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The Journal of Community Health Management

Journal homepage: <https://www.jchm.in/>



Original Research Article

Low-income Filipino mothers' cultural perceptions of healthy mothers and children do not align with standard nutritional recommendations

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ARTICLE INFO

Article history:

Received 09-11-2022

Accepted 26-11-2022

Available online 30-12-2022

Keywords:

Mothers
Health beliefs
Children
Nutrition
Diet
Qualitative

ABSTRACT

Background: The study explored cultural concepts of maternal and child health among low-income Filipino mothers, to serve as basis for planning health and nutrition education programs that will achieve behavior change. The objectives were to a) Characterize the following concepts from the point of view of mothers: qualities of a strong healthy mother; qualities of a strong healthy child; and proper nutrition practices to raise strong healthy children; b) Identify concepts that are consistent with good nutrition practices vs. concepts that need to be explained and clarified or corrected, to serve as input for nutrition education programs.

Materials and Methods: In-depth interviews were conducted among 26 mothers aged 20 to 35 years with children aged 3 to 12 years. Respondents were asked the following questions: a) What do you think are the qualities of a strong healthy child/mom? b) Complete the following sentence: A strong healthy child /mom is ____; c) In your opinion, what nutrition practices are important to have a strong healthy child during this pandemic?

Results: Thematic analysis revealed most mothers believed 1) a strong healthy mother is one who is mentally strong and resilient in the face of problems; 2) a strong healthy child is one who is physically engaged and interacts actively with his/her surroundings; 3) while a healthy diet is important, the best nutrition practice to promote child health is to provide daily vitamin and mineral supplements.

Conclusion: Filipino mothers possess cultural health concepts that are not consistent with standard nutritional recommendations.

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1. Introduction

The health of Filipino children has not improved in the past years. The Philippines is currently ranked fifth among countries in the East Asia and Pacific region with the highest prevalence of stunting and is among 10 countries in the world with the highest number of stunted children.¹ At the same time, the proportion of overweight children increased from 1.1% in 1989 to 3.9% in 2015.^{2,3} Failing food systems

and poor diets were cited as main causes of the Philippines' escalating child health problems.³

Consumer behavior is one major component of food systems that contributes to nutrition and health outcomes.⁴ An underlying determinant of consumer behavior is existing cultural beliefs about health and nutrition. Culture is the pattern of ideas, customs and behaviors shared by a particular people or society.⁵ Health is a cultural concept, and cultures can give rise to different views on human health.⁵ These views influence how well mothers

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comply with child care recommendations from health care providers. Parental beliefs and perceptions about child health determine the type of foods and nutritional care they give their children. It is necessary to know the underlying perceptions and beliefs held by parents, particularly mothers who are the primary caregivers, regarding child health and nutrition in order to develop effective education programs whose goal is to achieve behavior change (i.e., improved child health care practices).

The present study explored concepts of maternal and child health among Filipino mothers using in-depth interviews. The objectives were to

1. Characterize the following concepts from the point of view of mothers
 - (a) The qualities of a strong healthy child;
 - (b) The proper nutrition practices to raise strong healthy children; and
 - (c) The qualities of a strong healthy mother
2. Identify mothers' nutrition concepts that are consistent with good nutrition practices vs. concepts that need to be explained further and clarified or corrected. The information can be used to plan nutrition education programs aiming to improve mothers' child care and nutrition practices, in order to achieve optimal maternal and child health.

The study showed that Filipino mothers possess distinct cultural concepts of health that differ from standard recommendations, which may facilitate or inhibit the success of nutrition intervention programs.

2. Materials and Methods

2.1. Ethics approval

Ethics approval was obtained from the Region 2 Trauma and Medical Center Institutional Review Board (R2TMC-IRB 2022-102). The present study is part of a wider ethnographic study that delved into different aspects of the lives of low middle income Filipino mothers (i.e., their life experiences, priorities, and views on parenting, child health and maternal health, among others).

2.2. Study sample

A purposive sample of 26 mothers from urban and rural areas of the country's major islands (Luzon, Visayas, Mindanao) were included. Respondents were selected from a list prepared by a market research organization. Inclusion criteria were: had a child between ages 3 to 12 years; lived in barangays (villages) classified as urban or rural by the Philippine Statistics Authority;⁶ between age 20 to 40 years old; owned a mobile phone or computer with internet access; available and agreed to sign a consent form after being informed about the study.

