

A Qualitative Study on Perceptions and Knowledge of Orang Asli Mothers on Child Health and Nutrition

Ng WC¹, Zalilah MS¹, Khor GL¹, Wan Norlida WN¹, Haslinah A¹, Shashikala S¹, Mirmalini K¹, Nawalyah AG¹ and Hejar AR²

¹ *Department of Nutrition and Health Sciences, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang Selangor*

² *Department of Community Health, Faculty of Medicine and Health Sciences, Universiti Putra Malaysia, 43400 Serdang Selangor*

ABSTRACT

Focus group discussion is a qualitative method of data collection that has gained recognition in the health research field. A total of 8 focus group discussions were carried out with Orang Asli women of childbearing age (20-50 years old) to assess their perceptions and knowledge of child health and nutrition. Four of the groups were from 6 Temuan villages (n=40) in Sepang District, while four others were from 4 Mah Meri villages (n=31) on Carey Island. Most of the women had no formal education or had attended primary school only. The topics discussed were on the women's perceptions of a healthy child and contributory factors to child health; their perceptions of good (nutritious) and bad (less nutritious) foods; their knowledge on foods and nutrients in relation to general functions, and specifically to growth and brain development as well as diseases. All Mah Meri and Temuan groups defined 'healthy' and 'unhealthy' in terms of behaviours and body appearances. A healthy child is able to play, socialise, eat and sleep well and seems energetic and cheerful, while an unhealthy child does not exhibit these behaviours and appearances. All the groups cited personal hygiene of the child and cleanliness of food and home environment as important contributors to child health. Healthy and unhealthy foods were defined mostly in relation to disease outcomes. All groups considered fruits and vegetables as 'good' foods while sugar and snacks were 'bad' foods. Meat, eggs, milk and fish were also considered as 'good' foods by several groups. All Mah Meri and Temuan groups agreed that nutritious foods prevent children from illnesses as the foods would provide energy and improve blood circulation. Compared to the Temuan, most Mah Meri women were unable to identify food sources of nutrients. Both the Temuan and Mahmeri groups were not able to relate nutrients to their specific functions. While the women were able to relate the associations between foods and diseases, most of the women lack knowledge on the appropriate foods for growth and development. The focus group findings would contribute to better understanding of care-givers' perceptions and knowledge regarding child health and nutrition, which could then be utilised in the development of appropriate health and nutrition strategies to address child health and nutrition problems in the Orang Asli community.

INTRODUCTION

Orang Asli (aborigines) are the indigenous people of Peninsular Malaysia. There are three main groups of Orang Asli (Negrito, Senoi and Proto Malay) with each group comprising 6 sub-groups with ethno-linguistic differences (JHEOA, 1997). Compared to other ethnic groups, the Orang Asli are socio-economically disadvantaged with health and nutrition problems, especially among the vulnerable groups such as women and children. Various studies have reported high prevalence of malnutrition among Orang Asli children, which could be attributed to poverty, inadequate dietary intakes, diseases and inappropriate cultural beliefs and practices (Ismail, Wong & Zawiah, 1988; Khor, 1988; Osman, Shamsuddin & Khalid, 1991; Norhayati *et al.*, 1995; Osman & Zaleha, 1995; Zalilah & Tham, 2002). Under-nutrition in young children places them at risk of poor growth and development in adolescence and adulthood.

In the UNICEF conceptual framework for child health, household food security, health care services, and a healthy environment and care have been suggested as important underlying factors to achieve child survival, growth and development (UNICEF, 1990). Care was broadly defined by ICN (1992) as 'the provision in the household and the community of time, attention and support to meet the physical, mental and social needs of the growing child and other household members. Engle, Menon & Haddad (1999) have included caregivers' practices that affect the child's nutrient intake, health and the cognitive and psychosocial development. Good care practices related to child feeding have been shown to positively influence child health and nutrition (Ruel *et al.*, 1999; Armar-Klemes *et al.*, 2000; Ruel and Menon, 2002).

