

ORIGINAL ARTICLE

Diet Intake and Successful Breastfeeding Among Malay and Chinese Mothers: A Qualitative Study

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ABSTRACT

Introduction: In Malaysia, breastfeeding practices were reported highest among the Malays and lowest among the Chinese. Various factors, including diet may enhance successful breastfeeding. This current study aims to explore the perceptions towards diet that can increase the production of breastmilk among working mothers in Selangor, Malaysia. **Methods:** A qualitative study, using an in-depth semi structured interview was conducted among 10 Malay and 10 Chinese working mothers. These mothers had successfully breastfed their children for a minimum of one year. Interviews were conducted either face to face or via a telephone call. Data were analysed using thematic analysis. **Results:** All participants believed that a higher intake of food and water may increase their breast milk production. However, the type of food perceived to have this function differed based on the individual. Malay and Chinese mothers had a different perception on the intake of fruits, vegetables, spices, and herbs. Most mothers did not believe in supplements and milk boosting products. **Conclusion:** Trying different kinds of food may help to increase breastmilk production. Dietary advice to improve breastfeeding practice may be tailored to acknowledge cultural differences among mothers.

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INTRODUCTION

The National Health and Morbidity Survey for Maternal and Child Health (NHMS:MCH), 2016 indicated that the overall prevalence of having ever breastfed was 98.1%, whilst the overall prevalence of exclusive breastfeeding was 47.1%. There was a significant 32.6% increase in the prevalence of exclusive breastfeeding compared to the findings in 2006. However, data from the NHMS:MCH showed that less than 50% of infants below six months of age were exclusively breastfed. The highest prevalence of exclusive breastfeeding was among Malays, at 48.9%, followed by Other Bumiputera (46.0%), Indians (41.8%) and Chinese (29.6%) (1).

The same study reported that almost half of the working mothers in Malaysia exclusively breastfed their infants. Furthermore, housewives had the highest prevalence of having exclusively breastfed, while self-employed mothers were the least to practice exclusive

breastfeeding (1). Insufficient milk was the main reported factor that prevented mothers from breastfeeding. This was followed by weariness due to work and the infants having problems sucking or latching on (1). Meanwhile, factors that can enhance successful breastfeeding included self-efficacy, spouse's support (2), being a non-smoker, being multiparous and having practiced bed-sharing with their infant (3).

The consumption of certain food, which are referred to as "milk boosters" have long been believed to help in the production of breastmilk, and may differ according to culture and ethnicities (4,5). This belief may also be perceived as a taboo, as no concrete evidence exists on the effect of milk boosters towards the quality or quantity of breast milk (6). In addition, there are commercialised products which are marketed as milk boosters (such as in powder form, supplements, and drinks). On the other hand, food restriction during confinement practices in certain culture, may cause mothers to be under nourished and possibly affect their breast milk production (7). Therefore, exploring the differences between cultures in diet perception during breastfeeding may help to develop a strategy to enhance diet consultation or intervention, to improve the breastfeeding rate among mothers. In this study, we aimed to explore the perception among Malay

and Chinese working mothers in Selangor, Malaysia towards diets that can enhance breastfeeding.

MATERIALS AND METHODS

This study used a qualitative approach and descriptive phenomenological design. Purposive sampling was used to recruit the participants, which included ten working Malay mothers and ten working Chinese mothers, residing in Klang Valley, Malaysia. Particularly, these mothers had successfully breastfed their children for at least one year, with six months of exclusive breastfeeding. Recruitment of participant was done via social media advertisement.

Data was collected using semi-structured in-depth interviews done face-to-face and via the telephone. Only five participants (3 Malay and 2 Chinese) completed their interview face to face, while the remaining was done via telephone interview. Firstly, the participant’s background, including age and years of breastfeeding were recorded. Next, a set of open-ended questions and probing were used to obtain more detailed information during the interview. A panel consisting of two field experts reviewed the six-item interviews questions to ensure their validity and suitability. The areas discussed in further depth included food intake during breastfeeding, knowledge on adequacy of breastmilk, and food-related methods to increase breast milk supply.

