0	3 (50)

## HEALTH AND NUTRITION KNOWLEDGE ASSESSMENT

The urban poor children have poor nutrition and development due to the low socio-economic of the family (UNICEF, 2019). Maternal nutrition during pregnancy and the child's nutrition during the first two years of life (1000 days) are critical elements in developing a child. Respondents who are heads of household and the young married couple were questioned about their basic knowledge of stunting. Only young married couples were asked whether they had heard about "First 1000 days of life" and sources of knowledge. As shown in Table 2, the majority of the respondents have heard about stunting (heads of household (65%) and young married couples (100%) from the Internet. Young married couples are the target population for pregnancy care and healthy baby to prevent stunting. We asked the young married couples if they had heard about "The first day of 1000 days of life" and from where they heard about it. The studies revealed that more than half (67%) young married couples have heard about the 1000 days of life from the Internet.

**Table 2: Knowledge on stunting and first 1000 days of life among the heads of household and young married couples' respondents**

Variables	Responses	Family (N=20)	Young couple (N=6)*
<b>Stunting Knowledge</b>			
<i>Have you heard of Stunting</i>	Yes	13 (65)	6 (100)
	No	7 (35)	n.a
<i>Where did you hear about stunting</i>	Advertisements	2 (10)	n.a
	Friends	n.a	1 (17)
	Health advisor	2 (10)	1 (17)
	Internet	12 (60)	2 (32)
	Magazine	n.a	1 (17)
	Newspaper	n.a	1 (17)
	Radio	2 (10)	n.a
	Other	2 (10)	n.a
<i>Have you heard of the "First 1000 days of life"</i>	Yes	n.a	4 (67)
	No	n.a	2 (33)
<i>Where did you hear about the "first 1000 days of life"?</i>	Internet	n.a	3 (57)
	Magazine	n.a	2 (29)
	Newspaper	n.a	1 (14)

\*Both spouses completed the self-administrated questionnaire given.

The heads of household (the wife) were asked about breastfeeding practices. Almost all the heads of the household exclusively breastfed their baby for 24 months (80%). The heads of household continue to feed their baby with formula milk besides breast milk even after their baby turns two years (50%). As shown in Table 3, the heads of household introduced their baby to complementary food after they were six months old (90%). The majority of them gave porridge with several ingredients to their baby (25%).

**Table 3: Breastfeeding and complementary practices among the heads of household respondents**

Breastfeeding and complementary feeding practices	Head of households (N=20)	
<i>When does your child stop drinking breast milk?</i>	< 6 months old	1 (5)
	6 -24 months old	3 (15)
	> 24 months old	16 (80)
<i>What other milk do you give to your child besides breast milk?</i>	Formula milk	10 (50)
	Powdered milk	7 (33)
	Full Cream milk	3 (17)
<i>When do you start introducing complementary foods to your child</i>	< 6 months old	2 (10)
	> 6 months old	18 (90)
<i>What is the first type of complementary food you give your child?</i>	Ready-to-eat cereal products	3 (13)
	Rice porridge	4 (19)
	Rice porridge with ingredients	5 (25)
	Sweet potatoes	3 (13)
	Vegetable puree	4 (19)
	Fruit puree	3 (13)

Table 4 represent the healthy eating practices among the heads of household and adolescent respondents. Half of the heads of household answered like to eat vegetables (45%) and fruits (55%), while adolescent respondents neither like nor dislike (neutral) eating vegetables (53%) and strongly like eating fruits (48%). Around half of the respondents strongly like to drink milk (heads of household (40%) and adolescents (53%)). The heads of household prefer to drink fruit juice (50%) and strongly drink water (50%). On the other hand, adolescents like to drink fruit juice (42%) and water (47%). The results showed that both heads of household (40%) and adolescents (47%) prefer to drink milk with whole grain cereals for breakfast.

