



Barriers to exclusive breastfeeding in the Ayeyarwaddy Region in Myanmar: Qualitative findings from mothers, grandmothers, and husbands



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ABSTRACT

Background: Myanmar has low rates of exclusive breastfeeding despite many decades of efforts to increase this practice. The purpose of this study is to examine the barriers to exclusive breastfeeding and how different household members participate in decision-making.

Methods: We conducted semi-structured interviews with mothers with an infant 6–12 months (24), and a subset of their husbands (10) and their mothers/mothers-in-laws (grandmothers) (10) in rural and urban areas of Laputta, Myanmar.

Results: Respondents had high levels of knowledge about exclusive breastfeeding, but low adherence. One of the primary barriers to exclusive breastfeeding was that mothers, husbands, and grandmothers believed that exclusive breastfeeding was not sufficient for babies and solid foods and water were necessary. Water and mashed up rice were commonly introduced before 6 months of age. Mothers also faced barriers to exclusive breastfeeding due to the need to return to work outside the home and health related problems. Other family members provide support for mothers in their breastfeeding, however, most respondents stated that decisions about breastfeeding and child feeding were made by the mother herself.

Conclusions: Mothers in this part of Myanmar know about exclusive breastfeeding, but need more knowledge about its importance and benefits to encourage them to practice it. More information for other family members could improve adherence to exclusive breastfeeding, as family members often provide food to children and support to breastfeeding mothers. Support for mothers to be able to continue breastfeeding once they return to work and in the face of health problems is also important. Finally, additional information about the types of foods that infants need once they cease breastfeeding could improve infant and child health.

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1. Introduction

The World Health Organization (WHO) recommends exclusive breastfeeding as an important strategy for reducing child deaths, particularly in developing countries. Exclusive breastfeeding is defined as feeding the child nothing but breast milk for the first six months (no foods or liquids including water). After 6 months, breastfeeding is still encouraged, along with the introduction of

other foods and liquids. It is also recommended that mothers feed their newborns colostrum, as the first feed immediately after birth. Exclusive breastfeeding confers a number of protective benefits for children and mothers. For example, a longer duration of breastfeeding promotes sensory and cognitive development, protects infants against infectious and chronic diseases, and reduces infant mortality resulting from childhood illnesses such as diarrhea and pneumonia (American Academy of Pediatrics, 2012; Horta, Bahl, Martines, & Victora, 2007). However, exclusive breastfeeding up to 6 months has also been associated with increased risk for iron deficiency among infants (Monterrosa et al., 2008). Despite this, most international organizations and governments promote

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exclusive breastfeeding up to 6 months, especially in the developing world where the introduction of water especially confers risks of infections. In 1989 the WHO and UNICEF began extensively promoting exclusive breastfeeding in Myanmar. Promotion of breastfeeding included training community health workers for counseling and developing information, education and communication materials. Additionally, community support groups were formed including local midwives, auxiliary midwives, village leaders, health volunteers and local NGOs. In 2010, 504 out of the 667 hospitals country-wide were designated as baby friendly, and annual monitoring and trainings are on-going (Thaw, 2010).

Despite this strong governmental program in Myanmar, only 23.6% of children are exclusively breastfed up to the age of 6 months (UNICEF, 2011). Low rates of exclusive breastfeeding are one of many poor indicators of child health in Myanmar contributing to high rates of infant mortality and under-five mortality, (estimated at 41 and 52 deaths per 1000 live births, respectively) (UNICEF, 2013). A better understanding the breastfeeding practices and barriers of exclusive breastfeeding is important to increase rates of exclusive breastfeeding and improve infant and child outcomes.

Few studies exist on exclusive breastfeeding and the timing of the introduction of solids and liquids into children's diets in Myanmar. One past study found that 67.5% of women initiated breastfeeding within an hour and 83.2% fed colostrum to their newborns (Sandar, 2006). Another study found that Myanmar had the lowest rates of exclusive breastfeeding (11%) of nine east and southeast Asian countries studied (Dibley, Senarath, & Agho, 2010). Research into motivators of breastfeeding in Myanmar found that women breastfeed their children because of traditional beliefs that breast milk is most beneficial for newborns (White et al., 2012). Other studies have found that solids and liquids were introduced frequently around 4–6 months, rather than after 6 months, as guidelines suggest (Chit, Kyi, & Thwin, 2003). Furthermore, certain ethnic groups in Myanmar, particularly in more remote areas and areas with social unrest, have been found to be more likely of practicing early introduction of feeding foods and liquids (in the first six months of life) (Mullany et al., 2008).