All interviews were conducted in the Malay language. The duration of the interviews ranged between 30 to 40 minutes. Before starting the interviews, mothers completed a consent form. The interviews were audio-recorded and transcribed. The data was analysed using thematic analysis. The transcriptions were read until the data was familiar and later categorised into several themes. All subjects gave their informed consent for inclusion before they participated in the study. This study was approved by the Ethics Committee of Universiti Teknologi MARA (REC/123/17)

RESULT

Demographic and obstetrics characteristics of study participants

This study included ten Malay and ten Chinese mothers. The participants were aged between 25 and 52 years old. Among these participants, 70% of the Malay mothers and 90% of the Chinese mothers had breastfed more than once (Table I).

Three themes were derived from the findings. The themes included categories of food, perception and facilitators of breast milk production (Table II).

Table I: Background of Participants (n=20)

Variables	Malay, n (%)	Chinese, n (%)	Total, n (%)
Age			
18 – 25	1 (10)	1 (10)	2 (10)
26 – 35	8 (80)	2 (20)	10 (50)
36 – 45	1 (10)	5 (50)	6 (30)
46 – 55	-	2 (20)	2 (10)
Breastfeeding frequency			
Once	3 (30)	1 (10)	4 (20)
More than once	7 (70)	9 (90)	16 (80)
Duration of breastfeeding			
One to two years	6 (60)	7 (70)	13 (65)
More than two years	4 (40)	3 (30)	7 (35)

Table II: Themes and sub-themes of the findings

Themes	Sub-Themes
Categories of food	High intake of food and water Fruits and vegetables Dairy products Healthy and balance diet Malt drink Spices and herbs Supplement and milk booster product
Perception	Perceived food as helpful Perceived food as not helpful
Facilitators for breast milk production	Adequate intake of food and fluid Supply and demand Pumping Positive mindset Mood Correct technique Massage

Categories of food

Several sub-themes were identified within the categories of food that may enhance breast milk production.

High intake of food and water

Both Malay and Chinese mothers agreed that consuming a large portion of meals and water helped with their

breast milk production. They believed that when their breastmilk was insufficient for the day, the reason was them skipping their meals, or they had no appetite.

"When we eat more, we can produce more milk, when we start to diet and reduce our food intake, our milk will also be reduced" (M3)

"Eat rice, rice is a must, and drink lots of water. If you do not have appetite, make sure to drink lots of water, then the breast milk will be sufficient" (C1)

Fruits and vegetables

For Malay mothers, more than half of them believed that eating vegetables helped with their breast milk production. Some mothers believed that certain vegetables, such radish and mustard had this effect. However, most mothers believed that any kind of vegetable helped them if they consumed the vegetables in a large portion. Most of the mothers consumed leafy or green vegetables such as mustard, spinach, broccoli, moringa and ulam-ulam (such as pegaga, ulam selom and ulam raja).

"I eat a lot of vegetables during my confinement and breastfeeding period, I will make sure I eat around 3 bowls of vegetables per meal. If it is difficult to eat, I will make juice and finish it within the day" (M9)

Only a few Chinese mothers believed that vegetables were good for their breast milk production.

"Radish is helpful to increase breast milk, but I cannot eat it during my confinement period. After confinement, I eat it and the radish too helps me to increase my milk supply." (C1)

Some of the mothers did not believe that certain vegetables were helpful for them. One mother said that when she consumed spinach, it helps her but not when she consumed kailan. Vegetables like radish are also perceived as not helpful for certain mothers.

Additionally, the mothers ate because they were told to eat by their mothers or confinement advisor, and not because of the food's effectiveness. As a result, the mothers did not continue to practice consuming certain food after their confinement period.

"One of the factors are diet, as my breastmilk increase when I eat spinach compared to when I eat other vegetables like kailan, there is a difference, not much though" (C2)

"Like the radish, I just eat it during my confinement because my mother prepared it for me, so I have to eat it. After the confinement, I do not eat the radish. I just eat what I like." (M7)

For the fruit category, Malay mothers believed that black dates helped them with their breast milk production,

while this was not the case with Chinese mothers.