2.3. Data collection

Eligible participants (mothers) were contacted via mobile phone and appointments were set. In-depth interviews via Facebook Messenger or Zoom were conducted in Filipino that lasted approximately 1½ hours. Face-to-face interviews were not conducted due to the pandemic. Electronic cash transfers were given to compensate for the time taken to answer questions. Mothers' concepts of a strong healthy child, strong healthy mother, and nutrition practices to achieve strong healthy children were queried. To increase validity, triangulation was implemented by asking questions (for each topic) in different ways, and examining responses (across different questioning styles on a single topic) for consistency. Data saturation, wherein new ideas were no longer being elicited from subjects, was achieved at a sample size of 26 mothers. The following conversation guide was used (translated into Tagalog and Visayan dialects):

1. How would you describe a strong healthy child? What comes to mind when you hear the term "strong healthy child"?
2. Complete the statement: A strong healthy child is ...
3. In your opinion, what nutrition practices are important for a strong healthy child during this pandemic?
4. Complete the statement: For my child to be strong and healthy, I have to ...
5. How would you describe a strong healthy mother? What comes to mind when you hear the term "strong healthy mother"?
6. Complete the statement: A strong healthy mother is ...

2.4. Data analysis

The study was based on grounded theory, wherein elicited responses were used to generate a conceptual theory that might account for a pattern of behaviour.⁷ Responses were transcribed verbatim. Thematic analysis was conducted on the resulting transcripts using a six-step process consisting of:⁸ 1) familiarization of authors with the data, 2) generating initial codes, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, and 6) producing the report. A data-driven inductive approach was used wherein, for the entire sample, statements with common thoughts or messages were coded then grouped together, and each group was labelled with a specific theme. Each mother's transcript was examined for the presence or absence of identified themes.

3. Results

Twenty-six mothers aged 20 to 35 years from low middle income families were included in the study. Due to the small sample size and nature of the interviews (i.e., electronic

format), drop-outs were not experienced. Table 1 shows the characteristics of the study sample. Most mothers (96%) had a high school degree or higher, lived with their husbands (92.3%), and were either housewives (42.3%) or employed in elementary occupations (34.6%).

Table 1: Characteristics of the study sample

Demographic characteristic	No.	%
Mother's education		
• High school level	1	3.8
• High school graduate	8	30.8
• Vocational school graduate	2	7.7
• College level	7	26.9
• College graduate	8	30.8
Parental status		
• Single parent	2	7.7
• Both parents present	24	92.3
Type of residence		
• Urban	15	57.7
• Rural	11	42.3
Geographic location		
• Luzon	20	76.9
• Outside Luzon (Visayas, Mindanao)	6	23.1
Mother's occupational category †		
• Housewife	11	42.3
• Elementary occupations	9	34.6
• Professional	3	11.5
• Technicians and associate professionals	1	3.8
• Clerical support workers	1	3.8
• Service and sales workers	1	3.8
Husband's occupational category †		
• Unemployed	1	3.8
• Technicians and associate professionals	5	19.2
• Elementary occupations	5	19.2
• Clerical support workers	3	11.5
• Service and sales workers	3	11.5
• Skilled agricultural, forestry and fishery workers	3	11.5
• Craft and related trades workers	3	11.5
• Plant and machine operators, and assemblers	1	3.8

†Based on 2012 Philippine Standard Occupational Classification

3.1. Concept of a strong healthy child

Theme 1. A strong healthy child is physically engaged, energetic, active, and rarely ill. All mothers thought that the most important trait of a strong healthy child is one who is energetic, active, and rarely ill (termed in the vernacular as *bibo*). These children were generally described as being constantly alert and interested in their surroundings, not susceptible to colds, extroverted and playful. Sample statements were (translated from Filipino language):

1. "It is most important that the child does not get sick easily, and is active. For example, he or she likes to run, play, dance, sing, talk and interact."
2. "If your child is quiet and just sits around instead of playing with friends, then you have to be worried."
3. "His/her knees and bones are strong; when running, he/she should not easily trip or fall."
4. "A weak child will sit around and not move; he or she will not look good and eat very little."
5. "An active child with energy (enough to be physically active and socially engaged) is a healthy child."

