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"We Never Ate Like That, Not Fast Food, or Junk Foods": Accounts of Changing Maternal Diet in a Tourist Community in Rural Costa Rica

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This investigation examines maternal diet in rural Costa Rica in the context of recent political economic changes. Results show that increased availability of non-local food items, (i.e., pizza and processed foods) has influenced maternal dietary choices. Information pathways, which have traditionally provided women with knowledge about maternal diet from family members, are also shifting. Younger women turn to the local clinic and the media for information about maternal diet, and traditional practices, such as cuarentena *(40-day postpartum period), are no longer being observed. Changing practices may be linked with shifting information pathways, as well as self-reported weight gain among women.*

KEYWORDS Costa Rica, Latin America, maternal diet, nutrition transition, pregnancy, tourism

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Globalization proceeds to move people, technology and ideas across borders, rapidly changing local environments. Diet-related changes have been well-documented, including dietary delocalization, the incorporation of non-locally produced food items in the diet, and the nutrition transition, the transition to a more "Western" diet, which continue to influence consumption patterns throughout the world (Pelto and Pelto 1983; Dickerson et al. 2008; Popkin 2002). Although the health consequences of these changes have been explored in a variety of settings (Popkin 2002; Drewnowski and Popkin 1997; Rivera et al. 2004; Uauy, Albala, and Kain 2001), there is growing concern about the effects of changing political economy on maternal diet, which influences maternal nutrition and affects growth and development of offspring (Black et al. 2008; Deegan et al. 2012; Abu-Saad et al. 2012; Abu-Saad and Fraser 2010). In Central America many women struggle to maintain adequate nutrition and problems such as iron-deficiency anemia, protein deficiency and low-folic acid intake have led to an array of initiatives intended to lower health risks (Habicht and Martorell 2010; Balarajan et al. 2011; Martorell et al. 2010; Rasmussen and Habicht 2010; Khan and Bhutta 2010; Dary 2002; Stabler and Allen 2004; Institute of Nutrition of Central America and Panama 2012). However, consequences of increasing globalized economic practices (e.g., dietary delocalization and the nutrition transition) have added a layer of complexity to maternal nutrition in this region. In addition to undernutrition and micronutrient deficiencies, other health threats related to noncommunicable diseases (NCDs) are now prevalent. Changes in diet and lifestyle are linked with type 2 diabetes, cardiovascular disease (CVD) and other metabolic disorders (i.e., metabolic syndrome, overweight/obesity, etc.), and are creating a dual burden in many households, where both undernutrition and overnutrition are occurring (Lee et al. 2012). It is important to understand how participation in globalized economic practices, such as tourism, influence maternal dietary choices and interact with health at the local level. This exploratory study aims to identify maternal dietary practices in the Monteverde zone, Costa Rica within the context of a shifting political economy onset by increased tourism.

BACKGROUND

Monteverde Zone, Costa Rica

The Monteverde zone is located in central Costa Rica, within the mountains of the Continental Divide (see figure 1). This investigation was carried out in five communities in this region: Monteverde, Santa Elena, Cerro Plano, Cañitas, and San Luis. Although *ticos* (Spanish for Costa Rican citizens) have been occupying this area since at least the 1880s, the modern community of Monteverde was founded in 1951 by North American Quakers seeking

FIGURE 1 Map of Costa Rica including Monteverde zone.

freedom from religious persecution in the United States. This community was sustained through dairy farming, which led to the opening of a factory and farm that currently produces dairy and meat products which are sold and distributed throughout the country (Vivanco 2006). Today, this community is a mixture of Quakers and *ticos*, with a small international presence of permanent residents from the United States, other countries in Latin America and elsewhere. The tourist hub in this area is Santa Elena, a bustling center which is home to the bus station, local public high school, a variety of food stores (i.e., chain groceries, one of which Walmart is the parent company), butcher shops, a pharmacy, coffee shops, souvenir shops, restaurants and hotels. Although the neighboring communities included in this study also have tourist attractions, accommodations and services, these resources are not centralized and many tourists, as well as local residents, travel to Santa Elena regularly to obtain goods and use services. San Luis is the furthest from Santa Elena with the fewest tourist services, as well as the most agricultural. San Luis has one formal store, a health post, which is open one day a week, and a primary school. However, residents of this area also utilize resources (a walk of up to two hours or a 45-minute drive) in Santa Elena. Residents of Cañitas, Monteverde and Cerro Plano also travel to Santa Elena to use resources (a walk of up to 45 minutes); however, these communities are closer to the tourist center and have a variety of restaurants and small neighborhood groceries (*pulperías)* where they can purchase limited household items and food.

Due to Costa Rica's incredible biodiversity, tourism has become a fundamental part of the Costa Rican economy, and in 2010, 2,099,829 tourists entered the country, which is almost half of the overall population (4,563,538) (INEC 2010). The Monteverde Cloud Forest Reserve, which continues to be the main tourist attraction in the area, opened in 1974 (Honey 1999). Today, the Monteverde zone has an estimated 250,000 annual visitors in an area with approximately 6,000 year-round residents (Himmelgreen et al. 2006; Honey 1999).