"For the black dates, I usually eat it at my workplace. I am consistent with it because it is easy to eat, you don't have to cook it or what, you just have to bring it and eat it." (M7)

For Chinese mothers, they believed in red dates. More than half of the Chinese mothers made red dates drink during their confinement period. However, only two Malay mothers consumed red dates drink as a diet and achieved the expected results. Both group of mothers consumed the red dates drink during their confinement and continued the practice until they stopped breastfeeding.

"To help me increase my breast milk production, there is red date water, to help me with my iron supply and everything." (C7)

"That diet really helps me with my milk supply, at first, my milk production is only a little, but after my mom made the red dates water for me everyday during confinement, it helps increase my breast milk production, along with the vegetables." (M1)

Durian is one of the fruits that was mentioned during the interview. One Malay mother and one Chinese mother shared their experience of having generous breast milk when they consumed durian.

"Durian, durian can help boost my breastmilk. I've eaten durian before, I'm not trying to increase my milk supply at that time, but I noticed my breastmilk is a lot." (C1)

"There's one more thing that I try, people said that it can help, durian. So, I tried it, and it really works. I have to pump my breast after that." (M2)

Dairy products

Malay mothers believed that drinking milk could help with their milk supply. One of the mothers said that milk had to be consumed at night, to replenish the milk given to their child during the day. Another mother consumed milk as her routine during breastfeeding.

"Drink milk, drink the fresh milk. I will buy the fresh one and drink it. I made it into my routine" (M8)

Only one Chinese mother believed that consuming milk helped with her breast milk production. The other mothers believed that cheese helped with their milk supply. However, one of the mothers said that cheese did not have any effect after her first pregnancy, but when consumed for her second pregnancy, affected her breast milk production in a positive manner.

"But the most prominent is when I eat cheese, after that my breast immediately swollen and I feel feverish, I immediately find the pump to save me" (C1)

As there are mothers who believed that milk helps with their breast milk production, one Malay mother tried drinking goat's milk. However, she found it to be ineffective. Hence, she did not believe that food could help with her milk supply.

"And then I tried, what was it... goat's milk. I drink it in the morning, I finish all the goat's milk that I buy and I keep on trying, but it is not working. I think it is not about food. Not really about food." (M4)

Healthy and balanced diet

Only one Malay mother mentioned about a balanced diet and one mother who reduced her fat intake for the benefit of her breastfeeding practice.

"I will eat more rice, vegetables, and I will really watch my diet carefully. I'll make sure my meal is balanced. I eat fruits and drink a lot of water." (M5)

Chinese mothers believed that when they consumed a healthy and balanced diet, it can help with their breast milk production. They thought that this practice was key to their milk supply, in addition to adding other food into their routine. It was also believed that a healthy and balanced diet positively influenced the quality of their milk.

"I drink water and eat rice a lot, what I mean is the meal is balanced, the meal must have vegetables, it needs to have chicken, or meat, or fish." (C4)

Malt drink

A few Malay mothers were noted to drink a type of malt-based beverage daily. They had the impression that this drink intake helped with their milk supply. The mothers who consumed Milo and Horlicks liked the beverages, thus they had no problem to continue this practice during the breastfeeding period.

"Drinking Milo or Horlick is like a booster; it increases the production of my breast milk." (M3)

However, for Chinese mothers, only one mother mentioned consuming malt beverage in the interview.

"Other than that, I drink Milo, or Horlick. I drink it during confinement and after confinement period." (C1)

Spices and herbs

Spices and herbs are types of food that are not famous among most Malay mothers. Only one mother consumed herbs, as her acquaintances told her that fenugreek could help improve her breast milk. Consequently, she followed what was informed to her.

"They said to put fenugreek in my cooking so that my breast milk will increase, that's what people said." (M3)

More than half of the Chinese mothers consumed herbs during their confinement period. Moreover, drinking herbal soup is a common practice for Chinese mothers during confinement. The herbs are usually cooked with chicken or fish, ginger and sesame oil, or made into a soup with young papaya. Some of these herbal soups are to be eaten with meals, while others are prepared as a snack to be drunk alone without a meal. One of the mothers practiced drinking fenugreek in the morning, even though it is not a common practice among the Chinese.

