

Final Report



**THE “CUARENTENA”:
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PRACTICES OF
MATERNAL CARE
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POSTPARTUM
PERIOD AMONG
MAYAN WOMEN
FROM THE
GUATEMALAN
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Financed by:
Phillip Minerich – Siehl Prize-

FINAL REPORT

PERCEPTIONS AND PRACTICES OF MATERNAL CARE DURING EARLY POSTPARTUM PERIOD AMONG MAYAN WOMEN FROM THE GUATEMALAN WESTERN HIGHLANDS

Financed by: Phillip Minerich, through a grant from the 2013 Eldon Siehl Prize for Excellence in Agriculture of the College of Food, Agriculture and Natural Resources Sciences of the University of Minnesota.

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I. INTRODUCTION

A research-collaboration partnership between Hormel Foods Corporation and CeSSIAM Guatemala was established in 2011. This collaboration has resulted in a series of studies toward the development of turkey-based food products to reduce nutrient-intake gaps in the diets of preschool and school-aged children in Guatemalan in vulnerable urban and semi-urban areas of the central and western highlands.

In 2013. *The Lancet* published the second edition in its series on *Maternal and Child Nutrition*. It expanded on the “1000 days Window of Opportunity” paradigm, first introduced by U.S. Secretary of State, Hillary Clinton in 2010. This paradigm derives from strong scientific evidence, that targeting pregnant women and their under two year’s old children was as a key aspect for overcoming nutritional problems for present offspring and future generations. (*The Lancet*, 2013).

This paradigm also influenced a diversification of target populations in the studies co-implemented by Hormel Foods Corp. and CeSSIAM in Guatemala. The notion was to go beyond the feeding of children from 2 years and older with the fortified, canned spread product, SPAMMY, and respond to the challenge of making an impact during the earlier period of greater vulnerability and greater susceptibility to benefits from nutritional intervention. Therefore, assessing the nutrient gaps, that are different between their recommended intakes of macro- and micronutrients and the actual observed consumption, became a priority in pregnant and lactating mothers. The study also searched for factors influencing food selection and consumption during pregnancy and lactation. The long-term notion was to develop a suitable food vehicle to preferentially be consumed by the population of interest.

This study focused on pregnant and lactating women included **quantitative** and **qualitative** research components. After conducting both aspects of the inquiry, information for developing a culturally-appropriate and specifically-fortified product for pregnant and lactating Guatemalan women was gathered and compiled. Standing out amid the findings was the implication that early lactation seemed to be an exceptional period *within* the larger lactation period, in which specific cultural factors influenced food practices among lactating women. Thus, further research was planned in order to better understand mothers' food perceptions and practices during immediate postpartum period.

Phillip Minerich, former Head of the Research and Development division at Hormel Foods Corp., financed this following-up research by allocating a portion of his Sielh Prize award, via a donation through the Nevin Scrimshaw International Nutrition Foundation. This study was developed in two phases: a) Phase 1: Formative Research conducted by CeSSIAM as a previous phase of this a study, 2) Phase 2: Qualitative and Semi-Quantitative Research in directed at addressing specific issues of early lactation.

Given the importance of these traditions, deepening the knowledge of perceptions and behaviours surrounding feeding practices of rural and urban Mayan women of the Guatemalan Western Highland was thought likely to help in understanding patterns of dietary practices during early post-partum and to visualize how much the concept of the "*Cuarentena*" plays a role in those implemented by early postpartum lactating women.

II. BACKGROUND

Worldwide, the postpartum period is related to a variety of traditional practices and beliefs that determine the care of new mothers. This period has different names such as "*Zuo yuezi*" (China) and "*Dieta*" or "*Cuarentena*" in Mesoamerican countries such as Mexico and Guatemala. The tradition is especially prevalent among those population with Millenarian history and traditions such as the Mayan-Indigenous population in Guatemala. (Pelcastre B., 2005; Raven P., 2012)

The traditional and cultural practices in early postpartum include protective actions for the new mother of staying within the home, limiting housekeeping chores, restricting other usual behaviors and altering some of the normal dietary practices (Raven P., 2012).

In some cultures, such as ancient Asian countries of China or Indonesia, the maintenance of traditional practices among the younger generations of mothers seems to be part of the transmission of oral tradition from mother to daughters, especially among rural communities (Kaewsarn P., 2003; Raven P., 2012)

Given that feeding practices and behaviors during pregnancy and lactation are influenced by different factors, and that a special recovery period is established by mothers in the early postpartum, the following study is an attempt to describe the practices and perceptions regarding this special period known as "*Cuarentena*" of postpartum mothers, among mothers in general and key informants.

III. OBJECTIVE

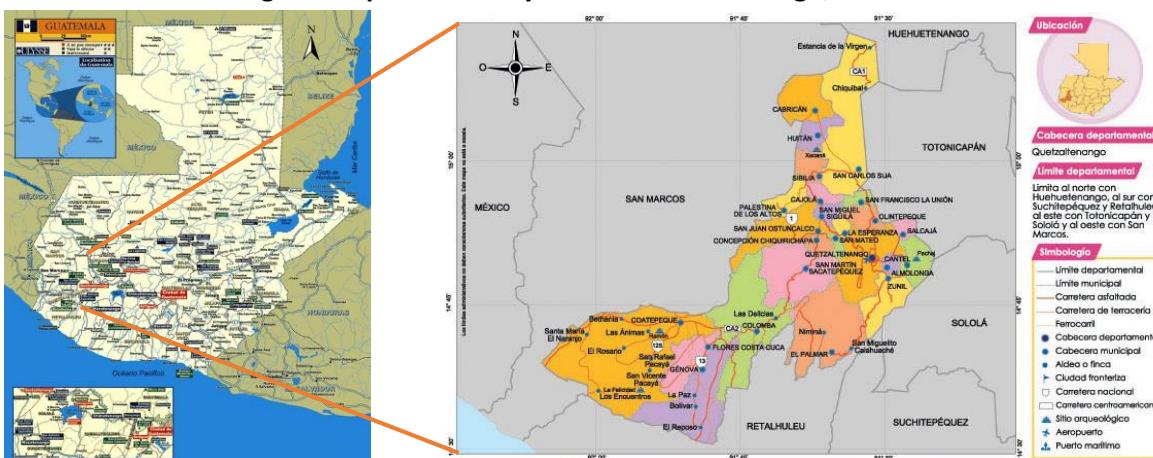
The study aimed to collect and synthesize narratives of mothers' care perceptions during the early post-partum period (*Cuarentena*) among Mayan women in urban and rural areas the Western Highlands of Guatemala and to document the feeding practice particular to this period.

