

# PERCEPTION ON POSTPARTUM DIETARY PRACTICES AMONG MALAY WOMEN IN KUANTAN, PAHANG

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**ABSTRACT**

Traditional postpartum practices generally involve food proscriptions and prescriptions. Certain foods are prohibited due to their properties such as “windy”, “cold” and “hot”. As lactating mother needs higher energy and protein intake, this practice may impact their ability to meet their nutritional requirements. Consequently, their health may not be fully restored, wound healing would be slowed, and lactation success may be interfered. This study was conducted in Kuantan, Pahang, to investigate Malay mothers’ perception on confinement dietary practices during postpartum period. A total of 80 respondents aged between 23-43 years old were interviewed using a questionnaire which consisted of an extensive list of food items. It was found that 100% of respondents mentioned that they do observe the traditional postpartum practices after childbirth with most of them (63.0%) chose to confine for up to 44 days. Flavored rice, *roti canai* and various types of noodle were generally avoided during postpartum period due to their ‘oily/fatty’ property. Tubers, and most fruits and vegetables were also avoided due to their ‘cold’ property. Moreover, the famous ‘reason’ for exclusion of fish was ‘*bisa*’ and ‘causing itchiness’ for seafood. Milk and dairy products were included in majority of respondents’ diet. Out of 80, 43 (53.8%) respondents avoided soy sauce because it was believed to give negative effect on wound healing. Other than that, iced drink, tea and sugarcane drink were avoided due to their ‘cold’ and ‘sharp/sour’ properties. In addition, statistical tests of all food items show that there is no difference in terms of level of acceptance for each food between women delivered via normal delivery or caesarean section. It is concluded that postpartum food taboo beliefs are still prevalent among Malay women. Extensive food prohibition and restriction causes limited food choices which may affect mothers’ nutritional intake. Thus, a more balanced diet should be recommended for Malay mothers during postpartum period to ensure adequate nutrient intake, as much as culturally acceptable.

**KEYWORDS:** Postpartum; Dietary practices; Food taboos; Confinement

## INTRODUCTION

Postpartum confinement practice is a norm among Asian communities. It is a time which most societies view it as a vulnerable time for the mother and her baby (American Public Health Association, 2001; Heh, 2004). Postpartum period is defined as an interval of time starting from an hour after child delivery until the following six weeks, and it is a crucial time for a woman (World Health Organization, 2010). Hence, after the delivery of baby, mothers need to observe their food intake and adhere to other practices such as smoking and roasting in order to reduce their vulnerability to illness and death. Generally, the mother-becoming process includes certain dietary and behavioural prescriptions (Manderson, 1981). The common ideas surrounding it are the importance of 'hot and cold', and the necessity of confinement after giving birth within a specific period (Kim-Godwin, 2003).

### **The concept of 'hot and cold' and 'wind related illness'**

Chinese, Malay and Indian culture health status was influenced by the concept of 'heat' and 'cold' and the effect of wind and air (Rice, 2012; Sich, 2012). The concept of 'hot and cold' does not usually refer to actual temperature states but abstract qualities such as hot and cold foods, bodily constitutions, disease, pregnancy, and sources of heat and cold (Pool, 1987). As in Chinese culture, 'cold' refers to the intrinsic nature of the foods such as lotus are cold because they grow in watery places, and root vegetables such as turnips are cold because they grow in the dark, damp earth (Pillsbury, 1978). Among Malays, foods considered 'hot' were animal and vegetable fats, alcohol, spices, animal proteins, salty foods, and bitter foods. Meanwhile, fruits and vegetables which were juicy, which exude viscous matter '*lendir*', and sour, plants that taste '*kelat*', vines, creepers, and climbers were considered as 'cold' foods (Laderman, 1983). 'Hot and cold' concept is also applied in the state of pregnancy and childbirth that differs between cultures (Pool, 1987; Manderson and Matthews, 1981).

Another common belief in many eastern cultures is the concept of 'wind related illnesses' (Kamil and Khoo, 2006). This concept has been interpreted in various ways such as rheumatic problems, and the presence or excessive accumulation of air in body organs such as stomach, and head. Among foods claimed to cause excessive wind were watermelon, jackfruit, bean sprouts, and long bean.

### **Traditional postpartum dietary practices**

Postpartum period is also a period of confinement for almost every culture. Chinese, traditionally will practise "sitting a month" or *zao yuezi* for 30 to 40 days of postpartum period (Liu *et al.*, 2006; Heh, 2004). In addition, in other Southeast Asian countries such as Laos, Lao, Khmu and Hmong tribes adhere to confinement practices starting from 2 days to 1 month with

addition of subsequent phase of ranging from 3 months to 2 years (Bouttasing *et al.*, 2012). Sein (2012) examined perceived duration of postpartum and concluded that most young women in Yangon district, Myanmar agreed that postpartum period is 7 days after childbirth and only a few of them up to 30 to 45 days. In Singapore, Naser *et al.*, (2012) discovered that Malay women conform to 44 days of confinement and one of the respondents said that she need to observe “*pantang*” for 44 days with complete rest at home.