Underlying these care behaviours are the caregivers' education, knowledge, attitude and beliefs that can contribute to the

capacity of the caregivers to provide appropriate care for the children (Engle, Menon & Haddad, 1999). Information on caregivers' knowledge, attitudes, concerns and beliefs regarding child health and nutrition are essential for the development of appropriate strategies or interventions to prevent child malnutrition (Contento *et al.*, 1993; Benasieh and Brooks-Gunn, 1996; Baughcum *et al.*, 2001). In order to obtain such information, many studies have utilised quantitative methods including the use of knowledge, attitude and perception questionnaire. However, in recent years, the use of qualitative methods such as focus group discussions in nutrition and health promotion research has gained recognition in providing better understanding of individuals' feelings, perceptions and misconceptions regarding child health and nutrition information and issues (O'dea, 1999; Crawford *et al.*, 2004; Hendel-Paterson, French & Story, 2004; Sherry *et al.*, 2004).

The purpose of this study was to assess the knowledge and perceptions related to child health and nutrition among mothers from the Temuan and Mah Meri sub-groups. Focus group discussions were conducted among the Orang Asli sub-groups in Selangor to identify potential nutrition education topics and strategies for improving the health and nutrition of Orang Asli children.

METHODS

Study background

This study was part of an IRPA-funded research on 'Health and nutrition intervention for Orang Asli households - A focus on intrahousehold factors'. The study was conducted among Orang Asli (Temuan and Mah Meri sub-groups) women and children from the Sepang District and Carey Island, Selangor. The Temuan and Mahmeri are the sub-groups of the Proto-Malay and Senoi respectively.

There were a total of 419 households from 9 villages in Sepang District and 5 villages on Carey Island. Prior to the study, ethics approval was obtained from the Faculty of Medicine and Health Sciences, Universiti Putra Malaysia. Permission to conduct the study on Orang Asli in Selangor was obtained from the JHEOA (Department of Aborigines Affairs). At the inception of the study, signed informed consent was obtained from all women who participated in the study.

Study subjects

The 'Tok Batin' (leader of the village) or representatives from the Temuan and Mah Meri villages were informed about the focus group discussions (FGDs). They were requested to invite 8 to 12 women to participate in each session. Eligibility was based on women with > 1 child aged 1 - 10 years and ability to communicate in the Malay language and to participate in a 2-hour focus group session. A total of 71 women (40 Temuan and 31 Mah Meri) from 6 Temuan and 4 Mah Meri villages volunteered to participate in the study.

Description of focus group discussion

The FGDs were conducted in the Malay language by trained moderators (ZMS or HA). ZMS is trained in nutritional anthropology and has experience in

conducting FGDs with various groups, particularly those from low-income or low-literacy population. HA was trained by ZMS to ensure consistency in the questions asked of the women. During the FGDs, two assistants tape-recorded and took notes of the discussions so that important points were not left out. As most women had to attend to domestic and economic activities during the week-days, all FGDs were held during the week-ends at the village community centers. Transportation was provided to those who requested. In order to reduce the burden of the respondents, each focus group session was kept within 60 to 90 minutes. Refreshments were provided during each session followed by morning or afternoon tea at the end of the session.

A semi-structured focus group guide was developed by the research team to ensure consistency in responses among the groups while allowing flexibility for the women to share their experiences. Prior to the FGDs, the focus group guide was pre-tested with a group of Temuan (n=3) and Mahmeri (n=4) women (different from the respondents of the focus group discussions) for clarity and duration of discussion. The finalised focus group guide (Table 1) consisted of 9 questions, which focused on:

1. Mothers' perceptions of healthy and unhealthy child as well as factors that contribute to child health

Table 1. Question guide used by the moderator for focus group discussion with Mahmeri and Temuan women

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1. Looking at your child, how do you know that he is healthy or unhealthy?
 2. What makes your children healthy?
 3. What is healthy/nutritious or unhealthy/non-nutritious food? Are these foods the same for adults and children?
 4. Can you name any nutrient?
 5. From where can you get these nutrients?
 6. What can nutrients/foods do to your body?
 7. What do you know about foods and child health?
 8. What do you know about foods and brain development?
 9. What do you know about foods and diseases?
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2. Mothers' perceptions of good (nutritious) and bad (less nutritious) foods for health
3. Mothers' knowledge on food and nutrients and their relations to general functions, growth and development as well as diseases

At the beginning of each session, verbal consents were elicited from the women. They were also informed that their participation was voluntary and their responses would remain anonymous. In all sessions, permission was obtained from the women before the discussions were audio-taped. The women were also informed that the recordings would be transcribed to assist the researchers in developing an intervention to promote health and nutrition of Orang Asli children.