IV. STUDY AREA

The Formative Research and the Qualitative / Semi-Quantitative Study took place in Quetzaltenango, a Department of Western Highlands of Guatemala. Quetzaltenango has an estimated population of 224,703. The population is about 61% indigenous or Amerindian, 34% Mestizo or ladino and 5% European.

Quetzaltenango is located in a mountain valley at an elevation of 2,330 meters (7,655 ft) above sea level at its lowest point. The Municipality of Quetzaltenango consists of an area of 127 square kilometers (49 sq mi), the surrounding municipalities in de department of Quetzaltenango include: San Juan Ostuncalco, Salcajá, Cantel, Almolonga, Zunil, Concepción Chiquirichapa, San Mateo, La Esperanza, and San Juan Olintepeque (Image 1).

Image 1: Map of the Study Area – Quetzaltenango, Guatemala



Source: Just Maps org. and Prensa Libre Guatemala.

The participants of the study were recruited in six different areas (2 urban zones and 4 rural communities) of two municipalities in the department of Quetzaltenango. The urban sites were in Quetzaltenango (Xeul and Pacajá) (photographs 1, 2, 3 & 4), and the rural sites were in San Juan Ostuncalco (Los López, La Unión, Los Romero and Espumpujá) (photographs 5, 6, 7 & 8).



Photographs 1 & 2: Pacajá Zone 10 (Urban Setting)

Photographs 5 &6 : Los López (Rural Setting)



Photograph 3 & 4: Xeul Zone 6 (Urban Setting)



Photographs 7 & 8: Los Romero (Rural Setting)

5. Methodology

5.1 Ethical Approval

Ethical approval was obtained from the Human Subjects Committee of CeSSIAM in April 2015 and the study conforms to the provisions of the Declaration of Helsinki in 1995 (as revised in Edinburgh 2000) (Letter of approval in Appendix 1). The purpose and procedures of the study were explained and written consent was given using consent forms designed for the study taking Helsinki's ethical principles as its content basis (Appendices 2, 3 & 4).

Confidentiality and subject anonymity were preserved using alphanumerical codes and assuring that all the completed questionnaires and consent forms were kept locked in CeSSIAM's Quetzaltenango Office. Participation was voluntary and a small gift with a value of US\$2.00 as a compensation for participation was given.

5.2 Recruitment of Participants

CeSSIAM Quetzaltenango Field Research Team, community leaders and community health local personnel recruited the participants. Given the communities sizes, CeSSIAM's Research Team, with the help of local health providers, identified participants with the characteristics defined by the study before inviting them to participate in the study. 19 mothers in early postpartum were recruited in their homes and 13 in local health Centers and health Posts. A total of 66 women were invited to take part of the focus group sessions and 20 key informants took part of the open-ended questions interviews, in both urban and rural settings. Despite the fact that being a Mayan women was one of the criteria in

recruitment process, not all of them used their traditional clothes, the indicator chosen by the project to determine if a participant was Mayan or not.

5.3 Data Collection

A total of 32 semi-structured face-to-face interviews; 20 open-ended key informant interviews and 8 focus-groups were held with lactating mothers in early postpartum and key informants, as illustrated in Table 1. Semi-structured interviews guide and 24-hour recall (Appendix 5); Key informant open-ended questions Interviews (Appendix 6); and Focus group guides (Appendix 7) were used to lead the discussions.

5.2.1 Semi-Quantitative Component

Semi-structured face-to-face interviews were administered with 27 Mayan and 5 Non-Mayan lactating women in their early post-partum period (less than 40 days after birth) from urban and rural Quetzaltenango by 4 trained nutritionists (photographs 9, 10, 11 & 12). The interviews included some questions on demographics and were followed by questions on dietary behavior during early lactation. These questions were preceded by a dietary data collection using a 24-hour recall (starting with the last thing consumed just before and working backwards until the beginning of the 24-hour period, on the previous day). Recipe ingredients and brand names were asked in as much detail as possible. Portion sizes were estimated with local household measures in order to determine consumption frequency.

Inclusion criteria for the semi-quantitative component were that the mothers were within the first 40 days after birth and that her newborn was receiving breastmilk.



Photographs 9, 10, 11 & 12: Home visits for face-to-face interviews in Rural Settings.

5.2.2 Qualitative Component

a) Focus-Groups

A total of 8 Focus-Groups (FG) were conducted (4 in rural and 4 in urban areas). FG participants were in their majority Mayan women (n=51 of 66 overall) from rural and urban Quetzaltenango; they had given birth within the last year, but were not necessarily in the early postpartum period (“Cuarentena”). One newborn’s father was part of one of the urban focus-groups. The number of participants in each focus-group ranged between 5 and 12. The time spent in each focus-group ran from 35 to 48 min. Focus-groups were recorded using an Olympus® digital voice recorder. An extra focus-group was developed given the participation and influence of health personal in one of the former-group sessions.