In Malaysia, Poh *et al.*, (2005) conducted a study among Malaysian Chinese and found that majority of respondents (82%) practise confinement period of 30 days. According to Colley (1978), Indian women adhere to similar length of confinement period too. As for Malay women, Manderson (1981) reported that the period of confinement is 40 to 44 days. Laderman (1984) reported that 39% of Malay women interviewed said they have done dietary restrictions for full 40 days while there are other respondents who confined for 100 days (1%), less than one week (19%), 2 - 3 weeks (19%) and 21% of them never had dietary restriction at all. However, Laderman (1984) concluded that, there were 60% of women who did not stick to 40 days of confinement period due to flexibility in term of beliefs and practices. Manderson (1981) also agreed that the food taboos practised are inconsistent. Some people practise at least some of its components while full term practice is common.

In term of prevalence, Harn (1992) stated that out of 414 Chinese women, 95% of them adhere to confinement period. Laderman (1984) reported 79% of 145 Malay women interviewed did confinement practices even though there were differences in term of exact period of confinement. A study performed among all races (Malay, Chinese and Indian) in Seremban, Malaysia showed that 64.3% of the multi-racial respondents followed “*pantang-larang*” while 85.7% said they took special diet.

Studies among Chinese women after childbirth have found that they need to avoid any intake of raw and “cold” foods such as turnips and cabbages as it is believed to cause illness in the future (Pillsbury, 1978). It is also believed that “cold” foods will cause diarrhoea in baby and mother, body swelling, stomach discomfort, aches and pain, delay in lochia expulsion and cough (Raven *et al.*, 2007). In addition, they are encouraged to consume “hot” foods such as chicken because they are thought to “create fire” in the body and help to restore health, to enrich blood, to encourage lochia expulsion, and to stimulate breast milk production (Pillsbury, 1978; Raven *et al.*, 2007). Among factors influencing postpartum practices are the educational background of both husband and wife, location of residence (urban, suburban or rural), family income, postnatal visit, and nutrition and health care educational courses attended by the mother (Liu *et al.*, 2006).

The general idea of dietary restrictions during confinement period was to promote the well-being of the mother and her baby (Kaewsarn, 2003; Sein 2012). ‘*Yue Fai*’ or ‘lying by the fire’ is a common practice of confinement in Thailand. It is believed that mothers become cold and wet after childbirth. Thus, mothers will lie by a hot fire to warm their bodies and dry out

their insides (Phongphit and Hewison, 1990). Buffalo meat, fresh vegetables, and fresh fish are perceived to be harmful as they may cause sickness to the women and could decrease breast milk production (Kaewsarn, 2003). There were also beliefs that hot food such as pork, cold food such as duck and cucumber, food induces wind or acidity, and food causing hypertension such as preserved salted fish, food causing dizziness such as seafood and food causing drowsiness such as fermented bamboo shoot should be avoided during puerperium. On the other hand, chicken was believed to have wound healing ability and soup will promote breast milk production (Sein, 2012).

In Vietnamese traditional medicine, health requires balance between *am* and *duong* which is equivalent to the Chinese *yin* and *yang* concept (Ladinsky et al., 1987). In their culture, pregnancy is considered as 'hot' state. Once the woman delivers her baby, she goes into 'cold' state. A study revealed that majority of the Vietnamese women believed that they need to eat a lot during postpartum period which will help them to rebuild their strength, promote recovery, and improve their breast feeding (Lundberg and Trieu Thi, 2011). Although they need to eat in large quantity, all of them restrict types of food that they can eat such as avoiding 'cold' foods. 'Hot' or 'warm' food such as meat and eggs which are thought to enrich the blood, help recovery, encourage expulsion of lochia, and stimulate lactation. Apart from that, the food can be made 'hot' or 'warmer' by adding ginger and wine. The most common food eaten is pig's trotter with papaya or red bean and potato, cooked and eaten with rice. It is believed that these foods help to stimulate lactation.

In Malay traditional practice, confinement period ranges from 40 to 44 days (Naser et al., 2012; Laderman, 1987). Food that have properties such as 'toxic' or 'poison' (*bisa*), 'sharp', 'cold', 'oily', 'itchy', 'watery', and 'windy' should be avoided during this period (Manderson, 1981; Wilson, 1973). Table 1 summarises the types of foods based on their properties. Malay mothers only drink root medicines in order provide "heat" while tea is considered as "cold" (Manderson, 1981; Laderman, 1987). It shows similarities between beliefs and practices between Chinese and Malay mothers. On the other hand, warm ginger drink and coffee are not prohibited (Manderson, 1981).