"To help me produce more milk, I drink red date water to help me with my iron supply and everything, and all the herbal soups, young papaya soup. Something like that lah." (C7)

"There is one more thing that I did, I drank fenugreek. Fenugreek is the Indian herbs right. At that time, I think it is my first child, I'll just try whatever." (C3)

Supplement and milk booster products

Most Malay and Chinese mothers did not believe in milk boosting products sold in the market. Some of them tried the product but did not observe any effects on their breast milk production. There were no immediate effect compared to when natural or common food were consumed. The mothers expressed their regret in buying and believing in the product and that the purchase was a waste of their money.

"During confinement, nowadays there are a lot of milk boosters that people are selling, I tried to drink the..., I can't remember the name, people said it is like a milk booster but it does not have any effect on me." (M1)

However, there are some Malay mothers who consumed milk boosters and notice differences. Two Malay mothers depended on a milk booster product to ensure adequate milk supply.

"I tried searching for the traditional one, people said the XXbrandXX longan red date drink helps, so I drink it and it boosts my milk." (M10)

Facilitators for breast milk production

When asked whether food was thought to be helpful for their breast milk production, most mothers responded that although they believed that certain types of food could help with milk production, they thought that food was not the main facilitator.

Adequate intake of food and fluid

Half of the Malay mothers and most of the Chinese mothers believed that to have adequate milk supply, an adequate daily intake of food and fluid was needed. The mothers mentioned that the body cannot sufficiently produce milk if they were on a diet, or restricted their food during the confinement period. One of the mothers said that during fasting, her milk production

dropped to half. The mothers also believed that what they consumed did not matter but rather eating was key. Another mother believed that skipping meals affected her milk production for her next feeding.

"Your food intake is okay, you are not too strict on your diet, actually during the confinement period you cut your food too much, then your milk will drop. So it has to be balanced, everything has to be balanced. Drink enough water."(M4)

"I think diet is not so important but you need to eat enough, if you do not have a sufficient intake for sure your milk supply won't be enough."(C3)

Supply and demand

To continue breastfeeding their baby, mothers need to continually sustain and create a demand for their milk production system. Continuous feeding of their infants would allow continual production of milk. Four Malay mothers believed that to continue feeding their infant, they must take care of their milk supply and demand. Thus, they either directly fed their child or frequently pumped their milk to ensure supply and demand.

"The breast milk production depends on your baby's demand. If you have demand, then you have supply. Usually, your breast milk drops because your baby is not eating, they don't depend on the milk so there's no demand there."(M9)

Only two Chinese mothers mentioned about the milk supply and demand mechanism. These mothers said that they needed to frequently breastfeed to have more milk being produced.

"We have to let them know that basically the more we feed our baby, the more we empty our breast, the more the milk comes in."(C7)

Pumping and timing

More than half of the Malay mothers believed that pumping their milk was important to maintain their breast milk supply. The mothers believed that they had to pump at the right time so their milk production was not affected. They also believed that it was alright if they pumped a little later than routine, as long as the delays were not constant. Irregular delays were perceived to not affect their milk production in the long run. However, some mothers stated that if they missed their pumping session, their milk supply dropped for next feeding session.

"Our pumping session needs to be heeded. Every hour that we allocate to pump, we need to pump on time. If we have a meeting and are pumping late for the session, of course our milk production will be affected."(M5)

Four Chinese mothers believed that pumping can maintain their breast milk, while other mothers produced

more milk through this practice. One of the mothers shared her experience on power pumping, whereby more milk was produced with this practice. There was also a mother who pumped at three to four o'clock in the morning as she found that more milk was produced for her during these hours of the day.

"I did some reading and I found out that if you empty your breast more, you will produce more milk and the best time to pump is after we sleep, at three to four am. It works for me because my milk is really a lot."(C3)

Positive mindset

A few Malay and Chinese mothers believed that to keep a running milk supply, one must have a positive mindset. The mothers must be confident that she can produce milk for their children and not think negatively about breastfeeding.