One small qualitative study with five women looked at barriers to exclusive breastfeeding in a peri-urban area near Yangon (Thin Thin, 2003). The main barriers to exclusive breastfeeding included a lack of knowledge of proper infant feeding practices and lack of supportive environment. Traditional infant feeding practices, often influenced by myths and misconceptions, prevented mothers from practicing exclusive breastfeeding. For example, women believed that feeding foods and liquids before 6 months would keep a child healthy and strong, and that exclusive breastfeeding would not provide sufficient nutrition to the newborn. Peer pressure and the influence of the woman's mother were also important factors in feeding decisions. While this study provided valuable information on potential barriers to exclusive breastfeeding, the extent to which this applies to other parts of Myanmar, rural areas, or remote areas, has not been studied.

The goal of this study is to understand women, their husbands and the baby's grandmothers (the mother or the mother-in-law of the mother of child) knowledge about exclusive breastfeeding and the main barriers to exclusive breastfeeding. Despite over 20 years of exclusive breastfeeding promotion, exclusive breastfeeding still is not the norm for most women and their families. Specifically, the objectives are to: 1) Describe current breastfeeding and child feeding practices in Myanmar; 2) Examine breastfeeding knowledge, including exclusive breastfeeding, among mothers, husbands, and grandmothers; and 3) Describe barriers to exclusive breastfeeding.

2. Methodology

In depth, semi-structured interviews (IDIs) were used to gain an in-depth understanding of women and influential family members knowledge and practices around exclusive breastfeeding. IDIs were conducted in urban and rural areas of Laputta Township, Ayeyarwaddy Division, Myanmar. Ayeyarwaddy is one of the most populous states in Myanmar, with a population size of over six million (Department of Population, 2014). Laputta township is situated in the delta region of Myanmar.

We used purposive sampling techniques to recruit a total of 44 respondents. Twenty-four IDIs were conducted with mothers from urban and rural areas of Ayeyarwaddy State, 12 in urban and 12 in rural areas. Eligibility for mothers included being 18–40 years old, with a 6–12 month-old infant. Women with infants aged 6–12 months were selected because this population would have recently completed the period during which exclusive breastfeeding ideally would have been practiced, and therefore have better recall about their breastfeeding practices and the introduction of other foods. Since we wanted to gather information about the duration of exclusive breastfeeding, we chose to interview women who had a child at least 6 months of age. The study also included influential family members, namely, 10 mothers or mothers-in-law of the nursing mothers (called “grandmothers”) and 10 husbands of nursing mothers. These family members were recruited after the mother was recruited to the study. All IDIs took place at the respondent's homes after obtaining informed consent.

Data was collected over a 2-week period in August 2014. The fieldwork was conducted by a Population Services International (PSI) Myanmar research team in collaboration with researchers from the University of California, San Francisco. Researchers were trained in qualitative research methods for one week prior to the start of data collection, and included four female interviewers and one male interviewer. A researcher of the same gender as the participant conducted each IDI and all IDIs were conducted in the Myanmar language. IDIs took on average 45 min for the mothers, and were of slightly shorter duration for the husbands and grandmothers.

We developed a conceptual framework in order to guide our data collection, including development of field guides, and analyses. The framework highlights the influence of family members (husband and grandmother) beliefs and community norms and practices about exclusive breastfeeding and child feeding practiced (Fig. 1). We hypothesized that husband, grandmother and community factors could influence the mother's own beliefs and practices. Additionally, since husbands and grandmothers also provide care for the children, these family member's beliefs could directly influence child feeding. Finally, all of the mother's beliefs were moderated by the barriers that she faced to acting upon these beliefs.

Researchers from the University of California, San Francisco and PSI Myanmar developed interview guides, and pilot tested the tools in the study population prior to the start of data collection. Guided by the conceptual framework, the interview guide for the mothers included questions about antenatal care practices, delivery, breastfeeding and exclusive breastfeeding knowledge, practices and barriers, and child feeding knowledge, practices and barriers. The guide for the husbands and grandmothers focused on their role in decision making about breastfeeding and child feeding practices, and childcare. Grandmothers were also asked about their own breastfeeding and child feeding practices.