Maternal Nutrition and the Nutrition Transition

Political economic changes that lead to rapid economic development are a characteristic element of globalization and are often accompanied by the adoption of a "Western" lifestyle, including the increased consumption of refined sugars and calorie-dense foods, such as soda and packaged food items, as well as a decrease in daily physical activity (Popkin, Adair, and Ng 2012; Popkin 1994). This phenomenon has been shown to have considerable health consequences for local populations and has been linked with the global rise in NCDs. Increased risk for CVD, type 2 diabetes, hypertension, and other metabolic disorders (i.e., metabolic syndrome) has been documented in Latin America and contributes to the high rates of NCDs, which currently account for 60%–70% of deaths in the region (Popkin 2002; Pan American Health Organization 2010).

The increased risk for NCDs disproportionately affects many women in Latin America, and research in various countries (e.g., Brazil, Chile, Mexico, Paraguay, and Peru) has identified overweight and obesity as an important risk factor (Filozof et al. 2001; Lanas et al. 2007; Martorell et al. 1998; Bautista et al. 2009). In Costa Rica prevalence of overweight and obesity among women has increased almost two-fold in the last twenty years (Agüero 2009). Changes in diet and nutritional status have implications for maternal health (health during pregnancy and lactation), especially in areas undergoing rapid economic changes. Although the effects of poor maternal nutrition have been well documented, there is a need to broaden the scope of this knowledge to include a nuanced understanding of how maternal nutrition within transitional communities may be affected, and the implications for community health. Poor maternal nutrition (under- or overnutrition) can lead to a variety of adverse health outcomes. Maternal iron deficiency can be a major risk factor for maternal mortality, as well as pose risks for anemia in offspring (Balarjan et al. 2011). Other conditions associated with overnutrition, such as overweight and obesity, can lead to preeclampsia or gestational diabetes during pregnancy and macrosomia and insulin resistance in newborns (Baeten, Bukusi, and Lambe 2001; Black et al. 2008; Siega-Riz and Laraia 2006). Adverse health outcomes also have the potential to influence overall

community health through epigenetic mechanisms, allowing disease risk to be inherited over generations (Hanson and Gluckman 2011; Benyshek 2007).

RESEARCH QUESTIONS

Due to increased tourism in the Monteverde zone and the importance of maternal health, this study aims to examine maternal diet in this region and was designed to address the following research questions:

1. What are local, traditional dietary beliefs and practices during pregnancy/nursing in the Monteverde zone?
2. Are pregnant women adhering to locally accepted dietary behaviors during pregnancy and nursing in Monteverde zone?
3. Have traditional dietary beliefs and practices during pregnancy and nursing changed since tourism has increased in the Monteverde zone?

METHODS

Participants

Participants ($n = 61$) in this study were recruited using street-intercept sampling, a previously established sample from a University of South Florida (USF)/National Science Foundation (NSF) study and convenience snowball sampling. Street-intercept sampling was used to recruit participants for the survey on the three streets that denote the downtown Santa Elena area. The streets were numbered from one to three on individual pieces of paper and put on a table. On days when survey data were gathered, one was randomly chosen. The lead author stood on that street for one hour and invited every person who walked by to participate in the survey. The already-established USF/NSF sample was used to invite women to participate in focus groups, and convenience snowball sampling was used to recruit women for participant observation.

All participants were 18 years of age or older and self-identified as *tico* and local (living in the Monteverde zone). Men and women were invited to participate in the survey ($n = 45$), and although the focus of this investigation was maternal diet, including both sexes provides a broader community perspective on acceptable dietary norms in this region. No individuals who participated in the survey were from the same family.

Focus group participants ($n = 11$) were all women, although the inclusion criteria differed between the two groups. The first focus group included women ($n = 5$) with children younger than 10 years and the second focus group included women ($n = 6$) who had children older than 20 years. This allowed researchers to compare maternal diet prior to the

dramatic increase in tourism with recent trends. Tourism began to increase between the early 1980s and the early 1990s (Honey 1999), with approximately 49,580 visitors to the Monteverde Cloud Forest Reserve in 1992 (Honey 1999), and 250,000 tourists visiting the Monteverde zone in recent years (Himmelgreen et al. 2006).

Women who were pregnant or nursing at the time of the study were invited to engage in participant observation ($n = 5$) to observe consumption patterns firsthand. All participants consented to take part in this study, either through written or verbal consent.

This study was approved by the Institutional Review Board at the University of Nevada, Las Vegas (#0905-3100) on May 29, 2009. Approval was also granted by the Monteverde Institute (MVI; a local non-government organization) on April 22, 2009. Field research was conducted from May–August 2009 in collaboration with MVI.