"That's what I believed, if we set our mind to maintain the milk, to produce more milk, then we will have the milk supply. If we think that there's no milk, then we will really have no milk."(M7)

"The thing is, our mindset needs to be right. If your mindset wants to keep trying, you will succeed. If your mindset wants to give up, then whatever you do, whatever you eat or drink, you will not succeed."(C3)

Mood

A few Malay and Chinese mothers mentioned that their mood affected their breast milk production. The mothers explained that their milk supply was maintained and they could easily breastfeed their infants when they were happy. On the contrary, when they were in a bad mood or stressed, their milk supply reduced.

"It depends, if suddenly I'm in a bad mood, my production of milk will be different than usual. If I'm happy, I will produce more milk. It's like that, because mood really affects your milk."(M5)

Correct technique and massage

Only one Chinese mother mentioned of massaging to be one of the facilitators for breast milk production, while no Malay mother stated of this practice. The Chinese mother described that when she massaged her breasts, she had more milk compared to when she pumped without massages.

"As long as your technique is correct, on demand, latching you is correct, you know all the things play a role in breast milk production."(C7)

"Before we pump, we need to massage our breast so the milk will be released smoothly. I noticed if I massage my breast first before I pump, my milk will be more than usual."(C8)

DISCUSSION

The food that the mothers in our study believed helped with their breast milk production were fruits, vegetables, milk, cheese, malt drinks, spices, herbs, and commercial milk booster products. These mothers also believed that a high intake of food, water and a healthy and balanced diet were helpful. Specifically, the mothers stated that palm dates, red dates and durian were fruits which benefited milk production. This finding is consistent with a previous study (5), where mothers found that they were able to pump more milk when they consumed palm dates. Palm dates are rich in sugar, minerals, fat, protein and folic acid which are all beneficial for breastfeeding (8). As for red dates and durian, as of date, there are no studies that show consuming these fruits helps in breast milk production. No studies have also shown that sampled mothers in other populations perceived these fruits as beneficial to their breast milk production.

For the vegetable category, the mothers cited radish, mustard, spinach, broccoli, moringa and ulam-ulam as vegetables that they believed helped in their milk supply. Radish and mustard are mentioned in a previous study (9), as food that mothers believed facilitated in enhancing their milk production. A study also found that mothers who consumed leafy green vegetables had improved milk supply (10). However, there are no evidence on the effectiveness of radish and mustard in enhancing breast milk production.

There was a study (11) that showed the effectiveness of spinach in increasing the production of breast milk. In the study, there was a significant increase in the level of serum prolactin of mothers who consumed spinach extract and a significant increase in the production of the mothers' breast milk. To date, there is no evidence on the consumption of broccoli and ulam-ulam by mothers, to analyse the effects of these vegetables on breast milk production. As for moringa leaves, a study by (12), found that the consumption of moringa leaves increases breast milk volume by day seven and also resulted in the improvement of infant's weight gain. Moringa increases breast milk volume by increasing serum prolactin.

For dairy products, the mothers believed that drinking milk and consuming cheese assisted with their milk production. This is consistent with a study by (13) whereby 19% of the mothers believed that dairy products increased milk production. No study had proved that dairy products could help in the production of breast milk. However, the intake of milk is crucial for breastfeeding mothers as it helps to increase calcium needed by the body. Lactating mothers need 1000mg – 1300mg of calcium per day, and milk can help mothers to meet this daily requirement (14). Malt drinks such as Milo and Horlicks are perceived as beverages that help with milk supply. This belief is supported by mothers

in a study by (9), where they perceived Horlicks as being helpful. Malt drinks in Malaysia are made up of malt barley extract, which might help with breast milk production. There are no studies which associated malt-based drinks to breast milk production. However, studies have found that the polysaccharide in barley is able to stimulate prolactin in breastfeeding mothers, hence may enhance lactogenesis (15,16). Nevertheless, this study did not measure breast milk production, nor the weight gain of infants, therefore, there is no concrete evidence that barley or malt beverages help with breast milk supply.