Audio recordings were transcribed and translated into the Myanmar language and then into English by the research team members. The data analysis was performed by four analysts, two from Myanmar and two from the United States. All researchers

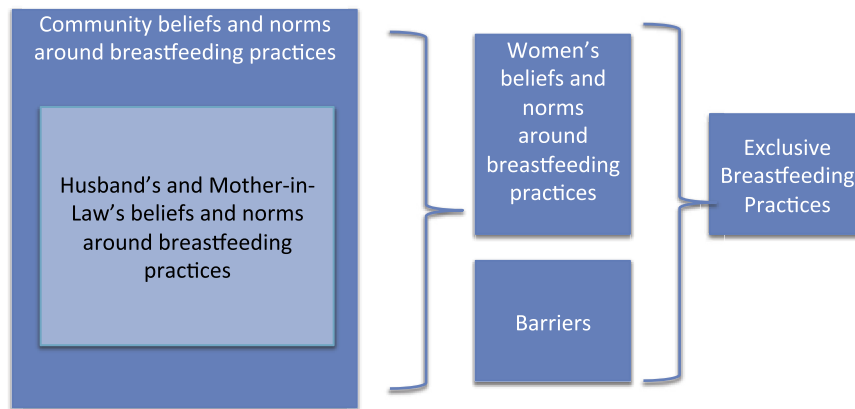


Fig. 1. Conceptual Framework for influences on exclusive breastfeeding and child feeding.

were trained in qualitative research methods and analysis. *ATLAS.ti* software was used for coding and analyzing the data. We used a content analytic approach to analyze textual data. Content analysis uses a systematic approach to analyze the content of textual data, and is accomplished through the process of coding and identifying themes or patterns in data (Hsieh & Shannon, 2005). Content analysis differs from other forms of qualitative analyses in that it focuses on the informational content of the data, rather than theoretical foundations (i.e. grounded theory) (Forman & Damschroder, 2008). We broke up the analysis in three phases: immersion in the data, reduction, and interpretation (Miles & Huberman, 1994). First, during the data collection phase, interviewers used a comment sheet and recorded impressions and new topics that emerged directly after the interview. Four researchers were involved in data analysis and used memos throughout the analysis process. “Memoing” refers to notes written by the researcher in order to document impressions of the data as it is read (Forman & Damschroder, 2008). The second phase of analysis was the reduction phase, in which researchers developed a consistent approach to the data analysis. Two researchers developed the coding scheme by double-coding ten interviews and comparing codes. After discussing and refining the codes, the two researchers then coded two more interviews to ensure that no new codes were developed and that the data was saturated. The four researchers then each independently coded the remaining interviews. Finally, the interpretation phase of the analysis consisted of reviewing all the codes and associated quotes, memos, and notes taken during the analysis phase. After all the interviews were coded, the analysis team worked together to group codes into broader themes. This was accomplished by a code mapping exercise in which we grouped codes that were thematically similar. Sets of codes were then compared to develop themes, or families, of codes. Throughout the coding process, memos were used in order to ensure quality of coding and documenting analyses across the four researchers.

The study was reviewed and approved by the Population Services International Research Ethics Board.

3. Results

3.1. Study participant demographics

In total, twenty-four mothers, ten grandmothers, and ten husbands were interviewed. Mothers ranged in age from 19 to 40, with an average age of 30. Half of women had no or only primary school education. Fourteen women were not currently working at the time

of interview; the remaining had some type of occupation. Women had an average of 2.6 births in their life times, ranging from 1 to 6 total births. Fifteen of the women had been living in Laputta for their entire lives; the rest had migrated from other areas.

Ten grandmothers were interviewed. Grandmothers were on average 56 years old, ranging from 49 to 65. All grandmothers were illiterate or had some primary school. Half of the grandmothers had lived in Laputta for their entire lives, the rest had migrated to Laputta from other areas. Six of the grandmothers were living with their children.

Ten husbands were interviewed. Husbands were, on average, 31.5 years old, ranging from 24 to 45. Three of the husbands had primary school or less, the rest had more than primary school. Nine of the husbands were unskilled workers, the rest were skilled workers. Four of the husbands had lived in Laputta for their entire lives, the remainder had migrated to Laputta from other areas.