A series of 8 FGDs were conducted to explore the cultural context of the Orang Asli women's knowledge and perceptions regarding child health and nutrition. The number of participants ranged from 7 to 12 per group with a mean of 8.9. All the women who came to the FGDs participated in, and completed their sessions. Each woman participated in only one session. Although only 40 Temuan and 31 Mah Meri women participated in the FGDs, it was found that a similar pattern of response was obtained after three sessions in each Mahmeri and Temuan group. Thus, the responses from 8 FGDs (4 Temuan and 4 Mahmeri) were deemed as adequate to 'represent' each community.

Data analysis

The assistant moderators transcribed the focus group discussions from the recordings. The notes were then used to fill in any information gaps in the transcripts (e.g. in cases where the recordings were not clear, the notes provided the missing information). In order to verify the accuracy and completeness of the transcripts, 2 co-authors listened to the record-

ings and reviewed the notes again. Finally, the focus group moderators who facilitated the sessions reviewed the transcripts and produced edited transcripts, which consisted of only the women's responses to the 9 questions. These responses were then grouped into 7 topic areas - definition of 'healthy' and 'unhealthy child'; factors perceived as contributors to child health; definition of 'healthy' or 'unhealthy' food; food and child health; food and nutrients; food and functions, growth and development; food and diseases.

Based on these topic areas, the edited transcripts were analysed by three co-authors for themes for comparisons within and among the groups (Sherry *et al.*, 2004). Themes within a group were defined as responses agreed by more than half of the members. Themes among groups (Individual Finding) were responses agreed by two or more groups within an ethnic category (Mah Meri or Temuan). Key findings were themes that arose in both ethnic categories or across the majority (≥ 3 groups within an ethnic category) of all groups.

RESULTS

Forty Temuan (n=40) and thirty one Mah Meri (n=31) women participated in the 8 FGDs (Table 2). Their ages ranged from 20 to 50 years old and a high proportion of the women had either no formal education or had attended primary school only. The average monthly household income was RM 722 \pm 536 for Temuan and RM 663 \pm 409 for Mahmeri households. Most of the women (> 70%) were housewives; however, they do help their spouses in economic activities such as working in their own oil palm small-holdings and fishing.

The seven topic areas with their individual findings and examples of responses are shown in Table 3. The key and individual findings and additional comments

for each topic are further described below. As there may be cultural differences in the Mahmeri and Temuan women’s knowledge and perceptions related to child health and nutrition, the similarities and differences in the findings for the two subgroups will also be highlighted.

Definition of ‘healthy’ and ‘unhealthy’ child

All the groups defined ‘healthy’ and ‘unhealthy’ as primarily behavioural symptoms. Generally, a healthy child is able to play, socialise, eat and sleep well, while an unhealthy child does not exhibit these usual behaviours. Physical features related to weight and height (e.g. lost weight, thin, shorter than other children) were never mentioned by any of the groups. The groups reported physical aspects related to appearance (e.g. face looks pale and gloomy, body seems listless or not energetic) While all Mah Meri groups associated the frequency of illness in children with being unhealthy, only one

Temuan group reported ‘healthy’ as a condition in which a child seldom gets any illness.

Factors perceived as contributors to child health

Personal hygiene of the child (including clothes and body parts), cleanliness of the home (inside and surroundings) and foods for consumption (e.g. wash food items before cooking or eating) were identified by all groups as important contributors to child health. A majority of the groups reported that consuming nutritious foods influenced their children’s health status. Fruits and vegetables were mentioned by three Temuan groups as important for child health. Two Mah Meri groups believed that a child is healthy if he eats well and thus, it is important to make sure that children take their meals or eat foods served to them. All of the Temuan groups agreed that ‘playing outside frequently’ could contribute to a child being sick as he is likely to be infected with

Table 2. Socioeconomic and demographic information of Temuan and Mah Meri women (n=71)