Focus Groups

Focus groups were designed to elicit information about local and traditional dietary beliefs and practices during pregnancy and nursing in the Monteverde zone using cross-cultural dietary categories (taboos, prescriptions, cravings, and specified postpartum diet) well represented in the ethnographic literature (Bora 2002; Choudry 1996; Carracedo 1993; Fittin 1993; Hang 2002; Hartini 2005). Focus groups were also used to identify impacts on maternal diet over time, before and after the dramatic rise of tourism in the area. Participants were asked to engage in a free listing activity, for which participants were asked to list responses to the given questions (e.g., what foods are commonly consumed during pregnancy?) until the responses had been exhausted.

Focus groups were facilitated by the second author, a *tica*, local researcher and a native Spanish speaker. The lead author was present and took comprehensive notes during the focus groups, and both were audio-recorded for later transcription and translation. The second author completed the transcription and target-translation was completed by the lead author (who holds a minor in Spanish from the University of Arizona and has spent over seven months living in Costa Rica) with informal support from the Spanish Department at the University of Nevada Las Vegas. Target-translation consisted of reading through transcriptions and only translating sections that directly related to the research questions.

Upon arrival at the field site the first and second author formalized an interview guide for the focus groups. Although the questions were not pilot tested, the role of the facilitator as a *tica* researcher working in Monteverde and a local community member ensured that the interview guide was appropriate.

Surveys

Surveys were administered to identify local dietary norms during pregnancy, nursing and the 40-day postpartum period, referred to as *cuarentena*. Men and women were included in this portion of the study to get a general understanding of community perception of acceptable maternal diet, and help identify trends that could be revisited with community members during informal conversations.

Participant Observation

Five women were recruited (three pregnant and two nursing) and over 255 hours were spent observing and participating in everyday activities in and outside of their homes. This exercise allowed the lead researcher to observe the actual consumption patterns of pregnant and nursing women. Community events were also observed, such as the local weekly farmer's market, a baptism, a birthday party, and community bingo. General information from informal conversations with community members was documented, such as a conversation with a clinic nurse about maternal health services. All participant observation experiences were typed into field notes and coded by the lead researcher to identify themes that could be triangulated with other segments of the study.

Analysis

Survey analysis was done using SPSS (version 17). Descriptive statistics were calculated to obtain response percentages from the community survey. Focus group audio recordings were transcribed by the second author, and were target-translated by the lead author. Focus group transcriptions were coded and categorized by dietary themes previously mentioned. The same method was used to code and organize notes from participant observation.

RESULTS

Surveys

The mean age of participants was 35 years and the majority of them had children (67%; see table 1). When respondents were asked, "where do women receive information about the best foods to eat during pregnancy and nursing?" 78% indicated they received information from the government (see table 2). Eleven percent of the sample responded that they got information from family and 6.7% got information from friends.

When asked about foods that should be consumed during pregnancy, the most common responses were fruits (77.8%), vegetables (57.8%), and

TABLE 1 Survey Demographics

	n	%
Female	27	60%
Male	18	40%
Age range	19–72	
Mean	35.5	
Children		
Yes	31	68.90%
Mean	2.2	

TABLE 2 Survey Results: Sources of Information about Maternal Diet ($N = 45$)

Source	*n*	%
State	35	78
Media	8	18
Family	5	11
Friends	3	7
Gynecologist	2	4
Hospital	2	4
Nutritionist	2	4
Lectures	2	4
High school	1	2

meat (15.6%). When asked why these things are good to eat, responses were vague (e.g., healthy or nutritious). The most common responses when asked about foods that should be avoided during pregnancy were fats (37.8%), alcohol (20%), salt (8.9%), and abortive consumptives (8.9%), as indicated by participants, such as coconut water and linseed. When asked why these foods should be avoided during pregnancy, participants said, "they affect the growth of the baby," "they are not good for health," "they will make you fat," "they will damage the baby," "they will cause complications," or "they will cause problems with development."

Almost half of participants (44.4%) did not have a response when asked about foods that should be consumed during *cuarentena*. The most common responses for those who addressed this question were vegetables (17.8%), fruits (15.6%) and liquids (11.1%). Participants also said that rolled oats or cereals help produce milk. Half of respondents (48.9%) did not have a reply when asked why these foods are good to eat. When participants were asked about foods that should be avoided during *cuarentena,* the most common responses were beans (33.3%), cabbage (22.2%), fats (15.6%) and meat (13.3%). Respondents said that these foods were perceived to cause colic in the baby or infection in the mother when recovering from cesarean section or episiotomy.

When asked about common food cravings during pregnancy, most respondents drew on personal experiences, speaking directly about themselves or their partners (if they were male). The most common responses were: "cravings are distinct for each woman" (17.8%), "anything" (15.6%), and "acidic foods" (e.g., fruit with salt or unripe fruit; 13.3%). Other responses were chocolate, ice cream, and sweets.

Focus Groups

Both groups were asked questions about diet during pregnancy and the postpartum period (i.e., Where do women get information about diet during pregnancy and *cuarentena*? What foods are good to eat during pregnancy and *cuarentena*? What foods should be avoided during pregnancy and *cuarentena*? What foods are commonly craved by women during pregnancy and *cuarententa*? Where do women get information about diet during pregnancy and nursing?).