Photographs 12 & 13: Focus groups conducted in urban and rural settings.

b) Key Informant Interviews

A total of 16 Key informant interviews were conducted with grandmothers of index newborns (mothers and mothers-in-law) that, according to formative research results, had influence on the lactating women’s eating practices and decision-making during early postpartum (photographs 14 & 15). Key Informants included 8 urban and 8 rural grandmothers (mothers and mothers in law) and midwives of lactating mothers, which the last year were in “Cuarentena”. Key informant interviews were recorded using an Olympus® digital recorder.



Photographs 14 & 15: Key informant Interviews conducted in Rural Settings.

5.3 Findings Analysis

5.2.1 Semi-Quanitative Component

The field team entered the data once in a database using Microsoft Excel. For determining the most common food preparations consume by women, a list of a general perception of these preparations was taken from those reported in the 24-recalls. The USDA nutrient database, supplemented where needed by national Institute of Nutrition of Central America and Panama (INCAP) food composition tables, were used to specify ingredients names. To consider that the amount of a preparation was sufficient for inclusion as a common preparation consumed determined the reported preparations needed to be above 15 gms. This criteria was based on the breakpoint for grams of food consumed proposed by FAO and FANTA as a gold standard to asses pregnant women's diet. A list of the top ten most reported ingredients were also analyzed using the same grams breakpoint criteria).

Descriptive statistics was used for general data and qualitative approach was used for the description of the findings gathered using open-ended questions include also in the semi-quantitative component.

5.3.2 Qualitative Component

All voice recordings were transcribed into text files using Microsoft Word® and all data was coded using predetermined categories defined in the Formative Research done as the former part of this study.

The data was analyzed using an ethnographic approach and both inductive and deductive methods. This is a systematic, replicable techniques of coding (Stemler 2001). It enables the researcher to include large amounts of textual information and systematically identify its properties, such as the frequencies of used keywords by locating the more important structures of its communication content. In summary, it allows making inferences by objectively and systematically identifying specified characteristics of messages (Krippendorff 1990; Porta and Silva 2005).

The data was organized and analyzed using HyperRESEARCH® software, which enables one to code and retrieve source materials, facilitates theory building and analyses of data. A description of the narratives given by lactating women, women in early postpartum and key informants was provided.

6. Findings

6.1 Semi-Quanitative Component

6.1.2 General Information

A total of 32 postpartum mothers were interviewed. Rural mothers were interviewed through an age-range of 16-35 years old (median = 22 y) and a range of 16-40 years old (median = 26 y) within urban moms. The vast majority of mothers were Mayan Indigenous (n=27/36, 75%).

Most urban mothers were married (n=10/16) and rural participants reported to be living with their partners in free unions (n=9/16). Main profession practiced by both urban and rural mother was housekeeping (n= 24/36).

Majority of urban mothers reported having had a vaginal delivery, whereas 4/16 had a C-section procedure. Rural mothers reported fewer C-section procedures (n=1/16), with the remaining cases being vaginal deliveries (n=15/16).

Reported number of children per mother varied from 1-8 in urban areas (Median = 1) and a range of 1-6 children in rural ones (Median = 3). In urban areas, the newborns were aged 4-40 days at the time of interview (median = 21 days) and in rural areas, the corresponding statistic was 4-35 days old (Median = 15 days). Reported sex of newborns were equally distributed in urban areas (M:F ratio 1:1) but with more boys than girls (n=6/16) in rural areas (M:F ratio 5:8).

At the time postpartum mothers were interviewed, all were still breastfeeding in both urban and rural settings.

According to half early postpartum urban mothers, babies consumed additional beverages other than breastmilk. Beverages include boiled water, sugary water, anise infusion and infant formula. In the case of rural mothers, only one had fed additional beverages (baby formula) to the newborn.

6.1.2 “Cuarentena” Concepts and Practices

Regarding how mothers named the “resting period” after birth, urban participants entitled it variously as: “40 días” (40 days), “Reposo” (Resting period), “Dieta” (Diet) “Postparto” (Postpartum) and “Mágico” (Magic). For rural mothers, this period is known as “Reposo o Descanso” (Resting period), “40 días” (40 days), and “Ixchui” (Mayan Mam - local language).

For urban mothers, the “Cuarentena”, or resting period, is the time they have for recovering from the labor and partum. This “essential care” period is adopted by mothers in order to invest time for themselves and their newborns. This time is devoted to resting, helping newborns to adopt themselves to their new extra-uterine environment and breastfeeding.

“This means to take care of ourselves return to its original place” (Urban Mother)

“To allow the recovery of the body” (Urban Mother)

““To fix” the body after the birth” (Urban Mother)

“Cuarentena” period, according to urban mother, lasts from a range of 30 to 90 days (median = 45 days). The duration of “Cuarentena” is associated to the perceptions of the body recovery process; for rural participants, the period ranges from 21 to 60 days (median = 30 days). The “Cuarentena” concept is actually for a shorter period in the rural, Mam areas than in the urban one.

Not missing the opportunity of sharing time for closeness with the newborn was an additional valuable reason given by urban mothers for completing the “Cuarentena”. To avoid future pain and complications are also important reason for completing the “resting” time after the babies are born.

Consequences for not completing the “Cuarentena” also include negative effects on newborns health. Urban moms reported that newborns can suffer from stomach pain, cold (if the mom have some “cold” beverages or food), and the “evil eye”.

“The baby can be sick, he/she can suffer from stomach pain” (Urban Mother)

“If we don’t rest and take care of the cold beverages or food the baby can suffer and get sick” (Urban Mother)

One of the urban moms interviewed opined, however, that nothing would happen to the baby if the mother did not complete the resting period.