A descriptive study among Chinese women in Kuala Lumpur found that during confinement period, they adhered to a special dietary practice (Poh et al., 2005). Majority of them considered most of the vegetables and fruits as "cold", and seafood and most fish as "poisonous" which need to be avoided during confinement. Moreover, foods that were encouraged during this time were sand goby fish (*haruan*), pork, chicken, eggs and organ foods. Sand goby fish is especially encouraged for women who underwent caesarean section as it would enhance dermal wound healing (Baie and Sheikh, 2000). In addition, rice and most spices were categorized as hot food. The most common 'hot' ingredients used in Chinese cooking for postpartum women were ginger and sesame oil.

Based on the available literature, traditional postpartum care seems to still be prevalent among women from various cultures. Postpartum period is a crucial period for women to recover her health. Thus, adequate nutrition is important for them. However, there are very little studies investigating postpartum care among Malay women in Malaysia. More information is needed in order to learn more about the 'reasons' for food prohibition and restriction during postpartum period. Moreover, further investigation may be needed to see how these traditional beliefs survive modernity in today's context. Hence, this study was conducted in order to investigate Malay mothers' perception on confinement dietary practices during postpartum period.

## **MATERIALS AND METHODS**

### **Study Respondents**

A total of 80 mothers who had just delivered their babies were included in this study. Prior to interviews, consent was obtained from each respondent verbally. A short and concise explanation about the objectives of the research was given and subjects were assured about confidentiality of information shared.

### **Questionnaire and interviews**

A set of questionnaires was used to collect data on the sociodemographic backgrounds, postpartum practices, and food taboos observed during postpartum period. It is a thematic questionnaire both with closed and open-ended questions.

The questionnaire consisted of three sections. Section A was for demographic data, Section B for information regarding confinement practices during postpartum period and Section C includes a list of foods with their acceptance and the reasons behind their restrictions. The questionnaire was interview-administered and was conducted in Malay.

A pilot study was conducted on 17 subjects in the ward for one week. After that, some changes were made to improve the questionnaire such as additional of food lists and encoding reasons for foods prohibition.

### **Statistical Analysis**

The analysis was performed by using SPSS 12.0 (SPSS Inc., Chicago, I.L., USA). The results are presented through several descriptive statistics using non-parametric tests. The differences are regarded as significant at 95% confidence interval (CI). Level of acceptance for each food item was presented descriptively.

Cronbach's Alpha test is performed in order to determine the reliability of the food lists. It is a measure of internal consistency that shows how closely related a set of items are as a group.

## RESULTS

### Participants

The characteristics of the respondents are as presented in Table 1. Out of 80, 47 (58.8%) of the respondents were housewives. Majority of respondents (66.3%) were from east coast region which includes Pahang, Kelantan, and Terengganu. These women were either staying with their in-laws or have settled down in Pahang. Majority of the respondents (52.7%) from east coast region is from Pahang. About half (52.5%) of the respondents had normal delivery while the rest delivered via caesarean section.

Characteristics	Mean $\pm$ SD	Range/ %	n	%
Age (years)	30.3 $\pm$ 4.6	23 - 43		
Employment				
- Government			18	22.5
- Private			8	10.0
- Homemaker			47	58.8
- Self-employed			7	8.8
Education level				
- Primary			9	11.3
- Secondary			40	50.0
- Tertiary			31	38.8
Method of delivery				
- Normal			42	52.5
- Caesarean section			38	47.5
Parity	2.4 $\pm$ 1.4	1 - 6		
- 1			29	36.3
- 2 and more			51	63.7
Hometown				
- North			7	8.8
- Central			3	3.8
- East coast			53	66.3
- Southern			4	5.0
- East Malaysia			2	2.5

**Table 1**  
Demographic characteristics of postpartum women in the study (n = 80)

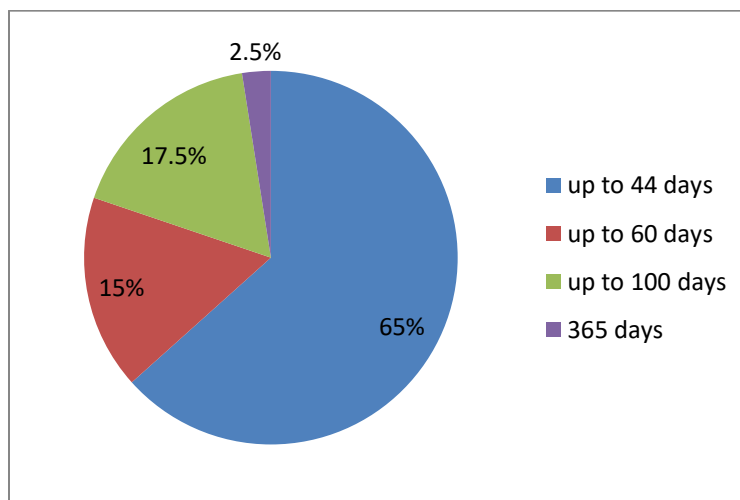
### Postpartum health belief and practice

Postpartum women's perception, belief and practice regarding traditional postpartum confinement practices were assessed. Respondents were asked whether they take the food prepared by the hospital. Majority of them (96.3%) answered that they took the food. However, 83.8% of them did not finish the meal. The top reason was because they were in '*pantang*' (confinement) (57.5%) followed by having no appetite (20%). It was indeed observed that the hospital food served in the ward such as fried chicken was not culture-friendly.