3.2. Breastfeeding knowledge

3.2.1. High knowledge of exclusive breastfeeding and perceived benefits

Mothers and grandmothers knew about the benefits of breastfeeding generally, and exclusive breastfeeding specifically. Many mothers perceived nutrition benefits of breastfeeding:

“Breast milk is better for the baby. It doesn't give the baby diarrhea, but I should avoid foods that can give diarrhea. Breast milk can give the baby nutrition. Sweet milk [condensed or emulsified milk] and nutrition powder, formula powder, this is not like breast milk, it can give the baby diarrhea. So I should feed only my breast milk. After six months I fed food, rice with cooking oil ... it doesn't make you busy and can give the baby strength.” (40 years old mother, 5 births)

“The baby who feeds on their mothers breast milk is made strong, healthy and bright.” (49 years old grandmother)

Other mothers discussed how easily accessible breast milk is:

“The breast milk gives a more balanced nutrition. The mother also isn't busy preparing other foods. When the baby is hungry, it can eat immediately. The baby is satisfied with the breast milk and you don't need to feed it any other foods. And the baby doesn't like other foods and the mother doesn't need to prepare them for it. When my baby was young, I fed it only my breast milk.” (19 years old mother, 1 birth)

Another benefit mentioned was that breastfeeding did not cost extra money, compared to feeding other foods and liquids:

"I have a low income and I can't buy any other food. If my baby is hungry I can feed it my breast milk and my breast milk is free. Before six months if other people come to see the baby I told them to not feed the baby anything, like water or snacks." (21 years old mother, 1 birth)

3.2.2. Continued knowledge gaps in exclusive breastfeeding

While most mothers and grandmothers had heard of exclusive breastfeeding, there continued to be gaps in knowledge. The husbands interviewed were less familiar with the benefits of exclusive breastfeeding than their wives or the grandmothers:

"As I am not a medical doctor, I don't know about that [breast feeding]." (31 years old husband, one child)

A common barrier to breastfeeding was the perception that foods and other liquids were more nutritious than breast milk. For example, one mother said:

"Food can make the baby more satisfied. If the baby grows older the stomach will be bigger and they will eat more food. When I feed my baby food, it will be more satisfied and strong and healthy." (22 years old mother, 1 birth)

3.2.3. Multiple sources of knowledge

Mothers received information about colostrum, breastfeeding more generally, and exclusive breastfeeding from family, friends, and health workers. One mother described about her knowledge of colostrum:

"I heard about it from my mother, my sister, and my sister-in-law. They also fed their babies "hno u ye [colostrum]". So I thought, if I can feed my baby "hno u ye [colostrum]", this will make my baby healthy. So I fed this. Also, when I delivered, Seyama [a health worker] told me to feed my baby "Hno u ye [colostrum]". (23 years old mother, 1 birth)

Most respondents learned about exclusive breastfeeding from the health workers, and there were particularly high levels of trust in health workers.

"Seyama [a female health worker] told me I should feed breast milk immediately after birth. The office has many Seyamas and they all give the same information. Seyama said I should feed breast milk until a certain year, but I can't remember when. Seyama said I should feed only breast milk for the first six months. She said not to feed any other food to the baby. Some mothers give water to the baby, but she [the health worker] doesn't agree with feeding the baby water. I didn't give my baby water, because I have only one child. I feed it only breast milk." (26 years old mother, 1 birth)

"The Seyama [a female health worker] said after 6 months, the water can be added to feed, before 6 months not to feed water, they said like this, I must listen." (36 years old husband, one child)

Some respondents also mentioned receiving information from the television, radio and reading materials.

3.2.4. Decision-making around exclusive breastfeeding

In all interviews, mothers were the primary decision-makers about their breastfeeding practices.

"It's all by myself. I did not discuss with my husband. Even if I discussed with him, he would let me do what I want. Because I'm the one who will be responsible, I make my own decisions." (36 years old mother, 4 births)

A few mothers, however, discussed making this decision with their husbands. One husband described how he and his wife decided about feeding their child and specifically mentioned that others people's suggestions did not influence their decision-making.