6.1.3 Mothers Feeding Practices

Mother’s feeding practices were explored using a single 24-hour recall to explore which preparations were consumed more or less during the “Cuarentena”. Tables 1 and 2 include the least- and most-consumed preparations during “Cuarentena”; this only takes into account items reportedly consumed in amounts above the cutoff point of 15 g or more as it was discussed previously for a single 24 recall administrated to Early Postpartum Mothers.

Table No. 1

Top-Ten Most Consumed preparations during “Cuarentena” (Descending order)

Rural Mothers	Urban Mothers
Corn Tortilla	Corn Tamale
Corn Tamale	Corn Tortilla
Corn Dough Gruel	Incaparina® Gruel
Instant Coffee with sugar	Instant Coffee with sugar
Cracked-Corn Gruel	Chicken Soup
Black Beans soup (no beans)	Sweet Bread
Pinol with sugar (Toasted corn gruel)	White Bread (francés)
Corn Soy Blend (CSB) Gruel	Vitacereal® Gruel
Incaparina® Gruel	Scramble Eggs
Fried Rice	Boiled Chicken Meat

Table No. 2
Top-Ten Less Consumed preparations during "Cuarentena" (Ascending order)

Rural Mothers	Urban Mothers
Vitacereal® Gruel	Boiled Carrots
Kidney beans with tomato sauce	Boiled Vegetables
Shrimps with potatoes	Spaghetti
Roasted Chicken	Tomato Sauce. Canned
Fried Chicken	Rice Tamale
Boiled Potatoes	Instant Ramen-style Soup
Sweet Bread	Chicken Soup
Juice in Cartons	Ketchup
Fried <i>Hierbanabo</i> (Local herb)	Boiled Cabbage
Cauliflower Soup	Fried Chicken

6.2 Qualitative Component

The Qualitative component findings gathered are described below. The findings were organized by the main categories defined for this study (based on formative research performed previously) and also using the ones emerged during the information analysis.

6.2.1 Concepts and duration of the "Cuarentena"

The concepts mentioned by the mothers in the urban area are related to aspects such as the increased needs of resting during the postpartum recovery period or "resting", due to limitations in some physical activities "diet" and due to the time duration of this period "40 days". One mother mentioned that the period is also known as "postpartum."

"We say 40 days" (Mother Urban Area)

"Well, time for rest for the baby and also for one, resting period and if we had a C-section its call as diet also" (Mother Urban Area)

"Rest or diet" (Mother Urban Area)

"We call it Diet or Postpartum" (Mother Urban Area)

In the rural area, this period is known as "Ixchuj" or "Maxbente" in the Mayan Mam local language. According to mothers, translated into Spanish this term means the "Forty days".

*"In Mam (local Mayan language), when one is on that period we say Ixchuj"
(Ixchuj) That's the name in Spanish ie translated as '40 days'" (Mother Rural Area)*

In urban areas, the duration of the period is associated with the type of birth of the mother. In the case of caesarean section, mothers mentioned that the length of the break is 8 days. In the case of mothers who had their babies at normal delivery time mentioned that "rest" can reach 15-30 days.

"If it was a C-section, we rest for 8 days" (Mother Urban Area)

"But with all the things we need to do we do not take too much time, we just had 15 days of real resting time, but no more" (Mother Urban Area)

"If the partum was normal we heal faster, when I had my children I rested for more or less 30 days" (Mother Urban Area)

In the instance of rural mothers, the perception of the period was much longer. The mothers mentions one to two months as the common length of the "Cuarentena"; however, there are mothers who can prolong the care offerings of this period for up to three months.

"Two months, there are some mothers who's Cuarentena lasted for two months and there are some of one month" (Mother Urban Area)

"There are some who care more. Some people are cared for, I will not even touch (cold water) say "and

already has three months their children, and have started to do"

"I did also until 2 months"(Mother Urban Area)

The duration of "Cuarentena" is related to other activities mothers need to perform as "usual" duties such as housekeeping tasks, caretaking for older children and remunitive work. For example, in urban areas when there is a working-mother that reported duration of the rest period "Cuarentena", she typically mentioned is up to 8 days after delivery.

"For working mothers (the "Cuarentena" period) lasts for about 15 days and in some cases eight days so that it can recover" (Mother Urban Area)

"For telling the truth I did not have much time to rest, after 8 days I was already working" (Mother Urban Area)

"But with us that we do not take that much time if we had 15 days rest but true" (Mother Urban Area)

"It depends on the people, because if in case where you have there so work does not get, say stays in a good rest, and just 1 week 2 weeks and sale, or less than that, then when the ladies have or a job is only kept in the house then if you spend much time there because they have no other liability "(Mother Urban Area)

In urban areas, the duration is also associated with household responsibilities and whether or not they have a support network to care for their other children or to perform the household chores.

"When one has no family bosom maybe eight days, ma'am" (Mother Urban Area)

"But to have the babies at 3 or 4 days get up for food that young children swallow" (Mother Urban Area)

"It really would be 40 days but as Doña XXX told the other children here that needs attention this time we do not take truth" (Mother Urban Area)

"Cesarean section lasts 40 days while if you had natural childbirth or cesarean section or not there is a difference" (Mother Urban Area)

Such as in urban areas, rural mothers with children mention that the "Cuarentena" period may be shorter if they have to take care of them and have no support network to help them carry out their daily activities. However having a support network that will help them to fulfill their postpartum needs are constantly mentioned as a factor that also determine the period of time invested in the "Cuarentena".