Physical activity with family is important in shaping new generations, as parents would be the best model for their kids and family members. The typical physical activity performed by the PHP residents was gardening, communal work and physical activity with the family. Most of the active activities were performed in their residential area at the park. PHP flats residents are actively involved in community gardening at their residents and *gotong-royong* (communal activity) to maintain the cleanliness of the residential areas. The respondents were also asked if they performed routine health checks. We found that more than half (76%) of the heads of the household do regular health checks at government facilities (69%).

### COMMUNICATION MEDIUM FOR SHARING HEALTH INFORMATION

The respondents were questioned about their mobile usage and social media preferences. Using mobile phones to access health information has gained more popularity these days. All young married couples respondents (100%) have been fully utilised their mobile phones to access health information from the data collected. On the other hand, most heads of household respondents (76.19%) used mobile phones to get health information. Social media is one of the communication platforms to gain a wide range of information. Heads of household and young married couples prefer to use WhatsApp and Facebook apps to share and receive health knowledge.

**Table 4: Healthy eating practices among heads of household and adolescent respondents**

Practice Item	Strongly dislike n (%)	Dislike n (%)	Neutral n (%)	Like n (%)	Strongly Like n (%)	Median [IQR]
<b>Family (N=20)</b>						
<i>My family likes to eat vegetables</i>	1 (5)	2 (10)	3 (15)	9 (45)	5 (25)	4 [2]
<i>My family likes to eat fruits</i>	1 (5)	n.a	2 (10)	11 (55)	6 (30)	4 [1]
<i>My family likes to drink fruit juice</i>	1 (5)	1 (5)	1 (5)	10 (50)	7 (35)	4 [1]
<i>My family likes to drink plain water</i>	1 (5)	n.a	2 (10)	7 (35)	10 (50)	4.5 [1]
<i>My family likes to drink milk</i>	1 (5)	1 (5)	2 (10)	8 (40)	8 (40)	4 [1]
<i>My family likes to drink milk with whole grains for breakfast</i>	2 (10)	3 (15)	4 (20)	3 (15)	8 (40)	4 [3]
<b>Adolescent (N=19)</b>						
<i>I like to eat vegetables</i>	1 (5)	3 (16)	10 (53)	5 (26)	n.a	4 [1]
<i>I like to eat fruits</i>	1 (5)	1 (5)	1 (5)	7 (37)	9 (48)	4 [1]
<i>I like to drink fruit juice</i>	1 (5)	n.a	3 (16)	8 (42)	7 (37)	4 [1]
<i>I like to drink plain water</i>	1 (5)	n.a	1 (5)	9 (47)	8 (42)	4 [1]
<i>I like to drink milk</i>	1 (5)	n.a	2 (11)	6 (32)	10 (53)	5 [1]
<i>I like to drink milk with whole grains for breakfast</i>	1 (5)	n.a	2 (11)	7 (37)	9 (47)	4 [1]

IQR= Interquartile range

Note: Practice was assessed by giving 1 to Strongly Dislike; 2 to Dislike; 3 Neutral; 4 to Like and 5 to Strongly Dislike.

### DISCUSSION

The majority of the respondents were female heads of houses and male adolescents living in PHP Jalan Cochrane, Kuala Lumpur. On the other hand, PHP is a government housing assistance scheme to meet the housing needs of low-income families run by the Ministry of Housing and Local Government. There have been plenty of health activities were conducted by the Government at PHP around Kuala Lumpur and Selangor, and the wives to the heads of household are the most active to participate. It is estimated that more than 30,000 families from PHP in Kuala Lumpur have income below RM2,200 and are below the poverty line. Heads of household respondents were from the middle age group with poor education and low monthly income (less than RM1,500). At the same time, the young married couple, on the other hand, has a high education level with a high monthly household income (more than RM3,500). Low-income family economic and education level causes families to be unable to provide healthy nutrition.