"Some people gave suggestions on feeding foods other than milk, but I didn't feed it. The baby's mother also did not feed it until six months. Regarding feeding, we first checked the baby, if the baby is healthy; we introduced a small amount [of food]. If something happened to the baby after that, we stopped feeding it. Because we know that it's making the baby sick." (45 years old husband, 4 children)

3.3. Breastfeeding practices

3.3.1. Breastfeeding practices directly after birth

Most mothers were able to begin breastfeeding soon after birth. As one grandmother described:

"Interviewer: How much time passed between him being born and when he was fed breast milk?

Respondent: One hour. Seyama [a female health worker] brought it out of the room and then the mother fed it immediately. She fed it more and more. He stopped crying when he was fed breast milk." (65 years old grandmother)

Some mothers faced difficulties producing milk immediately, or had to wait a few hours to being breastfeeding because of adverse maternal or newborn health outcomes. One mother, who had to wait 3–4 days before her breast milk came out explained:

"Immediately after delivery my breast milk didn't come out so I fed it sweet milk [condensed or emulsified milk]. At the time the baby was crying so when a little breast milk came out I fed it to the baby but this wasn't enough so I had to feed it sweet milk. I fed it sweet milk until the tin was empty and then my breast milk came out so I fed that to my baby." (24 years old mother, 4 births)

3.3.2. Disconnect between knowledge and practices

Although most mothers, their husbands, and grandmothers knew about exclusive breastfeeding, not all families practiced it. A number of respondents at first indicated that they only fed breast milk for the first 6 months; however, in the course of discussion mentioned feeding other things, such as sweet milk (condensed or emulsified milk), formula milk, or traditional medicines.

All mothers breastfed their infants for at least a period of time. One grandmother explained that breastfeeding for the first 6 months is ingrained in Myanmar tradition:

"We started feeding other foods when the babies teeth appeared. This was when the baby was around seven months old. "When the baby can sit, the baby grows teeth" [A Myanmar Proverb]. Then my daughter fed the baby soft, mushy rice ... After six months she fed rice with cooking oil." (50 years old grandmother)

One grandmother described feeding formula milk when her daughter had left the baby with her.

"With water, she started feeding it at two or three months. When she left her baby with me I would feed it rice and other snacks. Then I would feed it rice with formula milk." (65 years old grandmother)

Water was one of the most common items introduced before 6 months. As one mother described:

"I trust that [the information about exclusive breastfeeding] but I can't obey it because in hot season the baby is thirsty, I can give water. The weather is hot; if I am thirsty the baby is also thirsty. In TV advertisements they said I should not give breast milk only before six months, but I give water." (33 years old mother, 2 births)

The most commonly introduced food before 6 months was rice (often in a mashed up form called "Gazi").

"Some people said feeding rice before six months can make the baby not bright. But I fed rice and breast milk before six months. I feed rice at noon, when the baby wakes up, and in the afternoon when the baby is hungry I feed breast milk and rice." (23 years old mother, 1 birth)

Many respondents fed the baby small amounts of a traditional paste made from a bark that is put on peoples skin as a sunscreen and skin lotion called "thannaka."

"When I put thannaka on her face, she would cry. So I put thannaka on my finger and into her mouth, and she didn't cry. When I did this she began to like thannaka ... It can make the baby satisfied. My mother told me this." (23 years old mother, 1 birth)

Other traditional medicines and multivitamins were fed to babies before 6 months, especially if the mothers had difficulties expressing enough breast milk.

"Breast milk is better. But for me I fed other foods before six months because my breast milk wouldn't come out. If my breast milk had come out, I can feed breast milk before six months. ... But I worry that my baby will be weak so I feed it multivitamins. Multivitamins are the most important so sometimes I borrow money so I can feed my baby multivitamins." (29 year old mother, 4 births)

3.4. Reported barriers to exclusive breastfeeding

Respondents mentioned many barriers to practicing breastfeeding, and exclusive breastfeeding more specifically, including being busy and health-related factors. The most common barriers discussed by both mothers and husbands were work-related.

"I think that all mothers feed their breast milk, but not only breast milk in the first 6 months, some working mothers can't feed their breast milk until 6 months." (27 years old mother, 2 births)

"If the baby cried while we were working, we have to run over to the baby, you know its not perfect, even though we look after the baby, it cries when it wants to drink the breast milk." (45 years old husband, 4 births)

"I think they know [about exclusive breastfeeding] but they need to work outside, so they feed food when they work outside, so they can't feed only breast milk in the first 6 months." (27 years old mother, 1 birth)

Related to that, poverty was brought up as a main reason for parents needing to work outside the home and hence not being able to breastfeed. Lack of financial resources was also cited as a reason for poor maternal nutrition, leading to reduced breast milk production.