Focus group participants were asked to contribute to a free listing activity (See table 3). Of all the responses, food items were most similar between groups when asked about foods consumed during pregnancy, although the older mothers made a clear distinction between what life was like when they were pregnant and life in the Monteverde zone now. One woman commented,

> In general, in that time, there weren't many restaurants or hotels in Monteverde, so most of what someone ate came from the house, chopped dishes [chopped vegetables and meat], vegetables, normal food, right? Not like now, when someone has a craving for something like pizza or they are craving fried chicken, and all of that, no because what someone made, they would make in the house, those places didn't exist then like they exist today.

When asked about foods consumed during pregnancy, the younger mothers agreed that women eat "everything" during pregnancy and discussed personal experiences that many of them had with excessive weight gain. One woman revealed that her child was overweight at birth due to her excessive eating during pregnancy. Participants agreed that women, "eat more freely," and, "eat just for the sake of eating," when pregnant. One participant noted, "when you are pregnant, you think you can eat whatever you want," and, "at least for me, I ate things that I never thought that I would eat, like before I never liked junk food, but when I was pregnant I only wanted to eat French fries, tacos and things like that."

Women also agreed that they had trouble losing weight after their pregnancies and remained heavier than before they were pregnant, possibly due to increased sedentary behaviors, as noted by participants.

TABLE 3 Focus Group: Free List

	Younger mothers	Older mothers
Common pregnancy foods	Milk, crackers/cookies, peanuts, dessert, whole wheat, *tortilla*, omelet, meat soup, fruits (bananas)/fruit salad (strawberries, grapes, watermelon), acidic foods (lime, *ceviche*), sweet potato, vegetables, spicy and salty foods	Milk, crackers, red meat, ham with black guinea, stewed meat, spinach, from the house (chopped mix, vegetables), grapes, plantains, *chilote* (fruit), lime, green beans, vegetables, cheese, natural, chicken, linseed (flax)
Uncommon pregnancy foods	Chile	Sodas, alcohol, cauliflower, cabbage
Common *cuarentena* foods	Rolled oats, chicken soup, rosemary tea	Rolled oats, chicken soup, *guaro* (alcohol) with 2 parts honey, chamomile and honey, *chamol* (tuber), cucumbers, tortilla, rice, sweet water with milk
Uncommon *cuarentena* foods	Cabbage, avocado, sour cream, beans, fish, soy, meat	Ripe plantains, cauliflower, cabbage, black beans, yucca
Cravings	Beer, paint, Coca-Cola, tacos, French fries, junk foods	Beer foam, spoonful of paint, entire fish (big and fried), fried ham, chicken cooked in a pot, goat's milk, honey, 10 bananas in one sitting

When asked about food cravings during pregnancy, responses between the two groups show marked differences in types of food items; however, both groups mentioned the traditional belief that "a woman should eat everything they crave during pregnancy or the baby will be born with an open mouth." One younger mother also explained that if you eat *chiles* (peppers) during pregnancy your child will be born with burned (reddish) skin, which the group agreed with. Younger mothers reported eating foods commonly store-bought or found in/near the town center, as opposed to older mothers, who reported eating (with the exception of beer foam and paint, as discussed below) natural foods that were often found on the farm. One woman said, "We never ate like that, not fast food, or junk foods."

The only items listed by both groups when asked about cravings were beer (or beer foam) and paint. The majority of women in both groups admitted that they craved beer during pregnancy, although only some actually indulged in a beer, sip of beer or beer foam. Since the majority of women agreed on this craving, it is possible that more women drank beer but would be reluctant to report this due to the stigma of alcohol consumption among females, especially during pregnancy. When discussing the craving for paint, the younger mothers shared stories they heard about women eating paint due to an iron deficiency, although none of them actually ate paint, or knew anybody that craved or ate paint during pregnancy. On the other hand,

one of the older women recalled that when her mother was pregnant she watched her eat a spoonful of paint and attributed this behavior to iron deficiency.

When asked about foods commonly consumed during *cuarentena*, women from both groups listed common foods items and agreed that rolled oats were effective in helping mothers to produce milk. They also agreed chicken soup was a traditional food that should be consumed immediately postpartum. Agents to clean the uterine blood were mentioned, but varied between the groups, including rosemary tea, *guaro* (homemade alcohol) with honey, and chamomile with honey. The older women listed additional food items that they ate during *cuarentena* but did not discuss reasons for doing so.

When asked about foods that should be avoided during *cuarentena*, food items varied but the reasons foods should be avoided were similar. Women in both groups listed food items that are perceived to cause colic (gas/irritation) in the baby or cause discomfort to the mother (e.g., cabbage and beans). Younger mothers also identified items that are perceived to cause infections after cesarean section, such as meat, sour cream and beans. One identifiable difference was that younger mothers also discussed food items that may cause the child to develop allergies, such as fish or soy. One woman spoke about the potential of soy to promote the rapid growth of young girls:

> Soy supposedly develops the female hormones a lot, resulting in increased growth and development . . . my sister could never tolerate lactose [when she was younger] so she drank soy milk, but she was very allergic to milk and so she drank milk that made her develop very quickly. She is an adolescent now . . . but she is a very big [developed] girl!