Characteristic	Temuan		Mah Meri	
	n (%)	Mean ± SD	n (%)	Mean ± SD
Age (years)		32.50 ± 8.66		31.16± 7.65
Number of children		3.75 ± 2.36		3.23±1.63
Educational level				
no schooling	14 (35.0)		6 (19.4)	
primary school	20 (50.0)		20 (64.5)	
lower secondary	3 (7.5)		5 (16.1)	
upper secondary	2 (5.0)			
post secondary (IHL/College)	1 (2.5)			
Monthly household income (RM)		722.29 ± 535.64		663.31 ± 408.65
Monthly income per capita (RM)		384.76 ± 294.21		370.18 ± 226.67
Occupation				
Work in government sector	1 (2.5)		1 (3.2)	
Work in private sector	9 (22.5)		7 (22.6)	
Not employed	30 (75.0)		23 (74.2)	

Table 3. Individual findings and responses from focus group discussions with Mah Meri and Temuan women

Topic	Mah Meri	Temuan
(1) Definition of 'healthy' and 'unhealthy' child	<p><u>Individual Findings</u></p> <p>(1) Healthy: Active**, seldom ill*, eat as usual, socialise and play with other children, no illness*</p> <p>(2) Unhealthy: Always ill*, frequent crying and whining, sit at home (does not play or socialise with friends and siblings), no appetite to eat</p> <p><u>Examples of responses</u></p> <p>R1: "Vigorous, he seems less likely to get sick"</p> <p>R2: "If he gets sick, he will not feel like playing"</p> <p>R3: "If he has fever or falls sick, he has no appetite to eat"</p>	<p><u>Individual Findings</u></p> <p>(1) Healthy: Active**, always happy and cheerful, play and move around a lot</p> <p>(2) Unhealthy: Face is pale and gloomy, sit at home and sleep or lie down, vomit when asked to eat, does not want to play or eat, not active**</p> <p><u>Examples of responses</u></p> <p>R1: "His face looks pale, sitting at home, lying down"</p> <p>R2: "Refuses to eat ... vomit, looks unhealthy"</p> <p>R3: "Not actively playing around"</p>
(2) Factors perceived as contributors to child health	<p><u>Individual Findings</u></p> <p>(1) Cleanliness of child/house/food, nutritious foods, whether child eats or not</p> <p><u>Examples of responses</u></p> <p>R1: "Cleanliness of the clothes ... his body"</p> <p>R2: "Getting enough nutrients, must be balanced"</p>	<p><u>Individual Findings</u></p> <p>(1) Cleanliness of child/house/food, nutritious foods, child frequently plays outside</p> <p><u>Examples of responses</u></p> <p>R1: "Cleanliness of the food... wash it clean, wash the vegetables clean..."</p> <p>R2: "Clothes. Clothes have to be washed clean"</p> <p>R3: "Self-cleanliness"</p> <p>R4: "Cleanliness of the surroundings"</p>

Topic	Mah Meri	Temuan
(3) Definition of "good/healthy" or "bad/unhealthy" food	<p><u>Individual Findings</u></p> <p>(1) Good/healthy food: Fruits and vegetables, meat, eggs, milk, fish</p> <p>(2) Bad/unhealthy food: Snack foods, (crackers, chips, snack cakes, wafers), sugar, cola beverages, ice-cubes, ice-cream</p> <p><u>Examples of responses</u></p> <p>R1: "Unhealthy food is such as snacks"</p> <p>R2: "Unhealthy foods are such as snacks, chocolates, sweets..."</p> <p>R3: "Fruits are healthy"</p>	<p><u>Individual Findings</u></p> <p>(1) Good/healthy food: Fruits and vegetables, meat, eggs, fish</p> <p>(2) Bad/unhealthy food: Snack foods, sugar and sweet foods, salty foods, durian and rambutan</p> <p><u>Examples of responses</u></p> <p>R1: "Good foods are fruits"</p> <p>R2: "Sometimes unhealthy food includes salty foods"</p> <p>R3: "Sugar seems not good ... He will easily get diabetes when he grows up if he eats a lot of sugar"</p>
(4) Contribution of nutritious food to child health	<p><u>Individual Findings</u></p> <p>(1) Child grows well, child is healthy^{***}, helps in brain development (for learning ability)</p> <p><u>Examples of responses</u></p> <p>R1: "I think may be because we take in fruits often ... it helps brain develops well"</p>	<p><u>Individual Findings</u></p> <p>(1) Gives child the energy he needs, child is healthy^{***}, for good blood circulation</p> <p><u>Examples of responses</u></p> <p>R1: "If he eats vegetables, it's balanced ... makes his blood flows smoothly"</p> <p>R2: "If he doesn't eat, he will be weak ... the nutritious foods give him the energy"</p>