"They say when other because they are all alone sometimes a month or a month and 15 days" (Mother Rural Area)

"There is a lady that although her aunt, Doña XXX, and equal, it at 15 days, she just strip well and she begins to do his work, she is hardworking" (Mother Rural Area)

6.1.2 General Care during the "Cuarentena"

Urban mothers mentioned that if the delivery was by Cesarean section, recovery involves that mothers are not in permanent rest and that, to help improve the healing process of the surgery, mothers should get up and walk sooner than they would in normal childbirth.

"(When the delivery is by a C-section) one has to be more walking than lying, so that one will heal faster" (Mother Urban Area)

"When you had cesarean then we need to rest" (Mother Urban Area)

"I only had him (the baby) and after two days I was walking, I was more walking than lying because it was C-section" (Mother Urban Area)

Contrary to urban mothers, a rural mother that had had her newborn by C-section reported longer recovery and all the precautionary measures took for longer periods.

"But a little different because it's a C-section, then maybe takes about 3-6 months avoiding heavy liftings, and be well planned because is a dangerous surgery" (Mother Rural Area)

"Just as a pregnant woman that with her baby have to be careful too, sometimes the cesarean will sew one lift heavy things there and then sometimes opens the cesarean then one must have a good rest about three months "(Mother Rural Area)

For urban mothers, "Resting period" or "Cuarentena" requires a restriction of activities that mothers typically performed in periods different than early postpartum. Activities include restricting heavy lifting or carrying change exercise behavior that require some sort of physical force. The effects of exposing the body to these "forces" include pain in the limbs or even anatomical and physiological changes in the body of the mother.

"Do not grip the broom, they will not sweep, but will put stress on your womb again, therefore just do nothing" (Mother Rural Area)

"Then one must care for a month to avoid heavy lifting for one out of bed at 20 days but always careful not to lift no heavy lifting"

"Do not lift heavy things because, I'm going to tell you, not to lift heavy things during the Cuarentena (Mother Urban Area)

"The "descanso" (Cuarentena) period is as I say. As you can see the feet hurt one and it usually hurts one leg because the uterus rests in that leg" (Mother Urban Area)

In the case of rural mothers' care in the 40 postpartum days. It seems to be more restricted. Mothers mention that after birth they were no longer faced with going out of your house, or even outside the room they gave birth in"

"Now we do not leave, we get once in "Chamara" (bed)" (Mother Rural Area)

"Ahh because at home you lie down and one to go out to bathe enters each bathhouse" (Mother Rural Area)

Rural mothers also mentioned that the heavy lifting is not recommended in the "Cuarentena" period. Activities include not carrying objects representing a burden to the mother.

"No heavy lifting, that's the other thing, no heavy lifting" (Mother Rural Area)

"Like water in a basin or chairs and tables see, you cannot lift" (Mother Rural Area)

In urban areas, general care is adopted to ensure adequate production (quantity and quality) of breast milk. The quality of breast milk is associated with avoiding that which might cause any negative effect on the health of the newborn. Mothers' care includes not being exposed to cold environments, and to not consume cold food or cold drinks (more detail in subsequent paragraphs).

"To take care for milk, so that you do not get sick all the time the baby is healthy and one is watching then and if the lungs get colds there are the baby also suffers" (Mother Urban Area)

"It is highly recommended periods of 40 days allegedly for their milk thickens and her warm and everything" (Mother Urban Area)

The effects of cold on the body of the mother reported in rural and urban areas include those effects such as decreased milk production, and colic and respiratory or lung problems the newborn who consumed milk ("a cold").

"But the care of one is therefore not bathe with cold water for one does not get sick" (Mother Urban Area)

"What mom does not catch cold because that milk is because if one has a rampage milk goes away and does not come" (Mother Urban Area)

"Everything should be warm milk to care ... so that you do not get sick all the time the baby is healthy and one is watching then and if the lungs get colds there are the baby also suffers" (Mother Urban Area)

"If you touch cold water get sick of coughing" (Mother Rural Area)

For rural area, the concept of "Cold" and care in the balance of "heat" in the body of the mother plays a crucial role in your care during "Cuarentena." The main strategy that rural mothers puzzle over to maintain that balance is the use of "Chuj" or "Temascal", a kind of sauna bath; it is crafted as part of the Infrastructure rural homes (Photographs 16 & 17). The use of "Chuj" allows them to maintain the body of the mother and baby warm and prevent newborns' and mothers' sickness.

"As we put ourselves in the Chuj as I say it is hot and the baby also" (Mother Rural Area)

"We also went into the Temascal in Chuj as there is a woman enters the Chuj as your body gets hot, and when you get up so fast, that's why you get sick" (Mother Rural Area)



Photographs 16 & 17: Pictures of "Temascales or Chuj" (Traditional Hot Sauna) used by Early Postpartum Mothers in rural areas.

For rural mothers, intensity in the use of "Chuj", depends on the time of early postpartum through which the mother is passing. The use of "Chuj" is more intense in the early postpartum weeks and becomes less frequent as the "Cuarentena" or "Ixchuj" time progresses.

"By giving birth (use the Chuj) every day, by one week of the delivery every two days, and by the third week every other day, and then every three days, and little by little we are leaving the Chuj" (Mother Rural Area)

"A woman with cesarean, one day, a day (every other day not) to see if it heals if it dries, or sometimes every day" (Mother Rural Area)

Temperature of the "Chuj" is something that rural mothers also take care of. According to mothers, temperature should be appropriate and not be extremely hot because it also has negative effects on the "body recovery".

"Yes, but is not so much the fire" (Mother Rural Area)

"That is not hot and not touch the fire because he says that air is going into the womb" (Mother Rural Area)

In urban areas, mothers are given hot baths as part of the recovery process or kept in "Cuarentena". Some mothers mentioned traveling to find places where hot water from the mountains (thermal springs) as part of their care and recovery process and to encourage the production of breast milk. They did not report the use of "Chujes" given that they do not have this infrastructure in urban settings.