Next, they were asked about their adherence to postpartum confinement practices. As expected, 100% of the respondents mentioned that they do conform to the practices. Out of 80, 52 respondents said that they conform to the practices since their first childbirth and the rest of them are going through it for the first time. 79 out of 80 respondents believed the good effects following the practices. The reasons for practicing it are translated into three themes which are for health benefits (52.5%), maintaining good body image (2.5%) and following others' advices (35%). Most respondents (92.5%) did not believe that postpartum confinement practices will negatively affects breast feeding success and their health.

Respondents were also asked about their source(s) of information regarding postpartum confinement practices. Majority of respondents (96.3%) mentioned family as their sources of information. Family member usually indicates mother or mother-in-law. Out of 80 respondents, 47 of them have various ranges of sources of information such as internet and books/magazine.

Figure 1 shows the length for confinement period mentioned by respondents. From the chart, majority of Malay women (65%) chose to confine for up to 44 days which is longer than other cultures' practices. Surprisingly, two respondents (2.5%) chose to practice confinement for one whole year.



**Figure 1** duration of confinement period among Malay women



### Postpartum food taboos and food acceptance

Table 2 shows the acceptance of various types of carbohydrate foods during confinement, and the 'reason' according to respondents' beliefs. All respondents (100%) agree that white rice is allowed during postpartum period. In addition, majority of respondents said that flavoured rice such as *nasi minyak*, *nasi lemak*, and *nasi beriyani*, yellow noodle and *roti canai* are prohibited because these are oily and fatty foods. On the other hand, potato, sweet potato, tapioca and pumpkin, are prohibited due to their gastrointestinal (GIT) effect, specifically 'windy'. Yam was considered as 'bisa' or 'poisonous'.

Starchy foods	Prohibited n (%)	Reason for restriction or prohibition
Flavored rice (eg. <i>Nasi minyak, nasi lemak</i> )	66 (82.5)	Fatty/oily; Unsure
White rice	0 (0.0)	
Bread	13 (16.3)	Ingredient; Unsure
Yellow noodle	59 (73.8)	Fatty/oily; Unsure
Kuey-teow	54 (67.5)	Unsure; Fatty/oily
Pasta	48 (60.0)	Unsure; Fatty/oily
Laksa	57 (71.3)	Unsure; Ingredient
<i>Roti canai</i>	63 (78.8)	Fatty/oily; Unsure
Corn	39 (48.8)	Unsure; GIT effects
Wheat flour	7 (8.8)	Unsure; GIT effects and 'bisa'
Pumpkin	68 (85.0)	GIT effect; Unsure
Potato	47 (58.8)	GIT effects; Unsure
Tapioca	62 (77.5)	GIT effects; Unsure
Sweet potato	59 (73.8)	GIT effects; Unsure
Yam	62 (77.5)	Causing itchiness/ 'bisa'; Unsure

**Table 2**  
The two most mentioned  
reasons for restriction or  
prohibition of starchy  
foods (cont.)

Table 3 shows that more than 50% of respondents consider tuna (*ikan tongkol*), catfish (*keli*), stingray, wolf herring (*ikan parang*), Malaysian river catfish (*ikan patin*), and seafood such as crabs and prawns, cannot be eaten during postpartum period. These are believed to be able to cause itchiness or 'bisa'. On the other hand, the most accepted fish were yellow-banded travelling (*ikan selar*) and sand goby fish (*haruan*). Besides fish, majority of the respondents also avoided red meat, legumes, egg, and animal organs. However, some women were unsure of the reason for the restriction of meat (27.5%), legumes (25.0%) and animal organs (27.5%). Many of them mentioned that consuming eggs will cause the childbirth wound to exude pus. Hence,

their wound healing process will be affected. Almost half of the women (48.8%) avoided chicken as they believed that eating chicken will cause itchiness or thought to be 'bisa' food. Some respondents mentioned that chicken is only permitted after two to three weeks of childbirth.