Topic	Mah Meri	Temuan
(5) Food and nutrients	<p><u>Individual Findings</u> None</p>	<p><u>Individual Findings</u> (1) Rice, mee, tubers are carbohydrate and starchy food (2) Meat, chicken, fish, egg are protein food (3) Milk contains vitamins A,B and C and calcium (4) Fruits and vegetables contain vitamins A and C</p>
(6) Food/nutrients and functions/ health/ brain development	<p><u>Examples of responses</u> R1: "I know that rice is rice, mee is just mee. What is inside it, I don't know R2: "I don't know about iron"</p>	<p><u>Examples of responses</u> R1: "Starch is rice, noodles and tubers R2: "Fruits and vegetables contain vitamins</p>
	<p><u>Individual Findings</u> (1) Rice, noodles, tubers give energy (2) Rice helps children to grow (3) Certain foods can help brain to develop</p>	<p><u>Individual Findings</u> (1) Rice, mee, tubers give energy (2) Meat, chicken, fish, egg are good for blood (3) Milk will strengthen teeth and bones (4) Fruits and vegetables give balance to food that one eats and make one healthy (5) Some foods promote brain development in children</p>
	<p><u>Examples of responses</u> R1: "Rice and noodles give energy to the child" R2: "I think so ... if his brain is unhealthy, he is inactive; if his brain is healthy, he is intelligent ... he is able to speak fluently"</p>	<p><u>Examples of responses</u> R1: "If fruits are not given, his skin will feel itchy..." R2: "I have heard of vitamins and minerals. I think milk is good for bone" R3: "I never heard of foods that are good for brain"</p>

Topic	Mah Meri	Temuan
(7) Food/nutrients and diseases	<p><u>Individual Findings</u></p> <p>(1) Sugar is related to diabetes mellitus</p> <p>(2) Salt is related to hypertension</p> <p>(3) Ice cubes, ice water and ice-cream are related to cold and cough</p>	<p><u>Individual Findings</u></p> <p>(1) Sugar is related to diabetes mellitus</p> <p>(2) Salty and fatty food are related to hypertension</p> <p>(3) Alcohol, fatty food, food with toxins or chemicals, spoiled foods are related to cancers (lung, breast and ovarian)</p> <p>(4) Tea is related to kidney disease</p> <p>(5) Fatty food and coffee are related to heart diseases</p> <p>(6) Rambutan, durian, sweet food, spoiled food and ice-cream are related to cold, cough, diarrhea and stomach ache</p> <p>(7) Cola beverages, fatty food and cold food and drinks are related to asthma</p> <p>(8) Lack of calcium and vitamin is related to bone disease</p>
	<p><u>Examples of responses</u></p> <p>R1: "I am not sure about the relationship between foods and diseases ... of course it has. I guess it's fever, cough and diarrhea"</p> <p>R2: "Yes, I heard of diabetes mellitus. It is caused by sugar"</p> <p>R3: "Yes, I know hypertension ... because we use too much salt in cooking, the</p>	<p><u>Examples of responses</u></p> <p>R1: "Too much tea is bad for the kidney"</p> <p>R2: "Smoking and chewing the tobacco can cause cancer and heart attack ... many of us die of these diseases"</p>

*fever, cough, vomiting, stomachache
 **body is energetic and not listless
 ***seldom ill

worms because of skin contact with the soil (e.g. play with sand or does not wear shoes or slippers). None of the Mah Meri groups mentioned this factor.