"We were to bathe, in my case, I was taken to bathe in Almolonga where ladies breasts put in the water to heat the milk" (Mother Urban Area)

Urban and rural mothers mentioned that care include "not" having sexual intercourse with their husbands. For urban areas, such rest during "Cuarentena" also helps them to not be pregnant again.

Do not be with him" Chimir "(not to be with the husband)" (Mother Rural Area)

"First we must not have sex with the man one truth"

"I think that within 40 days you have to guard standing at times of necessity one has to go to appointments, but also calls for 40 days must not have sex with her husband" (Mother Urban Area)

"Perhaps a very important during the period of 40 days señito recommendation, it would not be with her husband as this has consequences, consequences that eventually would be another pregnancy would not be very advisable" (Mother Urban Area)

According to urban mothers' "Cuarentena's" care also include the use of accessories that help to recover mothers' health and prevent physiological complications. These measures include the use of a corset or traditional strips (*faja*) that are used tight on women's abdomen. The use of "*fajas*" is limited when the delivery is through a C-section procedure.

"For that, one will look after oneself and one will use the "faja" so the stomach did not fall". So one needs to fajarse so nothing happens to us"(Mother Urban Area)

"The faja leave stomach up" (Mother Urban Area)

"It costs more when c-section, and one cannot cut that fajarse for that" (Mother Urban Area)

The experience gained either by age or by previous pregnancies, also influenced the care practices that mothers choose to take during this period. According urban mothers, care during "Cuarentena" have changed given that new generations of young mothers do not necessarily perform the early postpartum same care that more experienced mothers have.

"But right now young mothers of 14-15 years old will not accept that, they say I do not want that and because this young do not feel and do not know the consequences later truth" (Mother Urban Area)

"Hygiene is valued in the early postpartum care to reduce the chances that both the mother and the newborn get an ill appearance"

"But if hygiene is very important even that the food is thoroughly cleaned so they do not get sick that well groomed this all then there look neat so that the children not get sick" (Mother Urban Area)

In the case of rural mothers, care in the "*Ixchuj*" includes moving more slowly than usual and used "appropriate" and comfortable clothing as well as recommendations for care in the post early delivery.

"Walk slowly" (Mother Rural Area)

"Do not use shoes with heels, sandals alone" (Mother Rural Area)

6.1.3 Benefits of doing the "*Cuarentena*"

Doing the "*Cuarentena*" or "Resting" postpartum period represents benefits for the mother and newborn. According to urban mothers the benefits of "*Cuarentena*" include the perception of "relaxation of milk," which is associated with not producing a negative effect on children's health. Mothers also identified this period as one that needs special care for the newborn and as an opportunity for babies adapt to their new environment.

"Make the Cuarentena is important for her (the mother) is a quiet time, (the mother) comes more relaxed" (Mother Urban Area)

"If the mother does the "Resting" she is tranquil and she is more relaxed and that's something good for her milk (breastmilk)" (Mother Urban Area)

"By that time they are Tiernitos (new borns) they must be protected from the cold and protect their health and be careful with them so that they grow up as healthy children" (Mother Urban Area)

"For the environment, so that you will also get used to this environment" (Mother Urban Area)

In rural areas, the benefits of doing "*Cuarentena*" for the baby include maintaining the body for contact with the baby's body "hot", which is perceived as necessary at that age. It is also associated with a benefit in the production of breast milk, especially in reducing the chances that, in carrying out activities that were daily before delivery, the milk can give harm to the newborn.

"(It's important) for baby's milk" (Mother Rural Area)

"Because babies are very young and need the warmth of mothers" (Mother Urban Area)

"Also your milk for the baby, if one walks out from the bedroom the milk is cooled and make one's milk bad for the baby" (Mother Rural Area)

6.1.4 Feeding Perceptions

a) Permitted Food

In urban areas, it was mentioned that mothers are being more frequently advised regarding their eating practices. In the early postpartum period, or "Cuarentena", advice related to feeding baby care, postpartum care in general and food to be eaten are the most common received ones among mothers.

In urban areas foods that are usually advised to consume include Incaparina gruel, gruels in general, and some mothers even mention nutrients included in the food as a content of advice received such as "what can provide protein".

"Food that has protein, vegetables, fruits, atolitos (gruels), Incaparina®. It is highly recommended to consume it (Incaparina®) ..." (Mother Urban Area)

The types of food to consume recommended during "Cuarentena" are based on the perceived positive effect on the health of mothers, adequate milk production and to avoid negative effects on health or conditions for the newborn. Among the advice received by the mothers are the importance of consuming food that makes them feel better (comfort food) and that will provide maternal well-being and support for their recovery.

*"To have chicken broth, to make you feel better ... to take care of yourself" (Mother Urban Area)
"To take care themselves and try to consume plenty of fluids in order to produce milk, food that is "hot"
(Mother Urban Area)*

Atole (Gruel) plays an important role in the diet of urban and rural mothers during early postpartum as in the rest of the lactation period. These thick, hot beverages are usually made with corn and are considered a source of nutrients for the mothers and a breastmilk production booster.

*"We breastfeed our babies and our atoles (gruels) allow us to give the nutrition the need" (Mother Urban Area)
"I mean mothers have to feed themselves well in order to breastfeed the child and gruels are the most recommended food, don't you think?" (Mother of Rural Area)*

Other perceptions regarding feeding practices are those related to the "variety" of food as an important factor that can help the postpartum recovery. Some mothers also mentioned that food should be "diverse" and may include "all" what is available for them. Diverse and varied diet are defined based on access to food each mother can afford and have availability to.