When asked about where they receive information about maternal diet, both groups identified mothers, mothers-in-law and grandmothers. However, only younger mothers indicated that they also receive information from high school and from television.

Participant Observation

Of the five women who engaged in participant observation, only one had a job outside of the home, although all five indicated that they were responsible for the cooking, cleaning and taking care of the children. All participants were directly or indirectly involved with tourism. One woman walked to other communities to sell baked goods to both locals and tourists. Another woman rented out rooms and her mother frequently hosted students through a homestay program. The woman who worked outside of the home was indirectly involved with tourism since tourists frequented the shop where she

worked. Also, her husband worked at the cheese factory, a tourist attraction. Another housewife's husband also worked at the cheese factory. Finally, the other participant's sister-in-law worked locally with student groups and often provided her with food or other goods.

A common theme discussed by women during participant observation was weight gain during pregnancy, expressed as a perceived problem for women in this area. Four of the five women were overweight during pregnancy and said, that although the clinic provided them with guidance during their monthly prenatal exams, they did not receive any specific information and were unsure how to manage their weight. One pregnant woman was told by the doctor that she should not gain a lot of weight because she was overweight. During the time the lead researcher spent with her she consumed a noticeably smaller portion than everyone at the table, indicating that she may be cutting calories because of what the doctor had told her. Another topic women repeatedly discussed was that the practice of *cuarentena* was no longer being observed in the area. None of these women had observed this practice postpartum, although they said they did eat some traditional foods, such as chicken soup. All the women also agreed that rolled oats were good to eat postpartum to help with lactation.

Women supplemented traditional foods, such as rice and beans, with other store bought processed foods, such as a package of frozen breaded chicken or dehydrated soy. Common to all the households were items such as eggs, rice, beans, homemade tortillas, homemade pancakes (as an afternoon snack), coffee and tea. Dairy and meat consumption varied during the researcher's time inside women's households. Women often said that they used little salt or oil when cooking and then continuously added salt and oil throughout the cooking process. One pregnant woman reported that her doctor said she shouldn't eat a lot of salt due to her blood pressure and then continued to talk about how much she loved to eat guava with salt as a snack.

DISCUSSION

The Monteverde zone has traditionally been part of an economy based on agricultural subsistence and dairy farming, but a shift to a tourist-based economy in the last 25 years is having visible impacts on community health. Current research in the zone shows that high rates of food insecurity and overweight and obesity among caretakers are associated with the tourist industry, as well as the high prices of food in the region. Himmelgreen and colleagues (2006) found that 76.1% of households in their study experienced some level of food insecurity, which was linked to a variety of predictors (e.g., body mass index), not being a member of a food cooperative, frequency of condiment consumption (inverse relationship) and not having

a working oven or microwave oven). This study also found high rates of overweight and obesity among women in their sample (67%), which corresponds with national trends in Costa Rica. Overweight and obesity rates among women (age 20–44) increased from 34.6% to 59.7% between 1982 and 2008/2009 (Agüero 2009). These findings are consistent with regional data indicating that a nutrition transition is taking place in Central America, contributing to increased rates of overweight and obesity, although it has been noted that the impacts of the nutrition transition are complex and dynamic, and therefore increased research is needed to understand the effects within local contexts (Dodd 2011; Piperata et al. 2011; Rhee, Mattei, and Campos 2012).

The goal of this exploratory investigation was to examine local maternal diet within the context of a rapidly shifting political economy. Participants generally accepted the current biomedical model about what foods are good to eat during pregnancy (e.g., fruits, vegetables), and could easily identify items that should not be consumed (i.e., herbs that may be abortive), or consumed in excess (i.e., alcohol). Focus group and participant observation data show that maternal diet has changed since tourism increased in the area. Participants agreed that different food sources are now available in the region, compared to 20 years ago, including a chain grocery store and numerous restaurants serving foods that were previously not available in the area (e.g., pizza, French fries, and packaged processed foods).

Moreover, the sources of information about maternal diet commonly accessed by women are shifting from the family to the government. Older mothers from the focus group emphasized the role of their families in informing them about maternal diet, whereas the younger mothers also discussed the role of the local clinic and television, indicating that the accessibility of television may influence women's attitudes about traditional practices (all of the women who engaged with participant observation had a television in their home). Further research is needed to explore this potential trend. This was also corroborated by the majority of survey participants. Although respondents did not specifically state why this shift may be occurring, all women are required to attend a monthly prenatal exam, which all participants claim to have attended. This may emphasize the importance of the services offered at the clinic during pregnancy and the postpartum period. The clinic also provides women with folic acid and iron supplements, placing increased value on the services offered.