"Some mothers are poor, so they can't eat nutritious food and the baby feeds on mothers- milk, while at the same time the mother is so weak, so they cannot [breast] feed for a long time." (39 years old mother, 4 births)

"Yes, since they have financial problems they have to work outside, no one is taking care of the baby. The elder children feed the baby what they think is good, the baby knows just to eat everything they have been given, there is no one to decide." (24 years old husband, 1 child)

Mother's health problems, such as blocked or cracked nipples, low or slow breast milk production, or maternal illnesses, were also commonly cited barriers to breastfeeding, early initiation of breastfeeding, and exclusive breastfeeding.

"I also had the problem that my breast milk was blocked. To stop it from being blocked I took the whisker of a cat and tried to poke a hole in my nipple. My husband did this to me and then squeezed out the breast milk. He also took warm water and put that in a bottle and pressed it against my breast. This made my breast soft but I didn't feed that milk to my baby because that milk was not good. Then, once my breast milk came out automatically, I fed this to my baby. During this time I fed sweet milk [condensed or emulsified milk]." (24 years old mother, 1 birth)

For some mothers these health problems led them to introduce other foods for a short period of time, after which they returned to breastfeeding. Other mothers who had stopped breastfeeding for health reasons never return to breastfeeding. One mother, who started feeding her child rice 2 months after delivery said:

"I fed it sweet milk [condensed or emulsified milk] for 3 days after delivery, I have only 1 breast so I can't produce enough milk for my baby." (27 years old mother, 1 birth)

"Yes, I fed breast milk to all my children, and I also fed rice to all my children, but for my other children, my breast milk was not enough for them, so I fed the rice. For my youngest sons, I worry he wasn't eating enough, so I bought rice power and fed him this." (60 years old grandmother)

A short birth interval was also cited as a factor that could possibly lead to a reduction in the amount of breast milk received by infants:

"The babies are less than a year apart, the youngest baby was not fed enough breast milk, and the mother must share her breast milk between two children." (27 years old mother, 2 births)

Mothers also worried that breastfeeding would make them less attractive.

"If the mother is rich and beautiful, she cannot feed the baby because her breast will become old and not beautiful if she feeds her baby. So they can feed the baby formula milk. These women take injections to stop producing breast milk. My community has 2 of these women." (21 years old mother, 1 birth)

Other mothers mentioned being shy about breastfeeding in public, which limited their breastfeeding ability.

"Some rich mothers don't feed only breast milk, they feed sweet milk [condensed or emulsified milk] because they worry that

their breasts will lose their good appearance. The mothers who feed breast milk to their babies can feed their babies any time. The mothers who feed their babies sweet milk feed them the sweet milk whenever they are outside and in the community, but then they breast feed at home.” (39 years old mother, 4 births)

3.5. Breastfeeding support

Many people support mothers with breastfeeding, child feeding, cooking, and childcare. Both mothers and their husbands discussed the support that husbands provide for their wives. The main support that husbands provided was in helping with childcare, for example babysitting in their free time, buying food, and feeding the children. However, husbands ability to support their wives was limited by the husband's work responsibilities, with some husbands only able to do a little for the baby, mostly babysitting, and other husbands able to do more to support their wives, including cooking.

“Yes, I am not free, so I am not free, I have to work, so I can help with the babysitting when I have free time. (28 years old husband, 2 children)

“Noe-pway-ywat [leaf for breast milk production] was needed for breast milk to come out, then it was needed to cook the soup with fish or like this, I needed to cook for my wife.” (33 years old husband, 2 children)

Other husbands helped make breastfeeding possible for their wives when the wives went back to work:

“Sometimes my husband brings the baby to the market at around 9 am, because I finish working at 10 or 11 am. So if my baby gets hungry he brings the baby and feeds it my breast milk.” (26 years old mother, 1 birth)

This same husband also helped his wife when she suffered from a retracted nipple:

“[He learned] from others who have experienced the same in my community. My husband took the syringe and went to the home of the experienced mother and he learned how to cut the syringe and how to pull out the nipple and then he came back and did it to me.” (26 years old mother, 1 birth)