*"The truth is that we need cannot do a strict diet if we want the baby to get used to " (Mother Urban Area)
"I say that you can not eat anything else the baby is born, if my thinking" (Mother Urban Area)
"Incaparina® and also broken corn gruel" (Mother Rural Area)*

"Corn gruel, and more corn gruel" (Mother Rural Area)

Additionally, urban and rural mothers mentioned the use of "agüitas" (herbal infusions) in order to guarantee the breastmilk production. Common herbs used by mothers include "Alucema" (*Lavandula angustifolia*), "Pericón" (*Asclepias curassavica*), "Anise" (*Pimpinella anisum*) and "Ixbut" (*Euphorbia lancifolia*). These herbal infusions are used during lactation period but with more intensity during the "Cuarentena". According to mothers, using those "agüitas" help them to produce better quality breastmilk (thick milk) and to keep it in an optimum temperature for the baby, especially during the first days after the newborn's delivery.

"Aja "Alucema", "anis" also its a bit bitter but is good, it is strongly recommended in during "The Cuarentena" allegedly for breastmilk thickens and for keep it warm for the baby" (Mother Urban Area)
"Drinking water, sometimes "pericón", mmmm ... And lots of liquids" (Mother Urban Area)

For urban mothers food consumed also depends on the type of delivery mothers faced. In the case of C-sections mothers restrict more the consumption of meat or chicken broths and in the case of vaginal deliveries, broths are restricted until the mother can stand on their feet. Mothers in rural areas reported more restrictions for a C-section procedure included the restrictions on greasy food consumption, meat and chicken broths. Diet for rural C-section mothers seems to be based on boiled vegetables such as carrots, "güisquil" (local squash), potatoes, boiled rice and gruels.

"When a mother has a C-section we cannot have greasy food, or chicken broth because of the surgery"
(Mother Rural Area)

"When the Mother has a normal birth (Vaginal delivery) she can have more food such as vegetable clear soups, boiled chicken, tortillas and tamales, that help her to produce her milk"

b) Avoided Foods

Consumption of fresh fruits is restricted during "Cuarentena". The "cold effect" of fresh fruits are the base of limiting their consumption during early postpartum. "Cold" effect includes the "cooling of breastmilk" that are perceived can cause damage to the baby. This "Cold food" perception is shared within urban and rural mothers and is consistently mentioned as one of the most important factors that determine which food they need to avoid during the "Cuarentena". "Cold" food includes also black beans, avocado, rice, broccoli, and turnip, among others.

"Also the fruit, despite the fact it does not contain fat, fresh fruits such as papaya, watermelon, cantaloupe are very cold and it can produce baby's stomach pain" (Mother Urban Area)
"Cold food are black beans, broccoli and turnip... High fat food is also cold and bad for the mother and her breastmilk" (Mother Urban Area)
"I wait almost one year after having avocado because it is cold, and the baby can have stomach pain (cólico)" (Mother Urban Area)

Processed food is also perceived as harmful food among early postpartum mothers in urban areas. The concept of “additives” and ingredients that can provoke irritation on mothers’ bodies and consequently threaten their and their newborn’s health. Processed food includes sodas, canned food and chili. Liquor was also mentioned as something that needs to be avoided by lactating mothers during early postpartum.

“The new mother needs to avoid irritative food such as chili and black beans given its bad for her and the newborn’s health” (Mother Urban Area)

“Moreover mothers need to drink plenty of fluids, gruels, natural juices, and they need to avoid carbonated beverages, canned food and things that can cause irritation to their stomachs.. This food doesn’t help to the breastmilk (production)” (Mother Urban Area)

The principle of avoiding “cold” food is based on the perceived harm it can cause to the newborn, and its transmission through the breastmilk.

“We need to avoid all the food that cause harm to the baby, for example black beans or rice or any “cold” food that can provokes stomach pain to the baby” (Mother of Urban Area)

6.1.5 Support Network and Influence

Support network for urban and rural women during “Cuarentena” includes figures that help them out during that period such as grandmothers (mothers or mothers-in-law) and for rural women also neighbors, sisters and midwives.

“And we have this responsibility and given the love that one has for them, we need to take care of them an our grandchild” (Mother Rural Area)

“To support her, we wash the diapers and the clothes, they shouldn’t touch cold water yet” (Mother Rural Area)

According to urban mothers, this support is not for a prolonged time given they are usually living far from their families. This limitation also influences the time they can spend doing the “Cuarentena” as was mentioned before.

“So my family comes for a little while and makes the food but nobody gets things for too long, then what I do is to make all my things try to avoid to much effort, until I complete the forty days” Mother Urban Area)

For rural mothers support networks play an important role on their recovery successful and it is prolonged as much as the “Cuarentena” lasts in each case. Rural mothers have a stronger network to rely on than urban mothers. This is important given that the persons who conform that network

prepare and made decisions about the food cooked and served to the mother and her family. Therefore, what is considered as “appropriate food” for the mothers are decided by persons that conform her network and is based on their own perceptions.

“For example she (Her mother) gave me my gruel, Incaparina and all kinds of support was lovely really, I felt supported” (Mothers Rural Area)

The support network also plays a key role in the decision-making process regarding food and care practices during the “*Cuarentena*”. Despite the fact grandmothers and perceived needs of the newborn play the main role in the food and care practices adopted by the mother during early postpartum, support network who also influenced those decisions varies from rural and urban settings. In the case of rural mothers, women played the most important influence role, including traditional midwives, and in the case of urban mothers, husbands and health providers do. Images below describes the differences on the influencing actors based on the mothers’ locations.