Theme 2. A strong healthy child shows good physical growth. More than two-thirds of mothers perceived a strong healthy child as one who exhibits good physical growth. Physical growth was described in terms of visible aspects of the child's weight and height, based on mothers' subjective judgment. Sample statements were:

1. "He/she is not fat, just right in terms of weight."
2. "Height is ok."
3. "Proper height, weight and strength."
4. "Good body build."
5. "Good muscle growth."
6. "Good height, even if he/she is not fat."

Theme 3. A strong healthy child is mentally healthy with a pleasant personality. More than half of mothers perceived a strong healthy child as one with good mental/emotional health and a pleasant well-balanced personality. These mothers valued good behavior as an aspect of child health. Sample statements were:

1. "He/she is a good person, respectful to elders, and will not do bad things to other people."
2. "Able to interact well with others, God-fearing."
3. "Would choose to do what is right, rather than what is wrong."
4. "Has a calm personality; does not give in to his/her angry feelings."
5. "Has a healthy mind and is emotionally stable."

3.2. Concept of a strong healthy mother

Theme 1. A strong healthy mother is mentally strong and resilient in the face of problems. All women in the sample perceived a strong healthy mother as a mentally strong and resilient woman who can withstand the challenges and difficulties in life. The importance of mental strength is reflected in the perception that strong healthy mothers are able to provide the needed care for their children even under difficult circumstances (e.g., during illness).

Sample statements were:

1. "Strong healthy mothers don't give up easily, even if faced with a storm of problems they will not fall over!"

Table 2: Themes obtained from in-depth interviews

Topic explored	Main theme	Sub-theme	Sample statements (translated)
Strong healthy child	Physically engaged; lively and energetic; does not get sick easily	“bibo” or active & alert	“The child is rarely ill; runs around and does not fall easily when running”
		Interacts with surroundings & people	“Extroverted; not shy; talks easily with people;” “If he/she does not interact with people, then there is a problem”
	Good physical growth	Weight and height	“Proper weight (not fat)” “Good height and strength”
		Physical strength supports cognitive function	“Healthy, intelligent” “Good body build, with an active mind”
	Mentally healthy with a well-balanced personality	Morally upright	“God-fearing and will not do bad things to other people: “Will only think of doing what is right”
			Strong character
		School performance	“Active in class;” “Likes school and has good grades”
Strong healthy mother	Mentally strong and resilient	Strong character	“Does not give up easily in the face of challenges” “Can face problems head-on”
		Emotional strength	“Can defend her children from adversities in life because she is emotionally strong”
	Combined physical and mental strength	Superwoman	“Able to do even the impossible for the sake of her children”
		Physical health	“Not sick easily; ready to fight” “Strong hard bones; does not break easily”
		Specific pharmaceutical brands	“Scotts candy once a day; Cherifer multi-vitamins for height” “Propan to increase appetite”
Healthy foods	“Milk, fruits & vegetables”		
Nutrition practices for a strong healthy child	Vitamin and mineral supplements	Herbal foods	“Oregano, serpentina”
	Healthy diet	Snack foods	“snacks, juice” “potato chips, platos”
		Child preference	“No change; give what the child prefers to eat”
	Processed snacks		

2. “Inner strength; even if life is difficult, the mother is able to overcome (these difficulties) and survive for the sake of her children.”
3. “Not weak even during a pandemic. Able to adapt and rise to the challenge.”
4. “Even if she falls, she can pick herself up and move on.”

Theme 2. A strong healthy mother possesses combined physical and mental strength. A few women perceived a strong healthy mother as having both physical and mental capabilities to combat stress and illness (i.e., similar to a superwoman). Mothers believed these qualities allow women to provide the needs of their children in all aspects (physical needs, needs during illness, and future aspirations). Sample statements were:

1. “Able to be a supermom for the children and gain their admiration, so that children can say “my mother

is awesome.”

2. “When my children are sick, I should be strong enough to care for them even if I’m tired.”
3. “Able to cook and do everything for the children.”
4. “Able to care for the children physically and help them achieve a better future.”
5. “A woman who is physically and mentally healthy.”
6. “Doesn’t get sick easily, ready to fight.”

