



Dietary inequalities of mother–child pairs in the rural Amazon: Evidence of maternal-child buffering?



Barbara A. Piperata^{a,*}, Kammi K. Schmeer^b, Craig Hadley^c, Genevieve Ritchie-Ewing^a

^aThe Ohio State University, Department of Anthropology, Columbus, OH 43210, USA

^bThe Ohio State University, Department of Sociology, Columbus, OH 43210, USA

^cEmory University, Department of Anthropology, Atlanta, GA 30322, USA

ARTICLE INFO

Article history:

Available online 13 August 2013

Keywords:

Brazil
Amazon
Food security
Intra-household resource distribution
Parental investment
Nutrition
Food provisioning

ABSTRACT

This paper explores the expected outcome of maternal nutritional “buffering,” namely that children’s diets will be more adequate than mothers’ diets under conditions of food scarcity. Data on Amazonian mothers and their children, household demography and economics and direct, weighed measures of household food availability and dietary intakes of mother–child pairs were collected from 51 households to address the following research questions: (1) is there evidence of food scarcity in this setting?; (2) are there differences in energy and protein adequacy between children and their mothers?; and, (3) which individual and household-level factors are associated with these mother–child differences in energy and protein adequacy? In this context of food scarcity, we found that the majority of children had more adequate energy ($p < 0.001$) and protein ($p < 0.001$) intakes than their mothers. Multivariate OLS regression models showed that of the individual-level factors, child age and height-for-age were negatively associated with maternal-child energy and protein inequalities while maternal reproductive status (lactation) was positively associated with energy inequality. While there were no gender differences in dietary adequacy among children, boys had a larger advantage over their mothers in terms of protein adequacy than girls. Household food availability was related to maternal-child energy and protein inequalities in a curvilinear fashion with the lowest inequalities found in households with extremely low food availability and those with adequate food resources. This is the first study to quantify maternal-child dietary inequalities in a setting of food scarcity and demonstrates the importance of the household context and individual characteristics in understanding the degree to which mothers protect their children from resource scarcity.

© 2013 Elsevier Ltd. All rights reserved.

Introduction

Approximately one billion people world-wide suffer from inadequate access to food, or food insecurity, a state in which people lack access to sufficient food to meet their dietary needs and food preferences for an active and healthy life (FAO, 2009). Chronic food insecurity has both immediate and long-term health effects that undermine individual well-being, societies’ productivity, and the ability to break the intergenerational cycle of poverty (Cole & Tembo, 2011; Walker et al., 2008; Weaver & Hadley, 2009). Thus, understanding the strategies people use to cope with low food

availability, including intra-household distribution (see Gittelsohn, Thapa, & Landman, 1997; Haaga & Mason, 1987; Haddad, Peña, Nishida, Quisumbing, & Slack, 1996 for an extensive review; Hadley, Lindstrom, Tessema, & Belechew, 2008; Hampshire, Panter-Brick, Kilpatrick, & Casiday, 2009; Messer, 1997), and identifying those at greatest risk of food insecurity is of practical importance. Women and children are at increased risk of suffering food insecurity and malnutrition due to their greater biological needs (Prentice et al., 1996; Torun et al., 1996) and, commonly, lower social status (Pelto, 1987).

Due to children’s dependence on adults for their basic needs, their reproductive and economic value, and their biological relatedness, there is an expectation that parents will play an active role in ensuring children’s access to food (Bogin, 1997). In environments of food scarcity, this implies a trade-off between parental and child resources, and in the case of food, dietary inequalities. Mothers, in particular, are expected to protect children from food scarcity due

* Corresponding author. The Ohio State University, Department of Anthropology, Smith Lab Room 4054, 174 West 18th Avenue, Columbus, OH 43210, USA. Tel.: +1 614 292 2766; Fax: +1 614 292 4155.

E-mail address: piperata.1@osu.edu (B.A. Piperata).

to the central role women play in food production, preparation and childcare (Brown, Feldstein, Haddad, Peña, & Quisumbing, 1995). Qualitative research suggests that mothers protect their children from low food supplies by reducing their own food intake (Coates et al., 2006; Fitchen, 1987; Gundersen & Krieder, 2008; Radimer, Olson, Greene, Campbell, & Habicht, 1992). This idea that child food intake will be prioritized over that of their mother is often referred to as maternal buffering.

Although maternal buffering is a readily accepted and meaningful concept, most empirical evidence of buffering relies on parental reports, which have been shown to inaccurately characterize children's food experiences (Bernal, Frongillo, Herrera, & Rivera, 2012; Fram et al., 2011). Of studies that have considered intra-household differences in food distribution more directly, some indicate better intakes among adults, often men, due to their higher social status, energetic expenditure and/or economic value (Abdullah & Wheeler, 1985; Engle & Nieves, 1993). Other studies have reported the preferential feeding of children (Graham, 1997; Kaiser & Dewy, 1991; Kramer, Peterson, Rogers, & Hughes, 1997; Leonard, 1991; Oldewage-Theron, Dicks, & Napier, 2005) and thus offer some evidence of buffering. The literature also suggests that individual-level factors, such as child age and gender, determine access to food. Mothers might be expected to preferentially buffer younger children due to their higher level of dependence on others for resources (Graham, 1997), and sons more than daughters due to the higher social status of males in many societies (Fikree & Pasha, 2004; Frongillo & Bégin, 1993), but see Haddad et al. (1996) and Hampshire et al. (2009) for contrary evidence from Africa.