Grandmothers also provided support for their daughters and grandchildren. Similar to husbands, grandmothers helped with cooking, childcare, and feeding the children. Grandmothers described their roles in feeding the babies and helping with cooking food for the mother of the babies:

“When she leaves the baby with me, I try to make it sleep and buy it snacks and I give them ... I gave hinga [soup for breast milk production] every two days and I prepared hinga with Noe-pway-ywat [leaf for breast milk production] and garlic.” (60 year old grandmother)

“Immediately after birth, my daughter's breast milk came out clear. In the morning, I massaged my daughter's breasts. Seyama [a female health worker] then told her not to feed the baby any food before six months. Until now she hasn't fed the baby any other foods, except breast milk. I was worried that if I didn't massage her breasts, her nipples might clog and so she could get cancer. So I massaged them to stop this from happening. At that

time her breasts were hard. Yes, immediately after birth her breasts were very hard and after I massaged them they were softer.” (50 years old grandmother)

Mothers also described the support that the grandmothers gave them:

“No, I worry about the baby, if the baby is hungry I go to my mother's house and feed it breast milk, sometimes when the baby is crying, my mother calls me back to her house.” (29 years old mother, 4 births)

In some cases, other family members introduced foods while they were caring for the children, even if perhaps the parents were trying to exclusively breastfeed.

“After 1 month, my father bought it for the baby, lay-bote-htote-say [traditional medicine], the baby can have a good digestion and for shwe-thamint [traditional medicine] the baby can have strength, so I fed this But the baby's grandfather sometimes fed it “Pep” [brand name] formula milk. He would touch it and give it to the baby from his fingers.” (26 years old mother, 1 birth)

In a few cases, mothers described their sisters feeding their breast milk to the babies, however, this was rare.

“Also, my sister when I go to the market, my sister feeds her breast milk to my baby.” (23 years old mother, 1 birth)

4. Discussion

While knowledge of exclusive breastfeeding was high, especially among mothers and grandmothers in the study population, exclusive breastfeeding was not always practiced. Husbands did not know as much about exclusive breastfeeding as their wives and the grandmothers. It is possible that past campaigns about the importance of exclusive breastfeeding led to this high level of awareness, but were not successful in helping women actually practice the desired behaviors. Despite high knowledge of exclusive breastfeeding, in practice, mothers introduced a number of solid foods and liquids before 6 months of age. Myanmar is not unique in this finding, with past research finding that about one third of babies in Southeast Asia are exclusively breastfed, with some countries, such as Vietnam with lower rates (5%) and others, such as Cambodia with much higher rates (60%) (Senarath, Dibley, & Agho, 2010). This suggests that many women around the globe are not able to meet the WHO guidelines.

As has been found in other studies, common foods introduced before 6 months included water, ghazi (mashed rice), sweet milk (condensed or emulsified milk), formula milk, thannaka, other traditional medicines and multivitamins (Sandar, 2006). Much of the reason for the introduction of solid foods and liquids was the belief that solid foods and liquids could make babies more satisfied, healthier, and have higher nutrition. Controversy exists about the WHO recommendations of 6 months of exclusive breastfeeding. Some recent evidence from the UK suggests that infants actually do not receive enough energy through breastfeeding alone and that complementary foods should be introduced before 6 months of age (Reilly & Wells, 2005). A recent (2012) systematic review of the literature concluded that exclusive breastfeeding up to 6 months was associated with reductions in mortality due to infections and did not have a demonstrated effect on growth or development, hence the authors felt that the recommendations of exclusive

breastfeeding up to 6 months held no risks (Kramer & Kakuma, 2012). Furthermore, in a developing world setting such as this one, without access to clean water, introducing water or other liquids in this time period poses a serious risk. Additionally, the foods that were introduced in this study (similar to those introduced in other southeast Asian countries) were often of low nutritional value, such as rice, biscuits, etc. Families (not only mothers) need more information not just about delaying the introduction of solid foods and liquids until 6 months, but also about what types of foods to be feeding their babies when they begin introducing solid foods and liquids.