Protein foods	Prohibited n (%)	Reasons for restriction or prohibition
Yellow-banned travelly ( <i>Selar</i> )	5 (62.5)	Causing itchiness/ 'bisa' Unsure
Sand goby ( <i>Haruan</i> )	13 (16.3)	Causing itchiness/ 'bisa'; previously uneaten Unsure
Tuna ( <i>Tongkol</i> )	60 (75.0)	Causing itchiness/ 'bisa' Unsure
Spanish mackerel ( <i>Tenggiri</i> )	23 (28.8)	Unsure Causing itchiness/ 'bisa'
Pomfret	38 (47.5)	Causing itchiness/ 'bisa' Unsure
Catfish ( <i>Keli</i> )	43 (53.8)	Causing itchiness/ 'bisa' Unsure
Indian mackerel ( <i>Kembung</i> )	36 (45.0)	Causing itchiness/ 'bisa' Unsure
Stingray	54 (67.5)	Causing itchiness/ 'bisa' Unsure
Wolf herring ( <i>Parang</i> )	41 (51.3)	Unsure Causing itchiness/ 'bisa'
Threadfin ( <i>Senangin</i> )	24 (30.0)	Unsure Previously uneaten
Threadfin ( <i>Kurau</i> )	33 (41.3)	Unsure Previously not eaten
Malaysian river catfish ( <i>Patin</i> )	43 (53.8)	Unsure Causing itchiness/ 'bisa'
Anchovy	18 (22.5)	Causing itchiness/ 'bisa' Unsure
Hairtail scad ( <i>Cencaru</i> )	25 (31.3)	Unsure Causing itchiness/ 'bisa'
<i>Pelaling</i>	32 (40.0)	Unsure Causing itchiness/ 'bisa'
Red snapper ( <i>Merah</i> )	31 (38.8)	Unsure Causing itchiness/ 'bisa'
Japanese threadfin bream ( <i>Kerisi</i> )	27 (33.8)	Causing itchiness/ 'bisa' Unsure

**Table 3**  
The two most  
mentioned reasons  
for restriction or  
prohibition of  
protein foods

	Protein foods	Prohibited n (%)	Reasons for restriction or prohibition
<b>Table 3</b> The two most mentioned reasons for restriction or prohibition of protein foods ( <i>cont.</i> )	Jewfish ( <i>Gelama</i> )	24 (30.0)	Causing itchiness/ 'bisa' Unsure
	Chicken	39 (48.8)	Causing itchiness/ 'bisa' Unsure
	Meat	44 (55.0)	Unsure
	Legumes	52 (65.0)	Causing itchiness/ 'bisa' Unsure
	Egg	69 (86.3)	Hot/cold; GIT effects Causing itchiness/ 'bisa'; delay wound healing Unsure
	Soy bean	37 (46.3)	Unsure Cold
	Soy bean cake ( <i>Tempeh</i> )	35 (43.8)	Cold Unsure
	Organs	49 (61.3)	Unsure
	Seafood	74 (92.5)	Causing itchiness/ 'bisa' Unsure

Only a small number of respondents avoided milk and dairy products during postpartum period. However, there were no definite reasons for the restriction as they were unsure of the reason and some of the foods were never actually included in their normal diet (Table 4).

	Milk and dairy products	Prohibited n (%)	Reasons for restriction or prohibition
<b>Table 4</b> Reasons for restriction or prohibition of milk and dairy products	Milk	7 (8.8)	Unsure; previously uneaten Causing itchiness/ 'bisa'
	Yogurt	19 (23.8)	Unsure Previously uneaten
	Cheese	25 (31.3)	Unsure Previously uneaten

More than 50% of respondents agreed that soy sauce, chili sauce and tomato ketchup, and vinegar are prohibited foods during postpartum period. Soy sauce is prohibited as it will cause the childbirth scar to 'darken' and 'not properly healed'. Some mothers related the prohibition of chilli sauce and tomato ketchup with GIT effects, particularly the chili sauce because of its spiciness. Meanwhile, foods that contain vinegar cannot be eaten due to its 'sharp' property which may be due to its sour taste. Consumption of salty and sweet foods needs to be controlled in order to prevent future health problems such as hypertension and diabetes mellitus. Table 5 summarizes the reason for each seasonings and spices prohibition.

Seasonings and spices	Prohibited n (%)	Reasons for restriction or prohibition
Sugar	15 (18.8)	Disease prevention Wound healing
Salt	14 (17.5)	Disease prevention Wound healing
Soy sauce	43 (53.8)	Wound healing Causing itchiness/ 'bisa'
Chili sauce & tomato ketchup	43 (53.8)	Unsure GIT effects
Black pepper	6 (7.5)	Hot GIT effects; others; unsure; previously uneaten
Vinegar	64 (80.0)	Causing itchiness/'bisa' Previously uneaten
Curry powder	41 (51.3)	Unsure Hot
White pepper	17 (21.3)	Unsure Hot
Ginger	7 (8.8)	Others GIT effects; unsure; previously uneaten