According to the World Health Organization, a healthy lifestyle is critical because it reduces the risk of serious illness or premature death (Li et al., 2020). Smoking, increased sedentariness, poor stress management, alcohol intake, and poor nutrition are aspects of an unhealthy lifestyle that can lead to non-communicable diseases and ultimately cause early death (Seet et al., 2021; Vallance et al., 2018). Individuals should practise healthy eating habits and enhance their physical activity to sustain a healthy lifestyle. Low fruits and vegetable practices were observed among the heads of household and adolescents. Low monthly household income possibly constraints inhibit spending on fruits and vegetables among heads of household in PHP. Malaysian children do not consume enough fruits and vegetables to meet the Malaysian Dietary Guidelines (MDG). In 2019, a report from the National Health and Morbidity Survey of Malaysia mentioned that 95% of adults did not eat the required amount of fruit and vegetables a day (at least five servings a day) (IPH, 2020). Fruits and vegetable intake and milk consumption need to be improved among the heads of household and adolescent respondents. Milk consumption was very poor and needed to be improved. Nutrition intervention programs need to be implemented to educate the PHP residents on the importance of drinking milk. Low milk consumption in a developing country is increasing and affecting the world. Lactose intolerant is one of the factors contributing to the declining pattern of milk consumption (Zingone et al., 2017). Although the heads of household and adolescent respondents have no lactose intolerant, a better way of preparing milk should be taught through intervention programs. Improving the consumption of water and juice could promote a healthy lifestyle among PHP residents. The fruit and vegetable intake popularity among all respondents is moderate (50%).

Increased physical activity (PA) is beneficial in improving a healthy lifestyle. PA with family, gardening, and communal work are common among PHP residents. Overweight children with low PA contributed to stunting prevalence (Ferreira et al., 2020; Sunuwar et al., 2020). This problem can be prevented by the influence of family members, especially parents. Studies have shown that parents' physical activity influences children and early adolescents (Álvarez-Bogantes, 2019; Liszewska et al., 2018). Fun physical

activity involving the whole family gives a high percentage in community and adolescent respondents, with adolescents enjoying the most compared to the community respondents. These results showed that PHP residents prefer doing PA, and an exciting intervention program could be a great outcome in the future. The use of mass communication has been proven to be effective in changing the behaviour among members of the population (Giustini et al., 2018; Kumar, 2020; Schramm, 2021). In this new technologies era, a channel of mass communication such as cell phones or smartphones, emails and interactive Web could reach a broad audience (McQuail & Deuze, 2020) and deliver wide information. In this study, all respondents used mobile or smartphones daily and as the main communication branch. Surprisingly, respondents used the mobile or smartphone as a tool to access health-related information, including stunting and the first 1000 days of life. Mobile health (mHealth) interventions have become increasingly prevalent in the scientific literature (Ali et al., 2019; Bidargaddi et al., 2020; Grekin et al., 2019). Therefore, mHealth could be implemented in this project as one of the instruments to initiate stunting prevention among PHP residents. Social media (SM) can facilitate the intervention program flow, which input through respondents' SM preferences such as WhatsApp or Facebook Messenger can be delivered to the subjects.

## CONCLUSION

In this study, low monthly income (less than RM 1,500) and poor education levels were observed among heads of household but not in young married couples. Most young married couples were from Civil Servants Residential Complex, with government officials with higher educational qualifications than the heads of household. The second findings revealed heads of household respondents' health and nutrition knowledge and showed higher percentages of exclusive breastfeeding and complementary feeding practices. However, low milk consumption, fruit, and vegetables were observed among households and adolescent respondents. There may be a link between the family economy and the consumption of fruit vegetables. Therefore, a nutrition intervention program could promote the importance of fruits and vegetables and milk consumption among PHP residents. Finally, Facebook Messenger and WhatsApp applications are preferences of PHP residents to receive health information. These findings are a promising component to include in nutrition intervention. Both applications can convey nutrition information to the PHP resident during this challenging pandemic. These findings can serve as a guide in conducting nutrition intervention programs in the future to prevent children stunting among PHP families. In conclusion, this study may benefit from developing nationwide programmes to reduce stunting embraced national-level commitment by engaging the communities to achieve Global Nutrition Targets 2025.

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## CONFLICT OF INTEREST

The authors declare no conflict of interest.

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