Definition of 'good/healthy' or 'bad/unhealthy' foods

All groups identified fruits and vegetables as healthy foods. Foods such as meat, eggs, milk and fish were also mentioned as healthy foods by two Mahmeri and three Temuan groups. Sugar and snacks (crackers, chips, snack cakes, wafers) were considered by all groups as unhealthy foods. Besides sugar, sweet foods (cookies, local cakes), and salty foods (too much salt in dishes, salted fish and egg, fruit pickles) were also cited by the Temuan groups as foods, which could contribute to poor health if eaten frequently. Cola beverages, ice-cubes, ice-cream, durian and rambutan were identified by most groups as foods that can cause cold, cough, diarrhoea and stomach ache. All groups agreed that healthy and unhealthy foods apply to both adults and children. The Mahmeri and Temuan women appear to relate 'healthy' and 'unhealthy' foods to illnesses.

Nutritious foods and child health

All groups mentioned that consuming nutritious foods make children healthy by protecting them from illnesses. Three Mah Meri groups further cited healthy body and brain development (learning ability) as specific outcomes of giving nutritious foods to children. All Temuan groups believed that nutritious foods give children the energy to be healthy. In addition, two Temuan groups also mentioned that good foods would improve blood circulation and this in turn would make the children healthy.

Food and nutrients

None of the Mah Meri women were able to relate nutrients to food sources, although several women were able to list some nutrients (iron, calcium, vitamin A, carbohydrate, fat and protein) as they have heard the information from the nurses in the health clinics. Compared to Mah Meri women, a majority of the Temuan women were able to relate foods to their general nutrient content. For example, rice, noodles (mee) and tubers were cited to contain carbohydrate and starch while meat, poultry and eggs provide protein in the diet.

Food/nutrients and general functions/health/brain development

None of the groups was able to relate nutrients to their specific functions. Compared to Mah Meri women, Temuan women were better in relating foods to general functions (e.g. give energy, good for blood and strengthen bones and teeth). While two Mah Meri groups cited rice as food that promotes child health, only one Temuan group mentioned that foods such as rice, fish, meat and chicken provide energy to support child health. Two Temuan and two Mah Meri groups believed that foods do play a role in brain development but they were not able to name the foods or nutrients.

Food/nutrients and diseases

Two Mah Meri and all Temuan groups mentioned that sugar and salt can cause diabetes mellitus and hypertension, respectively. Cold foods (ice-cream, ice cubes and ice water or beverages) were mentioned by a majority of the groups to be related to cold diseases (cough, cold, flu, asthma). Besides foods, all Temuan groups reported that cigarette smoking and tobacco chewing were contributors to cancers and heart diseases. In general, the

Temuan groups were more aware of the relationship between foods or nutrients and diseases and were able to provide more examples of the food-disease relationship.

DISCUSSION

In modern medicine, the constellation of symptoms experienced by sick children is mostly indicated by physical or measurable changes related to growth and development and body appearance. These would include changes in the colour of hair and skin, weight loss and linear growth retardation. However, in many traditional societies, behavioural symptoms (appetite loss, irritability, whining and social withdrawal) are more likely to replace physical or bodily symptoms in diagnosis of disease in children (Cassidy, 1982). Although the definitions of a healthy and unhealthy child given by the Orang Asli women were not indicative of physical growth (weight and height), changes related to body appearance (e.g. body is listless and face is pale) were frequently mentioned. The women perceived that as long as the children are able to demonstrate their usual behaviours (play, eat, sleep), they are considered healthy. As these perceptions appear to be culturally bound, different strategies may be required to convey to the mothers the association between child health and growth and the developmental outcomes or the health concerns associated with the levels of growth (weight and height) that they perceive as normal.

The responses on perceived contributors to child health indicated that the women were aware of the importance of proper hygiene and feeding practices to promote child health. However, whether the knowledge translates into good practices remains questionable, as studies continue to show poor hygiene and low food intake among Orang Asli children. Hookworm infection is endemic in Orang

Asli children and re-infection occurs rapidly even after treatment (Dissanaïke *et al.*, 1977; Norhayati *et al.*, 1995; Osman and Zaleha, 1995). Intakes of energy and most nutrients among Orang Asli children are consistently reported to be inadequate (Ismail, Wong & Zawiah, 1988; Khor, 1988; Zalilah and Tham, 2002). Poverty is likely the underlying factor leading to poor health and nutritional status in the Orang Asli community. The interactions of poverty, inadequate dietary intake, poor sanitation and hygiene practices and frequent illnesses compromise the growth and development of Orang Asli children.