**Table 5**  
Reasons for  
restriction or  
prohibition of  
seasonings and spices  
during postpartum  
period

Fruits Group	Prohibited n (%)	Reasons for restriction or prohibition
Star fruit	51 (63.8)	Unsure Hot/Cold
Papaya	48 (60.0)	Hot/Cold Unsure
Dates	12 (15.0)	Unsure Hot/Cold & Previously uneaten
<i>Ciku</i>	51 (63.8)	Unsure Hot/Cold
<i>Duku/Langsat</i>	68 (85.0)	Hot/Cold Unsure
<i>Durian</i>	59 (73.8)	Hot/Cold Unsure
Apple	32 (40.0)	Hot/Cold Unsure
Guava	47 (58.8)	Hot/Cold Unsure
Raisin	14 (17.5)	Unsure Hot/Cold & Previously Uneaten
Chinese pear	43 (53.8)	Hot/Cold Unsure
Pear	42 (52.5)	Hot/Cold Unsure
Orange	28 (35.0)	Hot/Cold Unsure
Mango	51 (63.8)	Unsure Hot/Cold
Jackfruit	77 (96.3)	GIT effects Unsure
Pineapple	75 (93.8)	Sharp/Sour Unsure
Banana	32 (40.0)	Unsure Hot/Cold
Prune	28 (35.0)	Unsure Hot/Cold
<i>Rambutan</i>	55 (68.8)	Hot/Cold Unsure
Grape	43 (53.8)	Hot/Cold Unsure
Watermelon	68 (85.0)	Hot/Cold Unsure
Kiwi	37 (46.3)	Unsure Hot/Cold
Star fruit	51 (63.8)	Unsure Hot/Cold

**Table 6**  
Reasons for restriction or prohibition of fruits

PERCEPTION ON POSTPARTUM DIETARY PRACTICES AMONG MALAY...

Fruits Group	Prohibited n (%)	Reasons for restriction or prohibition
Papaya	48 (60.0)	Hot/Cold Unsure
Dates	12 (15.0)	Unsure Hot/Cold & Previously uneaten
<i>Ciku</i>	51 (63.8)	Unsure Hot/Cold
<i>Duku/Langsat</i>	68 (85.0)	Hot/Cold Unsure
<i>Durian</i>	59 (73.8)	Hot/Cold Unsure
Apple	32 (40.0)	Hot/Cold Unsure
Guava	47 (58.8)	Hot/Cold Unsure
Raisin	14 (17.5)	Unsure Hot/Cold & Previously Uneaten
Chinese pear	43 (53.8)	Hot/Cold Unsure
Pear	42 (52.5)	Hot/Cold Unsure
Orange	28 (35.0)	Hot/Cold Unsure
Mango	51 (63.8)	Unsure Hot/Cold
Jackfruit	77 (96.3)	GIT effects Unsure
Pineapple	75 (93.8)	Sharp/Sour Unsure
Banana	32 (40.0)	Unsure Hot/Cold
Prune	28 (35.0)	Unsure Hot/Cold
<i>Rambutan</i>	55 (68.8)	Hot/Cold Unsure
Grape	43 (53.8)	Hot/Cold Unsure
Watermelon	68 (85.0)	Hot/Cold Unsure
Kiwi	37 (46.3)	Unsure Hot/Cold

**Table 6**  
Reasons for restriction or prohibition of fruits  
(cont.)

Table 6 shows various types of fruits. The most prohibited fruits were *duku/langsat*, jackfruit, pineapple and watermelon with percentage ranging from 85.0 - 96.3% of respondents saying these fruits should be avoided. Among the fruits which were considered as permissible during confinement period were dates (15.0%), apple (40.0%), raisin (17.5%), orange (35.0%), banana (40.0%), prunes (35.0%) and kiwi (46.3%).

In terms of vegetables group (Table 7), 50.0 - 73.8% of the respondents believed that *kangkung*, *petai*, *sayur pucuk*, brinjal, cabbage, bamboo shoot, legumes, cucumber, loofah, bean sprouts, mushroom, *jantung pisang*, bitter gourd, turnip and lady's finger should be avoided. On the other hand, less than 50% of the respondents would avoid lettuce, broccoli, spinach, *kailan*, radish, *ulam raja*, *daun selom* and *pegaga*.

