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## Maternal sensitivity in rural Andean and Amazonian Peru

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### ABSTRACT

In the current study, we observed 12 mothers with a 4–21-month-old infant during their daily activities for around 3 h per dyad, focusing on daily caregiving practices such as feeding, bathing, and soothing in the rural multiple-caregiver cultural contexts of the Andean and Amazonian parts of Peru. Overall, sensitivity levels were high, with an average of 7.33 (out of 9), and 7 out of the 12 mothers scoring in the high range (scores 7–9), and the remaining 5 in the good-enough range (scores 5–6). In-depth descriptions of mother–infant interactions show that these high sensitivity levels reflect mothers' ability to multitask, combining household and agricultural chores with high sensitive responsiveness to their infants' signals. The presence of multiple caregivers seemed to allow mothers to make sure the infants were well attended when they were temporarily unavailable but combined with quick renewed availability if the infant seemed to need maternal proximity.

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The rural areas in the Andean and Amazonian parts of Peru are characterized by high levels of poverty and harsh living circumstances as well as cultural marginalization, which have been shown to adversely affect maternal sensitivity in other communities (Mesman, Van IJzendoorn, & Bakermans-Kranenburg, 2012). However, findings from other regions cannot automatically be generalized to the cultural context of rural Peru, with its own patterns of family life and caregiving, in which observation studies of sensitivity have never been conducted. In addition, as shown recently, the manifestations of sensitive responsiveness may vary by culture (Mesman et al., 2017), and therefore requires detailed analysis in each “new” cultural context to understand whether and how sensitivity is expressed. The current study aims to provide such a detailed analysis of sensitive responsiveness in rural Andean and Amazonian mothers and their infants.

### *Rural Andean and Amazonian Peru*

The republic of Peru is a sovereign country located at the central-west of South America. The Andean mountain range divides the country in three physio-geographical regions:

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coast, highland, and forest. These physio-geographical differences go hand in hand with social–economical differences. Poverty rates are highest in the remote Andean highland and Amazonian forest rural areas (Instituto Nacional de Estadística e Informática, 2017a) that are inhabited by three quarters of the Peruvian indigenous population (Ribotta, 2008). These areas usually lack access to facilities and state government services, which is a legacy of the discriminatory practices as part of the European conquest denying such privileges to native Andean and Amazonian descendants as well as the Afro-Americans slaves' descendants (Anderson, 2016). About a third of the rural population do not have access to potable water, about 20% have no access to electrical power, over 80% cannot access drainage networks, and 31% uses fuel wood to cook (INEI, 2017b). These conditions extend to inadequate conditions during prenatal care, birth, and postnatal checkups, and children from rural areas in Peru are more likely to present low birth weight, respiratory infections, diarrheal diseases, anemia, and chronic malnutrition (INEI, 2017b).

### *Family life*

Like in other Latin American countries, familism – that refers to the support, loyalty, and commitment offered to family members, as outweighing individual needs – is an important element of family cultural conceptions in Peru (Coohey, 2001), with higher levels of emotional support and protectiveness than those in other cultures (Domenech, Donovanick, & Crowley, 2009; Harwood, Leyendecker, Carlson, Asencio, & Miller, 2002).

Given the often socioeconomically deprived nature of the living conditions in the Andean and Amazonian rural area in Peru, as well as environmental–geographical challenges (such as high altitude and harsh weather conditions), childrearing requires a substantial challenge in terms of time and energy investment (Hurtado et al., 2005). Similar to findings from rural areas with harsh living conditions in other countries (Larraín & Bascuñan, 2009; Pinherio, 2006; Rizzin, Fletes, Zamora, & Menezes, 2006; Save the Children, 2003), harsh parenting strategies such as beating and physical punishment were found to be higher in rural Peru than in urban Peru (INEI, 2017b).

The Andean area specifically is characterized by a vertical and inflexible relational system among families, in which children have to obey norms without discussion and submission and passivity in the children are valued (Gavilán et al., 2006; Panez, Silva, & Silva, 2000), which on the surface does not seem to be conducive to sensitive responsiveness to children's needs. In most Amazonian areas, infant care is exclusively a mother's work, and affection shown through physical contact is common toward infants (Surrallés, 2009).