3.3. Nutrition practices to attain strong healthy children

Theme 1. Provide vitamin and mineral supplements. All mothers believed that giving children daily vitamin and mineral supplements is necessary to achieve good health, and even mentioned specific pharmaceutical brands for their children. Some mothers thought that children were energetic and rarely ill due to the vitamin and mineral supplements they consumed. Sample statements were:

1. “I only think of what is good for my children and do it for them. I believe that vitamins are good for them.”
2. “I never fail to give my children vitamins each day.”
3. “My baby was too thin, so I had to find vitamins to increase his appetite.”
4. “Previously I gave my children vitamins once a day; now (due to the pandemic) I give them vitamins twice a day.”
5. “If the child is energetic and rarely ill, you know that the amount of money spent on vitamins is worthwhile.”

Theme 2. Provide healthy foods (fruits, vegetables, protein foods) and herbs. Most mothers mentioned provision of a good diet consisting of fruits, vegetables, protein foods, and traditional herbs commonly prescribed by non-medical village healers, necessary for child health. Sample statements were:

1. “Provide milk, fruits, vegetables.”
2. “Provide herbals like oregano, serpentina, malunggay.”
3. “Provide, egg, meat, fish, apples/grapes/banana.”

Theme 3. Provide processed snack foods. A few mothers mentioned provision of processed snacks (cereal chips, biscuits, fruit drinks) as necessary for good health. These mothers believed that no changes were necessary in their children’s diets and that if children wanted to eat, he/she should be given whatever food is readily available (in this case processed snacks). Sample statements were:

1. “Provide snacks and juice regularly.”
2. “Provide potato chips, piattos, etc.”
3. “The diet remains the same as before; no changes are necessary. The child can eat whatever he/she wants.”

3.4. *Concepts that need to be clarified or explained further when planning nutrition education programs for Filipino mothers*

Table 3 summarizes mothers’ concepts that adhere to nutrition recommendations and concepts that need further explanations or alterations. These concepts should be taken into account when planning nutrition education programs, so that nutrition educators can develop effective communication strategies that lead to behavior change.

Concepts that need to be explained and emphasized include:

1. Less reliance on the use of vitamin and mineral supplements but more reliance on healthy diets for child health. A number of guidelines state that vitamin and mineral supplements cannot take the place of a healthy diet, since foods have fiber and other bioactive nutrients that provide health benefits.^{9,10} If supplements are ingested in addition to fortified foods,

the risk of exceeding safe upper limits of nutrients also increases.⁹ An example is iron wherein excess intake increases the risk of chronic disease.⁹

2. The use of growth charts and reference standards to monitor child growth and support/confirm mothers’ personal judgement. Studies show that stunting is linked to an individual’s future economic productivity. This is important for Filipino families, wherein children are seen as future sources of economic support.
3. Mothers’ physical health as a necessary support for mental health. Women should realize that it is difficult to be mentally healthy without being physically healthy.

4. Discussion

The responses showed that Filipino mothers tend to have distinct concepts of child and maternal health that do not necessarily align with standard health recommendations.

4.1. *Mothers’ sociocultural perceptions of health*

Strong healthy child. Mothers’ predominant concept of a strong healthy child regardless of education, geographic location and urban/rural residence is one who is active, energetic (even to the point of hyperactivity), and rarely ill. While mothers viewed physical growth such as attained height as important, they were more concerned that their child was physically active, had no signs of illness or discomfort, and showed interest in the things around him/her.

A World Bank study examined the beliefs of Filipino caregivers (including mothers) regarding the root causes of stunting.¹¹ Results showed that caregivers believed that stunting is mainly determined by genetics (i.e., inherited from parents or relatives) rather than nutrition. Other perceived determinants were lack of sleep and poverty. Indicators of child well-being mentioned by caregivers were immunity from sickness, child’s physical activity and cognitive functions, similar to the results found in the present study.

Strong healthy mother. The predominant concept of a strong healthy mother is one who is mentally strong and resilient in the face of problems. Physical health was less important than mental health. The emphasis on mental strength may be a reflection of the stress being experienced by mothers due to the ongoing pandemic. It should be noted that even prior to the pandemic, the nutritional status of women of reproductive age was not optimal. While the prevalence of chronic energy deficiency among women aged 15 to 49 years decreased from 10.5% in 2015 to 7.8% in 2018, the prevalence of overweight and obesity also increased from 29.3% to 35.3% during the same period.¹² From 2013 to 2018, the prevalence of anemia among

Table 3: Mothers' concepts that adhere to nutrition recommendations vs. concepts that should be emphasized, clarified or explained when planning nutrition education programs