Vegetables group	Prohibited	Reasons for restriction or
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	n (%)	prohibition
<i>Kangkung</i>	56 (70.0)	Hot/Cold Unsure
<i>Pegaga</i>	23 (28.8)	Hot/Cold Unsure
<i>Petai</i>	56 (70.0)	Unsure
<i>Sayur pucuk</i>	49 (61.3)	GIT effects Hot/Cold Unsure
<i>Daun selom</i>	29 (36.3)	GIT effects Unsure
<i>Ulam raja</i>	28 (35.0)	Hot/Cold Unsure
Brinjal	60 (75.0)	Hot/Cold Unsure
Cabbage	50 (62.5)	Hot/Cold Unsure
Carrot	22 (27.5)	Unsure
Radish	21 (26.3)	Hot/Cold Unsure
Mustard Leaves	8 (10.0)	Hot/Cold Unsure
<i>Kailan</i>	29 (36.3)	Unsure
Spinach	31 (38.8)	Hot/Cold Unsure
Turnip	44 (55.0)	Hot/Cold Unsure
Bamboo shoot	57 (71.3)	Hot/Cold Poison/Itchy Unsure
Legumes	56 (70.0)	Hot/Cold GIT effects
Broccoli	29 (36.3)	Unsure
Cucumber	59 (73.8)	Hot/Cold Unsure
Bitter gourd	40 (50.0)	Hot/Cold Unsure
Loofah	50 (62.5)	Hot/Cold Unsure
<i>Jantung pisang</i>	43 (53.8)	Hot/Cold Unsure
Vegetables group	Prohibited n (%)	Reasons for restriction or prohibition

**Table 7**  
Reasons for  
restriction of  
vegetables



<b>Table 7</b> Reasons for restriction of vegetables ( <i>cont.</i> )	Bean sprout	52 (65.0)	Hot/Cold Unsure
	Lady's finger	48 (60.0)	Unsure Hot/Cold
	Lettuce	30 (37.5)	Hot/Cold Previously uneaten
	Mushroom	46 (57.5)	Unsure Hot/Cold

GIT - Gastrointestinal tract

### Reliability of the food list

Post-hoc analysis using Cronbach's Alpha was performed on the list of foods for each group. The values obtained were: starchy foods (0.839), protein (0.891), milk and dairy products (0.727), fruits (0.839), spices (0.567), vegetables (0.917), and drinks (0.640). Acceptable values of alpha range between 0.7 and 0.95 (Tavakol and Dennick, 2011). Spices and drinks groups showed lower reliability and lower degree of internal consistency which might be due to the smaller number of food items in that food group. Thus, more types of spices and drinks need to be added to increase the food list reliability.

### Cooking methods

Majority of the respondents said that boiling, steaming and, grilling are allowed during postpartum period. In contrast, cooking methods which involve the use of oil and coconut milk are not allowed during this period. Other than that, there were a few respondents who mentioned that deep-frying and stir-frying are allowed during postpartum period but with conditions such as using healthier cooking oil such as olive oil and in limited amount (of oil).

## DISCUSSION

From this study, it was found that most of the respondents were housewives. This explains the educational background where most of them only completed their schooling in primary and secondary education. Some of the respondents have mentioned that they have lack of breast milk production during postpartum period. This problem may have a relation with postpartum practices that involves food restrictions. Consequently, breast feeding success may be affected.

This study has showed the role of mothers and mother-in-laws in determining the observance of postpartum practices. It was supported by study among Malaysian Chinese

women which also indicated that mothers and mother-in-laws are the top reason for the adherence to postpartum practices (Chin et al., 2010). Furthermore, the information regarding postpartum practices is being shared widely and can be learnt easily with the advancement of technology as some of the respondents include books/magazines and internet as their sources of information.

In Chinese culture, postpartum women usually observe the practices for 30 to 40 days (Liu et al., 2006; Poh et al., 2005). From the current study, it is found that the length for confinement period ranged between 40 to 365 days. However, conforming to postpartum practices for one whole year is a very rare in Malay culture. Perhaps these women were practicing postpartum care more strictly than others.

Oily or fatty foods were avoided during this period. The rationale behind the prohibition might be influenced by the desire of the women to keep their body in shape and avoid excessive weight gain. Our finding also supports a study that most tubers were considered 'windy' (Noor Aini et al., 1994). In addition, 73% of Chinese postpartum women mentioned yam as 'poisonous' food (Poh et al., 2005). Surprisingly, there were some respondents who did not know why a specific food such as *kuey-teow* needs to be avoided. This may be due to their lack of information as many respondents were going through postpartum confinement for the first time.

Some fish and seafood were prohibited because these foods were considered as food which will cause itchiness or '*bisa*'. Similar finding was observed by others where the participants in their studies considered the same foods to be poison or '*bisa*' (Poh et al., 2005; Nor Aini et al., 1994). Study among Chinese postpartum women also found that sand goby fish (*haruan*) is encouraged during confinement (Poh et al., 2005). This may be due to increased awareness of its role and benefit in wound healing.

Restriction of red meat among Malay mothers in the current study contradicts with the belief among Chinese women where it is considered as a 'hot' food (Poh et al., 2005). In Chinese culture, 'hot' food is encouraged during postpartum period. Moreover, the avoidance of egg contradicts with other cultures where egg is among the accepted foods during postpartum period (Kaewsarn et al., 2003; Poh et al., 2005). In addition, the belief that chicken is prohibited during this period is also contrary to findings of other studies where consumption of chicken is encouraged because it was thought to have healing power (Sein, 2012) and assist breast milk production and aid postpartum recovery (Kaewsarn et al., 2003). In comparison with restriction of salty foods, Myanmar women also restrict intake of food which can cause high blood pressure such as preserved salted fish (Sein, 2012).