### *The current study*

Even though studies on maternal sensitivity in non-Western communities are limited, recent scholarly work suggests that sensitivity can be found across cultures, including rural ones (Mesman et al., 2017). Nevertheless, the extent to which sensitive caregiving is practiced may vary between communities and cultures, depending on their specific circumstances (Mesman et al., 2012; Mesman, Van IJzendoorn, & Sagi-Schwartz, 2016). Rural versus urban living tends to be associated with lower sensitivity, often ascribed to

the generally harsher *circumstances* in rural areas that are associated with less favorable socioeconomic characteristics and therefore higher levels of stress in parents that are not conducive to child-centered caregiving (Mesman et al., 2012; Mesman, van IJzendoorn, et al., 2016). The current study aims to describe sensitivity in rural Andean and Amazonian mothers.

## Method

### Sample

A total of 12 mother–child dyads from 2 geographic regions in Peru participated, 6 from a rural Andean community in Tambillo District (Huamanga-Ayacucho) and 6 from a rural Amazonian community in Indiana District (Maynas-Loreto). Participants were recruited through contact with health promoters and local community leaders in their areas. Interested families were visited at home, and the aim of the study was explained in more detail. Only one mother, who first agreed to participate, decided to quit after this phase.

Children's average age was 9.42 months ( $SD = 5.09$ , range: 4–21), and 5 of the 12 infants were male. In one case, the focus child was the only child in the family; in all the other cases, it was the youngest child in the family (the second in six cases, the third in four cases, and the sixth in one case). In three cases, parents of the focus child were married, in seven cases, they were unmarried but residential partners, and in two cases, the mother was single. The mean age of mothers was 28.25 years ( $SD = 6.39$ , range: 19–42). Half of the mothers did not finish high school, and of those who did, two started vocational education but did not finish them, and in one case finished technical education. Fathers' average age was 33.08 year ( $SD = 7.09$ , range: 20–46). Five fathers did not finish high school, four finished high school, and three started vocational or university studies, one of them did not finish his studies.

### Observation procedure and coding

All filming was conducted mainly at the families' houses, taking into account that houses in the Andean area composed of two or three separate rooms with a common area that connects them. In some cases filming included following the focus infant and a caregiver out of the house and going to areas where the adults usually work the land. The instructions to the families were to do what they usually do at that time and try to ignore our presence. For each family, we conducted between four to six visits, in total yielding on average 3 h of video per dyad (range 2–4 h). All participants were informed of the purpose of the filming and provided informed consent (in writing or verbally). At the end of the last visit, they all received some basic food supplies as acknowledgment for their participation.

Maternal sensitivity and non-interference were both coded using the Ainsworth scale, as described in the Introduction to this special issue. Coding was done by the first author (who is from Peru) who was trained by the last author who is an expert coder of sensitivity and non-interference. The initial reliability set consisted of 10 naturalistic 15-min videos of mother–child interactions from another non-Western culture (subtitled), and intercoder reliability was .73 for sensitivity and .86 for non-interference

(intraclass correlation). Then, the total cases of the current study were rated independently by both the first and last author.

Camera-related behavior was also assessed (see Introduction to this special issue), but instead of using the scales that require specific tallying, only overall impressions were used because of the long duration of the videos.

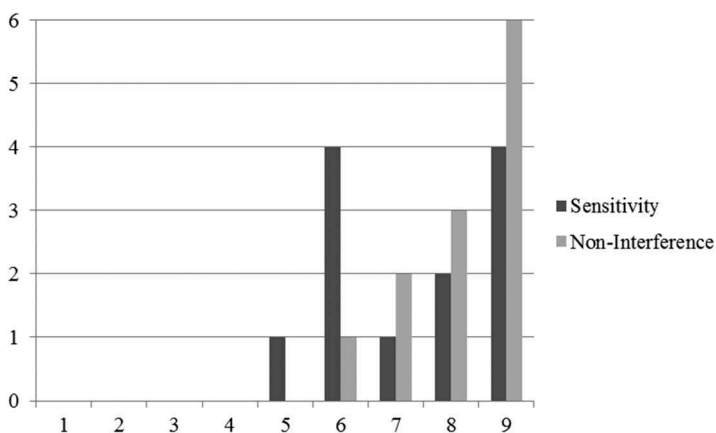
## Results

Only in very few cases and only very briefly, we observed mothers who were looking at the camera seeking for approval or wondering what to do. There were some rare nervous smiles but nothing more prominent. Most of the cases in which mothers were talking about being filmed took place because they were explaining to someone who just arrived what was going on. None of the mothers expressed insecurity about being filmed.