Topic explored from mothers' point of view	Concepts that are consistent with nutrition recommendations	Concepts that need to be explained further and clarified/emphasized when planning nutrition education programs
Strong healthy child	Physically engaged; lively and energetic; does not get sick easily	The concept of children's physical growth using reference standards (BMI-for-age; height-for-age) and its relationship with immune resistance, alertness, and physical activity should be explained. Mothers need a better understanding of children's anthropometric measurements using growth charts, to complement their visual judgment. Height-for-age and the concept of stunting should be emphasized and explained, since stunting is a major health problem in the country.
Strong healthy mother	Mentally strong and resilient in the face of difficulties; "supermom" who is able to provide all of her children's needs	The importance of mothers' good physical health as a necessary support for mental health, and how good physical health allows her to take good care of her children should be explained.
Nutrition practices for a strong healthy child	The importance of healthy diet for children	The components of a sustainable healthy diet based on WHO recommendations should be promoted. The risks of using vitamin and mineral supplements as opposed to the benefits of providing a healthy diet comprising whole foods from essential food groups - fruits, vegetables, meat/fish/poultry, dairy, fats & oils - should be explained. Illustrate how a healthy diet helps achieve the qualities of a strong healthy child and strong healthy mother based on mothers' own perceptions. Emphasize the adverse health effects of processed foods high in sugar, fat, & salt Safety issues in the use of herbs for children should be identified and explained

pregnant women increased from 24.6% to 26.1%.¹² In 2018, the prevalence of nutritionally at-risk pregnant women was 20.1% (23.6% in the poorest income quintile), 28.5% of lactating women were either overweight or obese, 20.2% and 21.2% of pregnant and lactating women, respectively, were iodine deficient.¹²

4.2. *Appropriate nutrition practices for a strong healthy child*

All mothers in the study believed that daily vitamin and mineral supplements are necessary for children to attain good health. It appeared that respondents held the underlying belief that vitamin and mineral supplements can somehow compensate for the lack of a healthy diet. This concept is consistent with that found in the World Bank study, wherein undernutrition was defined as having insufficient vitamins or nutrients for the body to achieve proper development.¹¹ In the present study, most (but not all) mothers believed that providing a healthy diet (consisting of fruits, vegetables, protein foods) is essential for child health. Some mothers, mostly college-level or vocational graduates living in rural areas, mentioned ultra-processed foods such as biscuits, potato chips and cereal-

based processed snacks, and fruit drinks as being necessary to achieve child health.

Recent studies revealed poor diet quality of Filipino children. Analysis of nutrient intakes of schoolchildren aged 6 to 9 and 10 to 12 years using data from the 2013 National Nutrition Survey found a high prevalence of inadequate intakes across both age groups for calcium, iron, vitamin C, folate, vitamin A, riboflavin, thiamin, and phosphorus.¹³ Inadequacies increased with age and in rural areas. The mean intakes of vitamin E, D, and potassium were far below the adequate intakes (AI) while mean sodium intakes were above the AI,¹⁴ suggesting high levels of processed food intake and low intake of fruits and vegetables. Rice was the main source of nutrients among children aged 6 to 12 years.¹⁵

Among younger children aged 6 to 59.9 months, analyses showed inadequate intakes of iron, calcium, zinc, phosphorus, vitamin C, A, thiamine, riboflavin, niacin, B6.¹⁵ In children aged 36 to 59.9 months, the major sources of energy and nutrients were rice, sugar-sweetened beverages, cow's milk, bread, noodles, and cookies.¹⁵ Other analyses confirmed that, regardless of income level, diets of young Filipino children aged 6 months to 5 years lacked

diversity^{16,17} and were characterized by high consumption of sugar-sweetened beverages, cookies and cakes.^{15,17} This dietary pattern is manifested in a high prevalence of dental caries in the population.¹⁸ Toothache is a major cause of absenteeism in schoolchildren.¹⁹ Surveys showed that 98% of children aged 3 to 5 years had dental caries.²⁰ Among 12-year-old children, 74% had gingivitis, 78% had dental caries, 49.7% manifested symptoms of dentinogenic infections.²⁰

Issues regarding supplement use. There are hardly any studies on the use of vitamin and mineral supplements among Filipino children. One study among 126 children aged 6 to 17 months examined the effects of multiple micronutrient powder supplements with and without an accompanying complementary food blend (rice and mungo) for 6 months on children's micronutrient status.²¹ Results showed that the prevalence of anemia (Hb<11 g/dL) decreased significantly in all treatment groups (micronutrients with and without complementary foods) but the change was no longer significant after adjusting for age. There was also no change in the prevalence of zinc deficiency (whose prevalence increased in one group fed the micronutrient powder with complementary food) and vitamin A deficiency (whose prevalence was low at baseline). The results suggest that studies are needed to determine the appropriate supplements for specific groups and whether food rather than supplements are needed, especially since a large number of fortified foods are now readily available in local markets.