Figure 1: Decision-Making Influencing Actors and Support Network for Urban Mothers during “*Cuarentena*”

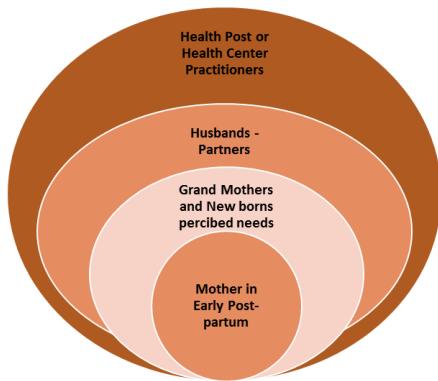
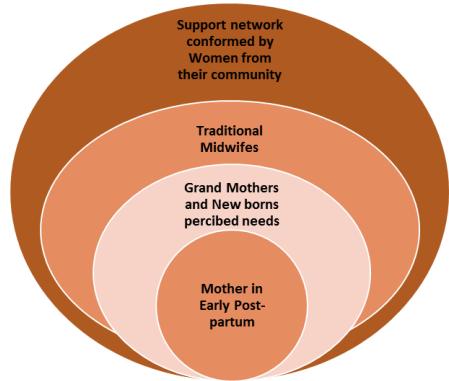


Figure 2: Decision-Making Influencing Actors and Support Network for Rural Mothers during “*Cuarentena*”



7. Final Thoughts and Conclusions

“*Cuarentena*” is defined by several concepts, and they are generally associated with new mother’s time for resting and restraining of usual activities related to recovery from the birth process.

Taken as a whole from the key-informant and focus-group responses, there is great variation in the observance of practices in the early postpartum period both across the geographic settings, and *within* them, as well. Moreover, the duration of the “*Cuarentena*” does not necessarily coincides with the forty days that inspire its name. The duration varies and depends on the opportunity and support network with which each mother can rely to complete her recovery and initiate life with her newborn.

Mother care practices during "*Cuarentena*" are based on perceived benefits for the mothers and their newborns. These benefits include minimizing physiological complications to future health and reproductive performance for the mother and to guarantee the baby's wellbeing, always having preferences toward the newborn within the dyad.

Despite the fact some "*Cuarentena*" care and feeding practices seem to be superficially similar to the rest of the lactation period, during early postpartum general care and feeding of the appear to be more strict and limited. These limitations affect the consumption of food that women considered beneficial for the baby and for their own recovery. Particularly striking is the limitation on foods that can provide good quality protein such as legumes, eggs or animal food, and good sources of vitamins such as fresh vegetables and fruits.

The concept of "cold" is an important factor that determines the feeding practices of the mother and seems to become even more important during the "*Cuarentena*". This importance is based on the perception that during this period, the quality and quantity of breastmilk is defined and it will determine the quality of life for the rest of the lactation period.

Calls for attention the role of *atole* (gruel) in the new mother recovery, not only for "providing" the perceived necessary nutrients but also to ensure the production of breastmilk and for keeping the body in a temperature, which guarantees its quality and quantity. Warm liquids dominate the top-ten most frequently consumed food items. On the urban side, six items are solids (tamales, tortillas, sweet bread, white rolls, eggs) and the remaining items are either gruel (Incaparina®, vitacereal®) or hot beverages (coffee beverage, chicken soup). On the rural side, the tables are reversed with three solid items (tamales, tortillas, fried rice) and seven liquids. This included gruels (corn-dough, cracked-corn, Incaparina®, pinol, corn-soy-blend) and two warm drinks (coffee beverage, bean broth).

It is interesting to examine the energy-density, protein-density and micronutrient-density across the settings and their main sources of food. In the urban areas, four of the foods are protein-rich, including animal-source protein in the scrambled eggs and the chicken of the soup and the fortified vegetable protein in the two processed gruel. With the exception of CSB, there is nothing protein-rich in the rural series. Sugar-sweetening is common to coffee in both settings, but to all of the urban gruels are consumed sweetened (Incaparina® and vitacereal®). Three or four of the gruels consumed in the rural areas are savory, unsweetened beverages. In terms of micronutrient density, the same four protein-rich foods in the urban setting would be vitamin- and mineral-dense. In the rural setting, only Incaparina® and CSB would be micronutrient rich, by virtue of their fortification in processing.

Less can be surmised from the least consumed foods in the two groups about avoidance, as it would be those items in the next rung (never consumed during Cuarentena – but consumed in other stages of lactation) that would provide the most insights. What is interesting is that two items among the top-ten of the urban lactating mothers (sweet bread and Vitacereal®) rank among the bottom-ten for the rural setting. Also, the high-protein items are the five of most limited consumption in the rural area (Vitacereal® gruel, kidney beans, shrimps, roasted chicken, fried chicken). This is compatible with a certain avoidance of protein-rich items all across the selection of dietary items for the postpartum mothers by the decision-making among their counselors and care-takers.

Different strategies to keep the balance in between cold and hot qualities are applied by both urban and rural women. It is noteworthy that in order to have a balance between the consumption of foods considered as "cold" or to the exposure of cold external conditions the hot aspects practices such as

the use of the “*Temascal* or *Chuj*” one of the most common alternatives in rural areas, and with the perceived same effect, hot baths in the urban area. The use of these practices are even more structured and planned during the “*Cuarentena*” than in the rest of the lactation period, given the “special” nature the mothers consider this lactation stage.

Support networks seem to be the most important source of support that mothers had in the early postpartum or “*Cuarentena*”. The formation of these networks differ according to whether the mothers are located: Urban and rural areas. The influence of different actors within the support network of support appears to be higher in the early postpartum period given their physical proximity with the mother and the direct support received for the feeding and care activities.

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