This study also shows that local, traditional maternal practices are changing, such as the postpartum period referred to as *cuarentena*. While all study participants were familiar with the term, young women spoke about *cuarentena* as something practiced in their grandmother's time. Traditionally, women in Latin America used this time to bond with their baby and rest, while other friends and/or family helped with housework as well as cared for both the mother and baby (Foster 1965; de la Torre and Rush 1987;

Morgan 1997; Piperata 2008; Alarcón and Nahuelcheo 2008; Carter 2002). This practice is also referred to as *la dieta* or *resguardo*, and includes dietary prescriptions to help with recovery (e.g., chicken soup), as well as energy restrictions, such as decreased physical activity (Morgan 1997; Piperata 2008). It has also been suggested that increased support during the postpartum period offered through this practice may have beneficial effects, such as buffering from postpartum depression or increasing breastfeeding (de la Torre and Rush 1987; McElroy 1990). Participants explained that the practices associated with this tradition are no longer observed, although they did report eating chicken soup and/or rolled oats postpartum. This is consistent with the literature that cites *cuarentena* as a period of recovery for the mother, during which she is supposed to eat nutritious foods (Padilla 1958; Alarcón and Nahuelcheo 2008; Piperata 2008). Other accounts of *cuarentena* have noted that this practice is changing elsewhere. For Mexican migrants in Texas the practical needs of everyday life have diminished the ability to practice *cuarentena* in this new environment (de la Torre and Rush 1987; Cruz 2005). It is unclear if this practice is widespread in Costa Rica or if this practice is changing in other regions in relation to political economic shifts, as is the case in the Monteverde zone.

Another practice that deserves further investigation is the craving and/or consumption of alcohol during pregnancy. Focus group participants agreed that craving beer, and sometimes indulging in this craving, was common in the Monteverde zone. This has also been noted in other Latin American cultures. In Puerto Rico, accounts of drinking nonalcoholic beer during pregnancy have been recorded, and among Cuban refugees to the United States, it has been observed that women continue to maintain typical diets during pregnancy, which includes some wine and beer (Padilla 1958; Boone 1989).

Women also identified excessive weight gain during pregnancy and the inability to lose postpartum weight as a perceived community health concern. Of the five women who engaged in participant observation, four discussed their own experiences with maternal overweight/obesity. Evidence shows that there is increased health risk for mother and offspring if women are overweight or obese during pregnancy. This can result in gestational diabetes, premature birth, hypertension, macrosomia, and other birth complications for both mother and child (Baeton et al. 2001; Castro and Avina, 2002; Siega-Riz et al. 2006; Manios et al. 2009; Nohr 2008).

CONCLUSION

Participants in this investigation discussed changes in their community that are aligned with characteristics of the nutrition transition and dietary delocalization, indicating that the increase in the number of tourists in the region has impacted maternal consumption patterns. Although this preliminary

investigation was carried out with a small, non-representative sample from the Monteverde zone, it provides a starting point for further research. This study has established that changes have occurred in maternal dietary practices since tourism has become more prevalent in the region, and that sources of information about maternal diet are changing. Women also discussed weight gain as a perceived community concern. Based on these findings, future research is warranted to understand why these changes have occurred and what health consequences are occurring (i.e., NCD rates, impacts on child growth and development, etc.). Future research should include a better understanding of specific dietary patterns through the use of appropriate methods (e.g., diet recalls), as well as recording biomarkers to understand the current health status of women. Finally, research should also include methods that identify the level of household engagement with the tourist industry in order to examine the link between participation in the global market economy and current health status.

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REFERENCES

Abu-Saad, K., and D. Fraser. 2010. Maternal nutrition and birth outcomes. *Epidemiologic Reviews* 32 (1): 5–25.

Abu-Saad, K., D. R. Shahar, D. Fraser, H. Vardi, M. Friger, A. Bolotin, and L. S. Freedman. 2012. Adequacy of usual dietary intake and nutritional status among pregnant women in the context of nutrition transition: The DEPOSIT Study. *British Journal of Nutrition* 108 (10): 1874–1883.

Agüero, M. L. Á. 2009. *National Nutrition Survey, Costa Rica 2008–2009*. [In Spanish.] San José, Costa Rica: Ministry of Health.

Alarcón, A. M., and Y. S. Nahuelcheo. 2008. Pregnancy, delivery and post partum beliefs among Mapuche women: Private conversations. [In Spanish.] *Chungara: Revista de Antropología Chilena* 40 (2): 193–202.

Baeten, J. M., E. A. Bukusi, and M. Lambe. 2001. Pregnancy complications and outcomes among overweight and obese nulliparous women. *American Journal of Public Health* 91 (3) :436–440.

Balarajan, Y., U. Ramakrishnan, E. Özaltin, A. H. Shankar, and S. V. Subramanian. 2011. Anemia in low-income and middle-income countries. *The Lancet* 378 (9809): 2123–2135.

Bautista, L. E., J. P. Casas, V. M. Herrera, J. J. Miranda, P. Perel, R. Pichardo, A. González, et al. 2009. The Latin American Consortium of Studies in Obesity (LASO). *Obesity Reviews* 10 (3): 364–370.