Mothers faced a number of barriers to exclusive breastfeeding, mainly related to labor demands and health related factors. Labor barriers included women having to return work (selling food in markets for example) and therefore being unable to be at home with the baby all day to breastfeed. Past research in Southeast and East Asia also found that the mother being busy with work and household responsibilities was a barrier to exclusive breastfeeding (Senarath et al., 2010). Interestingly, household responsibilities did not come up as frequently as a major barrier in this study. Husband's occupational responsibilities limited the role that they could play in supporting their wife's breastfeeding, although some husbands were able to help support their wives so that the women could return to work and continue breastfeeding. Innovative approaches for providing support to women so they are able return to work while breastfeeding, such as community support groups, or monetary incentives for women to continue breastfeeding and not return to work within the first 6 months could address these barriers.

Mothers also suffered from a number of health related barriers. These were mostly related to insufficient breast milk production and difficulties with breast milk production (blockage, cracks, etc.). Past research has suggested that pain while breastfeeding due to factors such as cracked nipples was a main barrier to exclusive breastfeeding for women in Myanmar (Thin Thin, 2003). Family members, including husbands and mothers-in-law, were important sources of support for women as they tried to overcome these barriers. Again, providing more information on how to care for women with health issues related to breastfeeding not only to women, but to these family members, could help women overcome these barriers. More education and support for women about how to care for themselves when they experience health related barriers so that they can continue breastfeeding are also essential. Health related barriers such as cracked nipples and inadequate milk expression are global problems, and more research is needed on how to help women breastfeed for the full 6 month time period (Kelleher, 2006).

In addition to helping with overcoming health issues, grandmothers, husbands, health workers, and other people and family members in their community provided support and information to mothers for breastfeeding. While many mothers mentioned trusting health providers for information about exclusive breastfeeding, other mothers seemed to have received information from health providers, but then not followed their recommendations. Understanding what factors lead to improved trust in health workers in this setting could lead to better adherence to the health worker's advice. Grandmothers and other family members gave advice to mothers about breastfeeding and child feeding, however, ultimately, each mother herself was the main decision-maker about what to feed her child (often in discussions with husbands). Other work in Myanmar has found that spousal communication was an important factor in contraceptive decision-making, although not the only factor (Mon & Liabsuetrakul, 2012). Past research has also found that husbands and grandmothers provided support to women during pregnancy, for example, taking over some of the

household labor so pregnant women did not have to work as hard (Shafique, 2007). Little research has documented the role of grandmothers in decision-making and informational support more generally in Myanmar, although they are known to be important decision-makers about reproductive health care in other Asian countries (Diamond-Smith, Campbell, & Madan, 2012). Providing resources (such as more education) to these family members to support breastfeeding women more could capitalize on this already existing support system.

There are a number of limitations to this study. First, study participants were recruited in only one township of Myanmar (Laputta) and hence the findings may not be generalizable to other populations outside of this region. However, we have no reason to believe that these participants differ significantly from other women and their families in similar areas (rural or small towns) in Myanmar. Second, because of past government promotion campaigns regarding exclusive breastfeeding, participants may over-report that they practiced exclusive breastfeeding (social desirability bias). However, research assistants were specifically trained to elicit responses in a non-judgmental way, and questions also asked about community norms, in addition to individual practices.

Despite these limitations, this study highlights the barriers to exclusive breastfeeding practices in Laputta, Myanmar. While almost all women understood the meaning of exclusive breastfeeding, many did not practice it, and introduced solid foods and liquids before their children were 6 months of age. This practice was mainly driven by the belief that foods such as water, thannaka and rice were important for the health and development of babies. Educational campaigns should emphasize that breast milk can provide complete nutrition for the baby within the first 6 months. This study demonstrated gaps in knowledge and practice among breastfeeding mothers and their family members who participate in decision-making. This suggests that messages should be targeted to grandmothers, husbands, other family members, and communities more generally, not only to women of reproductive age. Past work in Laputta township by an NGO (Merlin) found that behavioral change communication through the use of Positive Deviants was successful in improving various practices related to maternal and child health, including exclusive breastfeeding and maternal eating habits (Shafique, 2007). This type of approach could be expanded to address other barriers to breastfeeding, given that has been previously been successful in this same region.

This study provides important insight into the practices and barriers for women in Myanmar regarding breastfeeding. Exclusive breastfeeding remains low in Myanmar, and better education about why exclusive breastfeeding is important and efforts to better support women could help improve this practice. Increasing exclusive breastfeeding is an essential step in improving child health in Myanmar.

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