Figure 1 shows the mothers' scores for the sensitivity and non-interference scales. The overall average for sensitivity scale was 7.33 ( $SD = 1.50$ ) and for the non-interference scale 8.17 ( $SD = 1.03$ ). It is important to highlight that 7 out of the 12 mothers scored in the high range (scores 7–9) of sensitivity, and the remaining 5 in the good-enough range (scores 5–6). For non-interference, half of the mothers scored as not at all interfering, five of them as very rarely or rarely interfering, and only one as somewhat interfering. To illustrate these rather high levels of sensitivity, several detailed descriptions of representative scenes from the videos are presented below, highlighting various situations.

### Daily caregiving routines

Nine out of the 12 mothers bathed their infant during observation time. Bathing is sometimes a stressful situation for mothers and infants, but mothers in this sample generally allowed the infant to set the pace so that the infant did not get unnecessarily upset during bath time. For example, one mother in the Andean area consistently



**Figure 1.** Figure 1. Frequency of sensitivity and non-interference Scores (1 - highly insensitive/highly interfering, 9 – highly sensitive/not at all interfering)

responded to her infant's signals during bathing by putting the infant in the water when the infant reached over to the bath with her leg, dried her face when the infant scrunched her face to signal not liking water on her face, giving her toys or other objects when she reaches for them, and washing faster when the infant starts to struggle so that she can let her go as quickly as possible. The child-centered response patterns of the mother make the bathing experience a relaxed and positive routine activity.

Another important routine activity observed in all dyads was feeding time. In the case of mothers who were still breastfeeding their child, this was done on demand (which in itself reflects sensitive responsiveness). But similar child-led feeding was also observed in regular meals, with a lot of room for exploration by the infant and notable patience on the mothers' parts, waiting to give the child the next bite when the child was interested in eating again. Minor gestures toward the food or drink by the infant were typically sufficient for the mothers to promptly resume feeding.

### *Multitasking*

A very common characteristic of the most sensitive mothers in this study was multitasking ability. The earlier descriptions of mothers taking their time might give the impression that they simply did not have much else to do than watch their infants, but this was not the case. Housework, taking care of other children, selling in the store at home, going to work the land, and other tasks were part of the daily routine of this group of mothers. What is important to highlight is that all these simultaneous responsibilities did not or only minimally hinder the mothers in being sensitive in the interaction with their infants. One mother even managed to combine washing clothes in the river, and giving washing instructions to an older child with consistent sensitive responsiveness to her infant lying on a blanket next to her, offering a toy, fixing her clothes, and even breastfeeding her while still washing clothes.

All mothers observed had other tasks than taking care of the infant during at least part of the observations. In all of the Andean observations, we noted the use of the *lliclla* as an important tool that allows mothers to carry their infants while doing some other activity. Clearly, these were not mothers with plenty of free time. Nonetheless, they showed (highly) sensitive caregiving patterns.

One notable exception was a case from the Amazonian area where the mother was less adept at combining sensitive infant care with other responsibilities, even though she was very sensitive when no other tasks presented themselves. In this case, mother abruptly stopped her sensitive interactions with her infant and puts him in a playpen as soon as a customer came to the shop counter. In these instances, the infant immediately cried loudly but was ignored while mother helped the customer. When mother finished with the customer, she would immediately return to the infant and resume her sensitive interactions. This was a rare case in which other caregivers were almost completely absent in the two and a half-hours observation. It was primarily the mother alone with her infant son. This suggests the importance of having some "helpers at the nest" and the role that non-maternal caregivers performed in the daily-care activities of infants, especially when other tasks also need to be done.

## Network of caregivers

As mentioned, non-maternal caregivers were present in all cases, albeit more in some than in others. The shared caregiving was naturally handled by the majority of the families observed. Even when someone else was in charge of the infant care, it was as an implied rule that the mother would take over again whenever she was needed, which was observed several times in the videos. Counting on non-maternal caregivers allows mothers to be more sensitive when it is her turn to be with the infant, and it also allows the infant to have someone who is willing to attend to its signals when the mother is not available so that in effect the mother has arranged sensitive care for her infant in her absence. Even though we did not rate sensitivity of the non-maternal caregivers, the overall impression was that sensitive care was a widespread phenomenon among all caregivers. For example, we observed the interaction between an infant and its adolescent male cousin in the Andean sample. The cousin holds the baby sitting and standing outside for about 25 min while the mother is doing laundry. The cousin accommodates the infant's movements by repositioning, stands up and rocks the infant softly to soothe him, and walks some steps to show a dog to the infant to placate him successfully.