Benyshek, D. C. 2007. The development origins of obesity and related health disorders: Prenatal and perinatal factors. *Collegium Anthropologicum* 31 (1): 11–17.

Black, R. E., L. H. Allen, Z. A. Bhutta, L. E. Caulfield, M. de Onis, M. Ezzati, C. Mathers, and J. Rivera. 2008. Maternal and child undernutrition: global and regional exposures and health consequences. *The Lancet* 371 (9608): 243–260.

Boone, M. S.1989. *Capital Cubans: Refugee adaptation in Washington, D.C*. New York: AMS Press.

Bora, P. 2002. Beliefs and practices during pregnancy: A study among the Misings. *Bulletin of the Department of Anthropology, Dibrugarh University* 30:89–94.

Carracedo, E. 1993. Representations and beliefs about pregnancy and childbearing in a group of Toba women. *Collegium Antropologicum* 17 (2): 241–248.

Carter, M. W. 2002. "Because he loves me": Husbands' involvement in maternal health in Guatemala. *Culture, Health & Sexuality* 4 (3): 259–279.

Castro, L., and R. Avina. 2002. Maternal obesity and pregnancy outcomes. *Current Opinion in Obstetrics and Gynecology* 14 (6): 601–606.

Choudry, U. K. 1996. Traditional practices of women from India: Pregnancy, childbirth, and newborn care. *JOGNN, Principle and Practice* 26 (5): 533–539.

Cruz, A. R. 2005. Taquerías, laundromats, and Protestant churches: Landmarks of Hispanic barrios in Denton, Texas. *Urban Anthropology and Studies of Cultural Systems and World Economic Development* 34 (2/3): 281–303.

Dary, O. 2002. Lessons learned with iron fortification in Central America. *Nutrition Reviews* 60 (7 Suppl.): S30–S33.

de la Torre, A., and L. Rush. 1987. The determinants of breastfeeding for Mexican migrant women. *International Migration Review* 21 (3): 728–742.

Deegan, K. L., K. M. Jones, C. Zuleta, M. Ramirez-Zea, D. L. Lildballe, E. Nexo, and L. H. Allen. 2012. Breast milk vitamin B-12 concentrations in Guatemalan women are correlated with maternal but not infant vitamin B-12 status at 12 months postpartum. *The Journal of Nutrition* 142 (1): 112–116.

Dickerson, T., D. Fernandez, S. A. Topgyal, N. Gelek, G. Pelto, S. Craig, and T. Dye. 2008. From butter tea to Pepsi®: A rapid appraisal of food preferences, procurement sources and dietary diversity in a contemporary Tibetan township. *Ecology of Food and Nutrition* 47 (3): 229–253.

Dodd, W. 2011. Towards a political ecology of nutritional transitions in Central America: The construction of nutrient-deficient ecologies. *Totem: The University of Western Ontario Journal of Anthropology* 19 (1): 119–136.

Drewnowski, A., and B. M. Popkin. 1997. The nutrition transition: New trends in the global diet. *Nutrition Reviews* 55 (2): 31–43.

Filozof, C., C. Gonzalez, M. Sereday, C. Mazza, and J. Braguinsky. 2001. Obesity prevalence and trends in Latin-American countries. *Obesity* 2 (2): 99–106.

Fittin, R. 1993. Some K'ekchi' beliefs about the behavior of women during pregnancy and with infants. *Latin American Indian Literatures Journal* 9 (2): 135–138.

Foster, G. M. 1965. Cultural responses to expressions of envy in Tzintzuntzan. *Southwestern Journal of Anthropology* 21 (1): 24–35.

Habicht, J.-P., and R. Martorell. 2010. Introduction: The development and legacy of the INCAP Oriente studies 1969–2009. *The Journal of Nutrition* 140 (2): 392–393.

Hang, T. 2002. Pregnancy and birth among Dao people in yen Bai province. *Anthropology Review* 2 (2): 81–84.

Hanson, M., and P. Gluckman. 2011. Developmental origins of noncommunicable disease: Population and public health implications. *The American Journal of Clinical Nutrition* 94 (6 Suppl.): 1754S–1758S.

Hartini, T. N. S., R. S. Padmawati, L. Lindholm, A. Surjono, and A. Winkvist. 2005. The importance of eating rice: Changing food habits among pregnant Indonesian women during the economic crisis. *Social Science and Medicine* 61 (1): 199–210.

Himmelgreen, D. A., N. Romero-Daza, M. Vega, H. Brenes Cambronero, and E. Amador. 2006. "The tourist season goes down but not the prices": Tourism and food insecurity in rural Costa Rica. *Ecology of Food and Nutrition* 45 (4): 295–321.

Honey, M. 1999. *Ecotourism and sustainable development: Who owns paradise?* (2nd ed.). Washington, DC: Island Press.

INEC, Costa Rica. 2010. *Population*. San José: National Institute of Statistics and Census of Costa Rica.

INEC, Costa Rica. 2010. *Tourism*. San José: National Institute of Statistics and Census of Costa Rica.