We build on previous work and advance the discussion of intra-household food distribution and concept of buffering by drawing on a unique set of observed dietary data collected from 51 matched mother–child pairs in rural households in the Brazilian Amazon. These data allow us to calculate quantitative differences in dietary adequacy between mother–child pairs in a setting of high poverty. Then, we assess whether matched mother–child pairs differ in their energy and protein adequacies. Evidence of maternal-child diet inequalities that favor children over their mothers would suggest evidence of maternal buffering (or other household strategies) that results in better diets for children than their mothers.

Finally, we consider variation in maternal-child diet inequalities across households; and, whether child, mother, or household characteristics predict the extent to which children's dietary adequacies exceed those of their mothers. We are particularly interested in whether household food adequacy is associated with maternal-child dietary inequalities. In households meeting little of their food needs we may find mothers are less able to direct food toward the child than when households experience higher, but still insufficient, levels of food adequacy. As households reach a point of food sufficiency, we would expect reduced inequalities between children and their mothers as food supplies theoretically enable all household members to meet their dietary needs.

Methods

Field location and study participants

The participants in this study self-identified as *Ribeirinhos* (Indigenous Amerindian/Portuguese/African) and lived in seven, rural communities located around the Caxiuanã National Forest in the Brazilian state of Pará. The communities were approximately 8 h by small motorboat from the nearest town, Portel. People lived in small, wooden houses along rivers and had no piped water. Only 40% of households had access to a few hours of electricity in the evening using a generator. The majority of households consisted of

a nuclear family, although a few included extended kin such as grandparents.

While there has been a decline in subsistence activities over the past 10 years, most households continued to practice slash and burn agriculture with bitter manioc as the staple crop (Piperata, Ivanova et al., 2011). Manioc, a non-seasonal crop, was consumed primarily in the form of *farinha*, a dry, toasted meal. Fish and hunted game (*paca*, armadillo, wild pig, turtles) were the most important local sources of protein and *açaí*, a local palm fruit, was a source of energy and fat (Piperata, Ivanova et al., 2011). Local foods were complimented with sugar, coffee, crackers, beans, rice and domesticated meats (*charque*, a dry, salted fatty beef product and *mortadella*, a bologna-like processed meat, chicken and canned sardines) which were accessed through the barter of *farinha* or with cash earned through male wage labor or government programs.

The daily food consumption pattern was similar to that seen throughout Latin America with the mid-day meal being the most significant. Breakfasts were small and almost always included highly-sugared coffee and *beiju*, a manioc-starch pancake, or purchased crackers. Lunch included *farinha* accompanied by fish, game or purchased meats, and/or beans. Dinner typically consisted of leftovers from lunch and was skipped when food availability was low.

Prior data indicate that access to adequate food is problematic for rural Amazonian peasants, with implications for child and adult health. Anthropometric data show that growth faltering begins around the time infants cease breastfeeding (1–2 years) (Piperata, Spence, da-Gloria, & Hubbe, 2011) and rates of stunting are high among children (2–18 years) (males, 57%; females 58%) and adults (males, 45%; females 58%) (Guigliano, Guigliano, & Shrimpton, 1981; Guigliano, Shrimpton, Marinho, & Guigliano, 1984; Piperata, Spence et al., 2011). Dietary data collected at the individual (Piperata, Ivanova et al., 2011) and household-level demonstrate that access to sufficient energy, more than protein, is a challenge (Guigliano, Shrimpton, Arkol, Guigliano, & Petrerri, 1978; Murrieta & Dufour, 2004). Finally, as will be discussed in greater detail below, administration of the Brazilian perceived food insecurity scale (*Escala Brasileira de Insegurança Alimentar*, EBIA) (Melgar-Quinonez, Nord, Pérez-Escamilla, & Segall-Corrêa, 2008) revealed high levels of food insecurity. Thus, this is a setting where household food scarcity and maternal buffering are expected to be high.

Study design and data collection

The data presented here were collected between May and July, a period which falls between the wet and dry seasons, in 2009. Previous dietary data collected from these same communities revealed no seasonal differences in macro-nutrient intakes (Piperata, Ivanova et al., 2011). Based on field research we estimate there are ~1200 people living in ~200 households within 2.0 h, by motorized boat, of the Ferreira Penna Research station located in the Caxiuanã National Forest. Data were collected from a convenience sample of households that met the following criteria: (1) home was located within 1.5 h of the research station where we had reliable boat access essential for travel within the region; (2) household was dual-headed, (3) a non-breastfeeding child under 16 years of age lived in the home and (4) the female head was not in *resguardo*, the 40-day postpartum period when women follow work and food taboos (Piperata, 2008). Single-headed households are rare in this region due to the local subsistence pattern. In visits to 72 households, we identified only one such home. We limited the sample to non-breastfeeding children due to the complication of estimating the macro-nutrient intakes of breastfeeding infants. Our inclusion of children through 16 years was due to our interest in how maternal-child dietary adequacy might vary as children age.

Download English Version:

<https://daneshyari.com/en/article/7336743>

Download Persian Version:

<https://daneshyari.com/article/7336743>

[Daneshyari.com](https://daneshyari.com)