## Discussion

Observation studies on sensitivity are rare in non-Western community (Mesman & Emmen, 2013). Even though in Peru some studies have been carried out in the last years, almost all of them are with urban populations (Conde, Nóblega, Mendoza, Nuñez del Prado, & Bárrig, 2017; Nóblega, 2012). For this reason, despite the small number of participants, this study represents an important first step to understanding nature and context of sensitive caregiving in these rural communities. The analyses of the videos collected for this study showed that mothers from rural Andean and Amazonian areas in Peru appeared to be very comfortable being filmed, showing hardly any camera shyness, and almost all scored in the higher range of sensitivity scale.

These findings were surprising. High levels of sensitivity were not expected due to the relatively harsh economic conditions of these rural areas. A review of studies with ethnic minority families showed that these groups' sensitivity was generally lower than that of ethnic majority families, thought to be due to higher stress levels related to socio-economic disadvantage (Mesman et al., 2012). In addition, previous studies with Peruvian mothers had found quite low levels of sensitivity, especially mothers from low socioeconomic status (Conde et al., 2017). Furthermore, other studies have found evidence of predominantly authoritarian parenting styles among these communities, particularly in rural Andean areas, and relatively low levels of child development knowledge (Gavilán et al., 2006; Panes et al., 2000), which would also be expected to co-occur with lower levels of sensitive caregiving. Detailed analysis of the video materials suggested several reasons for the predominantly high levels of sensitivity which were observed in this sample, including a flexible approach to caregiving routines, the custom of carrying babies when busy with competing demands such as household work, and the presence of a network of caregivers.

First, flexibility during the caregiving routines could be an important element. As shown in the "Results" sections, these mothers were highly attuned to their infants pace

during these activities. The majority of them were able to respect and follow their infants signals while doing some daily care activities as bathing, feeding solid food, or breastfeeding their infants. It is also important to mention that the absence of fixed schedules and set places to perform those caregiving routines could make them more smooth situations; therefore, it could be easier for mothers to adjust their behavior to infant's demands.

Another important element that may be contributing to higher scores could be related to the proximity that the regular use of llicllas allows to Andean mothers, especially when dealing with competing demands. These blankets that mothers use to carry their babies in their back and that help them to keep the infant close while they are doing some other activities could improve the ability of the mother to be aware of infant signals. During the observations, all the mothers from the Andean area used the lliclla at least once and during that time children seem to be comfortable and calm and did not emit any signal, as if been that close to their mothers was good enough.

Third, an extended network of caregivers was present in the daily routines of these families. In this way, mothers were able to share the responsibility with some other adults and also children. The extended families and the support they bring in the rearing process of infants is a common characteristic in these communities (Bolton, 2010; MINEDU, 2002; Panez et al., 2000). As proposed by Terán (2015), the emotional and instrumental support that the network provides may be one of the elements that allow these mothers to be sensitive in the daily interaction with their infants and so to get high scores in sensitivity care scale. This information allows us to suggest that received sensitivity (Mesman, Minter, & Angnged, 2016) might be interesting to examine in these communities, due to the important presence of non-maternal caregiver and the frequent simultaneous multiple caregiver interactions.

The strengths of this study include the standardized coding and in-depth analysis of extensive observations of mother–infant interactions in cultural communities in rural Peru which have never before been included in video observation studies of parenting. Some limitations also need to be mentioned. The very small sample size limits the robustness of the quantitative results and precludes a reliable test of differences in sensitivity between the two communities. Further studies should aim to include larger samples from different regions to more fully understand the role of specific cultural practices in sensitive caregiving. Also, the participants represent a convenience sample and, due to the suspicion and mistrust common in these communities, the group of families who finally agreed to participated could be selective regarding a more positive attitude toward strangers and maybe even less insecurities about their parenting qualities.

In conclusion, this study's results allow us to query the expected outcomes related to mother's sensitivity from rural areas, which were supposed to be low. The surprising high scores undermine the argument that harsher conditions, low socioeconomic status, and stress in parents from rural areas entail less child-centered caregivers and consequently lower sensitivity. Some of the factors that seem to contribute to the unexpected results could be the flexibility in the daily routines interactions, the mothers' ability to multitask, the cultural practices of the use of lliclla to carry their infants, and the important network of caregivers. This is new and very important information related to rural Andean and Amazonian areas that are not usually part of this kind of studies. We



recognized the importance of continuing to incorporate non-Western samples that allow us to describe more properly their care interactions and to be able to approach to them to start some other interventions work.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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