Studies that examined the contribution of supplements to children's micronutrient intakes found that supplements failed to meet recommended intakes for certain nutrients, while increasing the likelihood of excess intakes for other nutrients. Bailey et al.²² found that even with the use of supplements, more than one-third of U.S. children failed to meet calcium and vitamin D recommendations. Supplement use increased the likelihood of intakes above the Tolerable Upper Intake Level (UL) for iron, zinc, copper, selenium, folic acid, and vitamins A and C. The authors concluded that dietary supplement use in children remains a controversial strategy to improve nutrient intakes because, even though their use is associated with lower prevalence of inadequate intakes, it is also associated with increased risk of excessive intakes (i.e., above the UL). Meyer et al.²³ highlighted the difficulties in prescribing micronutrient supplements to pediatric populations and recommended inclusion of biochemical markers to guide prescriptions for supplementation. The only micronutrient supplement recommended for children by the American Academy of Pediatrics (AAP)²⁴ and other pediatric organizations^{25,26} is vitamin D. These organizations recommend a daily intake of vitamin D at a range of 400 to 1000 IU/day for all infants, children, and adolescents depending on the presence of risk factors.

5. Limitations of the Study

The study was limited by its small sample size and exploratory nature, as well as its focus on low middle income mothers. Only mothers with mobile phones or computers and internet access were included (i.e., selection bias); non-users were not represented. In 2020, the Philippines' mobile internet user penetration was around 72.1 percent.²⁷ In 2021, only 63% of the Philippine adult population had access to the internet.²⁸ Access differed within the country's island groups, with the National Capital Region in Luzon Island recording 84%, the rest of Luzon at 65%, the Visayas with 62%, and Mindanao with 47%.²⁸

6. Conclusion

Filipino mothers have distinct cultural concepts of maternal and child health, and nutrition practices to achieve child health. These cultural perceptions are not strictly aligned with standard nutrition recommendations, which may limit effective implementation of programs that seek to improve the nutritional status of children. Child health influences future adult health. Hence, mothers' perceptions should be taken into account when planning educational intervention programs so that despite the presence of these beliefs, compliance with dietary recommendations based on scientific evidence can still be ensured.

Concepts that need to be promoted among low-income Filipino mothers include the WHO-recommended child growth standards and its association with future economic productivity and adult health; components of a healthy diet based on WHO guidelines; appropriate supplements for children based on current evidence (e.g., vitamin D); and the importance of mothers' physical (not just mental) health as a determinant of good child health. Concepts of health among upper-middle and high-income mothers should also be explored to allow development of more targeted interventions. Finally, the concept of maternal and child health in the Philippines can be expanded and redefined to include mothers' sociocultural concepts of a strong healthy child and strong healthy mother.

7. Author Contributions

MSA takes overall responsibility for the manuscript. MSA was responsible for conceptualization, formal analysis, and writing of the manuscript. BC was responsible for data curation, funding acquisition, project administration and supervision. Both authors were involved in the review and editing of the final manuscript.

8. Source of Funding

This work was supported by Nestle Philippines Inc. The funding source had no involvement in the collection, analysis and interpretation of data; in the writing of

the report; and in the decision to submit the article for publication.

9. Conflict of Interest

BC is an employee of Nestle Philippines Inc. which provided funding for the study. MSA received funding for conceptualizing the research and writing the manuscript.


10. Data Availability Statement


Verbatim transcripts are available upon request from the authors. However, these data are in Filipino language (English translation is not available).

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Cite this article: Amarra MSV, Cayabyab B. Low-income Filipino mothers' cultural perceptions of healthy mothers and children do not align with standard nutritional recommendations. *J Community Health Manag* 2022;9(4):191-198.