Women's perceptions of healthy and unhealthy food may be influenced by their food knowledge and beliefs, which would predict their food choices and food selection for their children and consequently the children's food consumption (Contento *et al.*, 1993; Guldán *et al.*, 2000). Women's food knowledge and beliefs are imperative towards good care practices for children to ensure child survival, growth and development (Engle, Menon & Haddad, 1999). Knowledge, perceptions and beliefs that influence food selection are also very much dependent on culture, food availability and accessibility, and food or taste preference and acceptance (Hurtado, 1984; Drewnowski, 1997). Many of the Orang Asli women believed that certain foods can exert desirable or undesirable effects on child health. For examples, meat given before a child is one year-old can cause worm infection, or pregnant women are not supposed to consume 'cold vegetables' such as pumpkin and cucumber as they will cause asthmatic problems in the infant. Also, although the nurses taught some women on the preparation of a nutritious diet for young children, the women were not able to put their knowledge into practice. This may be because they cannot afford or do not like the foods recommended.

In general, the Temuan women responded better than the Mah Meri

women to the questions on the relationship between food/nutrients and functions, growth and development as well as diseases. This could be due to the fact that they are more exposed to the urban environment and development within the Sepang district. They have the opportunity to gain health and nutrition information from the health clinics, media and the surrounding communities. Although dietary acculturation may produce both healthful and unhealthful dietary changes, it appears that the Temuan women may have experienced changes in diet and disease-related knowledge, attitudes and beliefs which could be beneficial to the health and nutrition of their children (Satia-Abouta & Neuhouser, 2002).

Behaviours that result in child malnutrition are frequently addressed by health and nutrition education programmes, behaviour modification interventions and efforts to directly change patterns of child care (Allen & Gillispie, 2001). However, many of these programmes may not produce the desired changes or even have met with resistance from the target population. It is essential that the programmes are culturally compatible with the target population's language, concepts, lifestyles and expected roles. This approach is to ensure that the programmes will produce the desired effects on malnutrition and can be implemented by the household members (Millard, 1994). As there is a possibility that the Orang Asli women may establish their perceptions based on incorrect information, an in-depth understanding of the community's food belief system is crucial in efforts to improve the health and nutrition of people.

The focus group discussions conducted with the Temuan and Mahmeri women were part of a social marketing approach to develop a health and nutrition intervention for the Orang Asli community. The intervention is designed to influence the health and nutrition behaviours

of Orang Asli mothers to improve the well-being of their children. The social marketing strategies utilised both quantitative and qualitative data (McKenzie, Neiger & Smeltzer, 2005) in order to understand better child health and nutrition issues in the target (Orang Asli) community and to develop communication messages that the programme recipients could understand, apply and take actions. The messages were also customised to the health and nutritional needs, cultural values and beliefs and lifestyle preferences of the Orang Asli community so that the focused and individualised messages could be easily accepted and adopted by the Orang Asli women (American Dietetic Association, 2002).

Despite several efforts by various government and non-government agencies to improve the socioeconomic and health status of Orang Asli, the health and nutritional status of Orang Asli children has yet to improve. Based on our observations of the Temuan and Mah Meri communities, several barriers to effective health and nutrition intervention to promote child health need to be addressed. These include lack of transportation to the health clinics, difficulty in communication with health personnel and lack of culturally sensitive health promotion strategies, which eventually could reduce the motivation and self-efficacy of the target population to acquire the knowledge and skills necessary for behavioural changes.

This study has several limitations that could impact the study findings. As the women volunteered to participate in the focus group discussion, they might be a group of motivated women. Also, the small number of participants may not allow the findings to be generalised to other members of Temuan and Mah Meri and to other sub-groups. Nevertheless, because little data is available on maternal knowledge and perceptions of child care practices, the data from these focus group discussions could serve as a basis for

future studies on care practices of Orang Asli children.

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