Institute of Nutrition of Central America and Panama. 2012. *Nutrition and micronutrient*. http://www.incap.int/index.php/en/areas-and-lines-of-working/nutrition-and-micronutrient (accessed August 20, 2012).

Khan, Y., and Z. A. Bhutta. 2010. Nutritional deficiencies in the developing world: Current status and opportunities for intervention. *The Pediatric Clinics of North America* 57:1409–1441.

Lanas, F., A. Avezum, L. E. Bautista, R. Diaz, M. Luna, S. Islam, and S. Yusuf. 2007. Risk factors for acute myocardial infarction in Latin America. *Circulation* 115 (9): 1067–1074.

Lee, J., R. F. Houser, A. Must, P. Palma de Fulladolsa, and O. I. Bermudez. 2012. Socioeconomic disparities and the familial coexistence of child stunting and maternal overweight in Guatemala. *Economics and Human Biology* 10:232–241.

Manios, Y., E. Grammatikaki, K. Kondaki, E. Loannou, A. Anastasiadou, and M. Birbilis. 2009. The effect of maternal obesity on initiation and duration of breast-feeding in Greece: The GENESIS study. *Public Health Nutrition* 12 (4): 517–524.

Martorell, R., L. Kettel Khan, M. L. Hughes, and L. M. Grummer-Strawn. 1998. Obesity in Latin American women and children. *Journal of Nutrition* 128 (9): 1464.

Martorell, R., P. Melgar, J. A. Maluccio, A. D. Stein, and J. A. Rivera. 2010. The nutrition intervention improved adult human capital and economic productivity. *Journal of Nutrition* 140 (2): 411–414.

McElroy, A. 1990. Biocultural models in studies of human health and adaptation. *Medical Anthropology Quarterly* 4 (3): 243–265.

Morgan, L. M. 1997. Imagining the unborn in the Ecuadoran Andes. *Feminist Studies* 23 (2): 323–350.

Nohr, E. A., M. Vaeth, J. L Baker, T. I. A Sørensen, J. Olsen, and K. M Rasmussen. 2008. Combined associations of prepregnancy body mass index and gestational weight gain with the outcome of pregnancy. *The American Journal of Clinical Nutrition* 87 (6): 1750–1759.

Padilla, E. 1958. *Up from Puerto Rico*. New York: Columbia University Press.

Pan American Health Organization. 2009. *Fact Sheet: Chronic Diseases in the Americas*. http://new.paho.org/hq/index.php?option=com_content&task=view&id=1646&Itmid=259 (accessed March 15, 2012).

Pelto, G. H., and P. J. Pelto. 1983. Diet and delocalization: Dietary changes since 1750. *Journal of Interdisciplinary History* 14:507–528.

Piperata, B. A. 2008. Forty days and forty nights: A biocultural perspective on postpartum practices in the Amazon. *Social Science and Medicine* 67 (7): 1094–1103.

Piperata, B. A., S. A. Ivanova, P. Da-gloria, V. Gonçalo, A. Polsky, J. E. Spence, S. Rui, and S. Murrieta. 2011. Nutrition in transition: Dietary patterns of rural Amazonian women during a period of economic change. *American Journal of Human Biology* 23:458–469.

Popkin, B. 2002. An overview on the nutrition transition and its health implications: The Bellagio meeting. *Public Health Nutrition* 5 (1A): 93–103.

Popkin, B. M. 1994. The nutrition transition in low-income countries: An emerging crisis. *Nutrition Reviews* 52 (9): 285–298.

Popkin, B. M., L. S. Adair, and S. W. Ng. 2012. Global nutrition transition and the pandemic of obesity in developing countries. *Nutrition Reviews* 70 (1): 3–21.

Rasmussen, K. M., and J.-P. Habicht. 2010. Maternal supplementation differentially affects the mother and newborn. *The Journal of Nutrition* 140 (2): 402–406.

Rhee, J. J., J. Mattei, and H. Campos. 2012. Association between commercial and traditional sugar-sweetened beverages and measures of adiposity in Costa Rica. *Public Health Nutrition* 15 (8): 1347–1354.

Rivera, J. A., S. Barquera, T. González-Cossío, G. Olaiz, and J. Sepúlveda. 2004. Nutrition transition in Mexico and in other Latin American countries. *Nutrition Reviews* 62:S149–S157.

Siega-Riz, A.-M., and B. Laraia. 2006. The implications of maternal overweight and obesity on the course of pregnancy and birth outcomes. *Maternal and Child Health Journal* 10 (1 Suppl.): 153–156.

Stabler, S. P., and R. H. Allen. 2004. Vitamin B12 deficiency as a worldwide problem. *Annual Review of Nutrition* 24:299–326.

Uauy, R., C. Albala, and J. Kain. 2001. Obesity trends in Latin America: Transiting from under- to overweight. *The Journal of Nutrition* 131 (3): 893S–899S.

Vivanco, L. A. 2006. *Green encounters: Shaping and contesting environmentalism in rural Costa Rica*. New York: Berghahn Books.