Among the fruits which are considered as permissible during confinement period in this study are dates, apple, raisin, orange, banana, prune, and kiwi. In comparison with the literature, Liu et al. (2006) found that 78% of their study participants did not eat any fruits

during confinement period. Most prohibited fruits in the current study such as watermelon, pineapple, jackfruit and star fruit, are actually similar with findings in Kuala Lumpur (Poh et al., 2005). However, less (40.0%) Malay mothers perceived papaya as prohibited fruit compared to Chinese women (80.0%). Apple is the only permissible fruit which is similar to the findings by Poh et al. (2005). It shows that Malay and Chinese mothers similarly perceived apple as safe to be consumed during postpartum period. It is also stated that apple is a more acceptable fruit with 42% said it should be encouraged and eaten a lot. As for other fruits, the difference in terms of acceptance shows cultural differences. Other than that, jackfruit and pineapple are avoided because of "GIT effects" and "sharp/sour" reason, respectively.

Results showing "Hot/Cold" property of food as the top reason align with a study in which most fruits and vegetables are considered as "cold" in nature (Manderson, 1981). On the other hand, jackfruit is avoided is because of tendency to cause GIT effects. It is supported by a study that stated jackfruit may cause stomach upset (Laderman, 1983). Pineapple is considered as "sharp/sour" and it is supported by a study in Vietnam (Manderson, 1981).

*Kangkung*, beansprout, cucumber, cabbage, brinjal, lady's finger are considered most prohibited which is similar with results found among Chinese women in Kuala Lumpur (Poh et al., 2005). Lettuce and *kailan* are well accepted among Malay mothers but not Chinese mothers. In addition, Malay mothers perceived broccoli, spinach, *kailan*, radish, *ulam raja*, *daun selom* and *pegaga* as allowed during confinement. It shows that green leafy vegetables are well accepted as compared to other type of vegetables. *Petai* is believed to cause "GIT effects" because respondents perceived it as "windy", and can cause bloating and stomach upset. Among the top reason of vegetables prohibition are "hot/cold". Other reasons include GIT effects believed to be caused by eating legumes, *petai*, *sayur pucuk*. On the other hand, bamboo shoot is considered as "poisonous/itchy". Bamboo shoot was also prohibited in one study (Sein, 2012) but the reason for it was not mentioned.

The restriction of cooking methods that involves the use of oil may indicate that oily and fatty foods intake is strictly controlled by new mothers to cut down fat intake. Low fat diet may help them to regain their pre-pregnancy weight and maintain the ideal body weight. However, some respondents allow deep frying and stir-frying with olive oil. This may be due to some awareness that using olive oil is better than palm oil in terms of health.

Cronbach alpha test on the lists of spices and seasonings showed a low alpha value. Possible factors that may contribute to low alpha value of spices and seasonings are low number of questions, poor interrelatedness between items or heterogenous constructs (Tavakol and Dennick, 2011).

This study explores an extensive list of postpartum food taboos which to our knowledge no other studies had done before. Plus, it provides more insights on the 'reason' why specific food items cannot be eaten during postpartum period. However, this study includes only Malay women as the participants. Thus the results may not be generalizable to other ethnics due to

difference of cultures and beliefs. The study was also carried out on women who have just delivered their babies within a few days. Tiredness and wariness may also affect respondents' responses and willingness to participate in this study. Plus, some mothers may have limited knowledge on postpartum dietary taboos because they were first-time mothers. Inclusion of dietary assessment of these mothers during confinement period would also be useful to provide better understanding of this traditional practice and its implication on maternal dietary status.

## CONCLUSION

In conclusion, Malay mothers adhere strictly to confinement dietary practices. Certain foods and beverages in all food groups were prohibited to be taken during confinement period. This study provides pattern of dietary proscriptions in which list of foods and beverages prohibited were identified. Up to date, 100% of interviewed Malay mothers, adhere to confinement practices with 65% of them confine for 44 days. Foods and beverages were avoided due to perceived harmful intrinsic nature such as windy, cold, sharp, itchy and many else. However, quite a number of respondents were unsure of the reason behind each food prohibition. This may be due to limited knowledge regarding postpartum dietary practice since majority of them was first-time mothers. Moreover, foods in all food groups were similarly avoided by respondents of this study, regardless whether they deliver their babies via normal or caesarean section.

Consequently, they may have very limited food choices. This may affect their nutritional status. Thus, a more balanced diet should be recommended for Malay mothers in confinement. The result of this research suggested that observance of traditional postpartum dietary practice is still widely prevalent among Malay women in this modern era. Therefore, this finding supports the main research objective.

## ACKNOWLEDGEMENTS

We would like to express our gratitude and acknowledgements all the study participants who volunteered to participate and made this research possible.

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