Most Chinese mothers believed that spices and herbs can help with their breast milk production. A study in Western Australia reported that mothers consuming herbs (ginger and fenugreek) during their breastfeeding period, increased their milk production (17). Ginger is theorised to help increase breast milk by inducing systemic vasodilation and blood supply to the mammary glands (18).

In addition, a study by (19) found that young papaya helps with breast milk production. Young papaya has polyphenols and steroids which affect the prolactin reflex to stimulate the alveolus to produce breast milk. Polyphenol also affects oxytocin, which helps the breast milk to flow smoothly. Sesame is mentioned as the third most recommended galactagogue for mothers in the Bakongo tribes in Uhe (20), but there are no studies to support that sesame really helps with milk supply.

As for fenugreek, there are a lot of studies involving breastfeeding mothers. Indian mothers in Malaysia practice eating fenugreek as they perceived the spice as one of the galactagogues (10). Fenugreek was found to help increase breast milk volume (21) and increase the frequency of urination and weight gain in infants in their early weeks of life (22). Fenugreek contains phytoestrogens and diosgenin that may help increase milk flow (21). The spice is theorised to stimulate sweat production, thus would assist with milk secretion as the breast is a modified sweat gland (23).

Mothers believed that a high intake of food and water is essential during the breastfeeding period, and this is supported by a previous study (20). It was found that mothers who consumed more calories had a higher success rate of six months of exclusive breastfeeding than mothers who consumed less (24). However, for fluid intake, mothers only need to take fluids in a normal amount, at around 2500 – 2800 ml per day (25). It was concluded that there were no increase in breast milk production in mothers who drank extra fluids (26) (27).

Other than food, mothers believed that milk supply and demand, pumping, a positive mindset, moods, a correct technique, and breast massage are facilitators for breastfeeding and breast milk production. Breast milk

production is also related to the infant's demand and their intake. The milk output is adjusted to the infant's demand and a large volume of milk is produced if the demand is great (28). Increased frequency of sucking during early breastfeeding was also found to have a positive effect on breast milk production (29). Although not all mothers in the study mentioned pumping as one of the facilitators for breastfeeding, they all pumped their milk during their working hours to maintain milk supply. Mothers have been suggested to pump every three to four hours during the time that the mothers and infant are separated (30). Several mothers from our study mentioned about power pumping. Based on a previous study (31), frequent pumping and power pumping can increase breast milk production.

The mothers also believed that to have adequate breast milk, one must have a positive mindset. A study had indicated that the perception of having a low milk supply negatively affected the breastfeeding of mothers (32). It is also indicated that even though mother's breast milk is adequate, if mothers did not have enough knowledge about the lactation process, hence had low confidence in their milk supply (32). It is key for mothers to have confidence on their milk supply and learn how to breastfeed using the correct technique. The correct technique includes good attachment and good positioning. A study found that mothers adapting an incorrect technique have more breastfeeding problems and early cessation of breastfeeding compared to mothers who practiced the correct technique (33).

In the current study, the mothers also considered mood as one of the factors that affect breastfeeding. A study by (34) showed that mood had no effect on breast milk volume. However, mothers who experienced depression and anxiety tend to stop breastfeeding early and introduced solid food for their child at an early age. This might be due to stress, that can hinder the milk ejection reflex which would result in inadequate milk production (35). Evidence have shown that reducing maternal stress improved volume of breast milk and infant growth (36).

The strength of this study is the data obtained from two major ethnicities in Malaysia that can be a foundation to propose interventions or innovations to improve successful breastfeeding among Malaysian mothers. However, the limitation is that the findings are only applicable for Malay and Chinese mothers in Malaysia only and cannot be generalised to others. A longitudinal or cross-sectional study investigating the current practice of breastfeeding mothers in relation to their diet across cultures is suggested in the future.

CONCLUSION

In conclusion, food that are perceived as helpful were based on the individual mother and was not determined by their ethnicity. Nevertheless, trying different kinds of

food may help increase breastmilk production. Dietary advice to improve breastfeeding practice may be tailored to acknowledge cultural differences among mothers.

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