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Maternal sensitivity in mother-infant interactions in Rio de Janeiro – Brazil

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ABSTRACT

This article reports on a study of maternal sensitivity in 22 primiparous women and their infants from Rio de Janeiro, Brazil. Two semi-structured interviews were conducted, as well as videotaped naturalistic home observations of the dyads. A K-means cluster analysis was performed to examine patterns of risk in relation to maternal sensitivity. The results reveal that compared to the 15 mothers with higher sensitivity scores, the 7 mothers with lower sensitivity scores were characterized by lower educational levels, lower income, lower age, living in a slum, unplanned and unwanted pregnancies, and later onset of prenatal care. Whether father was resident did not appear to distinguish between the lower and higher sensitivity groups. The article concludes that the patterns of social-contextual risk for Brazilian mothers showing less sensitive caregiving to their infants provide a clear direction for future research in this cultural context.

KEYWORDS

Maternal sensitivity; Brazil;
socioeconomic risk;
unplanned pregnancy

Rio de Janeiro city is the second largest municipality in Brazil with 6.3 million inhabitants. It is a tourist town, known for its natural beauty, including several beaches, mountains, and an urban forest. However, the city is also characterized by marked inequality, with wealthy neighborhoods coexisting with various slums (Instituto Brasileiro de Geografia e Estatística – IBGE (Brazilian Institute of Geography and Statistics), 2012). In the urban slum areas, many infants are born to young single mothers who did not plan to have the baby (Aquino et al., 2003). These circumstances are known to pose a risk for compromised quality of parenting (Levandowski, Piccinini, & Lopes, 2008; Melo & Schermann, 2012; Mesman, Van IJendoorn, & Bakermans-Kranenburg, 2012), but these associations between risk and parenting have rarely been researched outside of the Western world, and hardly ever in the Latin American context. The aim of the current study is to examine social-contextual risk factors in relation to maternal sensitivity in Rio de Janeiro.

In Brazil, the average national age for first pregnancy is 21 years and decreases to 19 years among women who have less than full elementary school (IBGE, 2015). Because

of its many urban slum areas, socioeconomic circumstances are less than ideal in large sections of the country's largest cities, including Rio de Janeiro (IBGE, 2010). Single motherhood is also very common in such areas, with 54.4% of women raising their infants without a resident father in urban areas in Brazil (IBGE, 2017). Further, because of limited access to birth control and the prohibition of abortion in the country, of Brazil's low-income urban population, many women experience unplanned and unwanted pregnancies (Leal & Gama, 2014). Relatedly, prenatal care is not always initiated early on in the pregnancy, which means that many new mothers do not receive the necessary advice on early pregnancy self-care (Viellas et al., 2014). Research in mostly Western urban contexts shows that mothers' parenting quality in general, and their sensitive responsiveness to their infants in particular can be negatively affected by the factors discussed above, including poverty, single parenthood, and teenage parenthood (e.g. Mesman et al., 2012), unplanned and unwanted pregnancies (Leal & Gama, 2014), and absence of early prenatal care (Viellas et al., 2014).

Regarding the parenting context of Brazil, caring for infants is mostly a mother's task, often shared with grandparents, nursery educators, or nannies when mothers reenter the labor market after 4 months of maternity leave (Pessôa, Seidl-de-Moura, Ramos, & Mendes, 2016; Seidl-de-Moura, Mendes, Pessôa, & Carvalho, 2012). Studies show that Brazilian parents tend to favor the autonomous-related socialization model that combines parenting goals and values of interpersonal closeness and individual development (Seidl-de-Moura, Carvalho, & Vieira, 2013). This is consistent with the notion of Family Change, that describes how traditionally non-Western childrearing patterns are mixed with more Western elements as cultures come into contact through migration, or in the case of Brazil through globalization processes, especially in urban areas (Kağıtçıbaşı, 2007, 2012).

The current study aims to investigate maternal sensitivity of mothers from low-to-middle socioeconomic backgrounds in Rio de Janeiro, in the first few months of their first infants' lives, taking into account salient social-contextual risk factors.

Method

Sample

Twenty-two women and their firstborn infants participated in this study. Pregnant women were invited to participate in this research during contacts at the public maternity hospital where they had their prenatal care. Criteria for participation included having a healthy pregnancy from the fourth month of gestation, pregnancy with their first child, and receiving low-risk prenatal care. Eligible mothers were explained the study goals (i.e. to follow and understand the interaction between mother and the baby from pregnancy until 2 months old), and those who agreed to participate were asked to read and sign the Informed Consent Form. The first interview was conducted in the hospital on the same day of the first contact with participants. Mothers were not compensated for their participation in the study, because in Brazil the supply of some type of gift or money to research participants is prohibited by the Ethics and Research Committees.

Mothers were 14–42 years old ($M = 26.73$; $SD = 7.91$), and 6 mothers (27%) were 21 years or younger at the time of the study. In six cases (27%), father was not living with the mother and the infant. Six mothers (27%) had not finished high school, 11 finished no more than high school (50%), and five completed higher education (23%). Eight out of 22 mothers were in the low-income bracket, the others were in the middle-income class. With regard to pregnancy, 17 were unplanned (77%) and 9 were unwanted (41%). Further, eight of the participants (36%) resided in poor areas or slums. Half the mothers (11) did not start prenatal care until after 12 weeks of pregnancy.

Observation procedure

The women who participated in the initial interview were followed by telephone contact. In the second interview, which occurred in the second month after the baby's birth, the dyads were visited at home by the researcher. Naturalistic mother–infant interaction was video recorded for 15 min. All observations were conducted by the first author, and mothers were instructed that during the recording the researcher would not interact or ask questions. Mothers were completely free to interact with the child in whatever way she desired, in whatever part of the house she desired. She was asked to try to forget she was being recorded and to interact with her son/daughter as she would do in their daily lives.

Video coding

In order to code the video, it was used the original Ainsworth Sensitivity scale and Camera-Related Behavior scales as described in the Introduction of this special issue. The first author was trained in the use of the Ainsworth Sensitivity and Camera-Related Behavior scales by the last author, who is an experienced coder and trainer. To establish intercoder reliability, both coded a set of 15 videos of mother–infant interaction, yielding intraclass correlations of .85 for sensitivity. Intraclass correlations were $>.80$ for each of the Camera-Related Behavior scales.

Results

Regarding camera-related behavior, 12 mothers (55%) never or rarely looked at the camera, 4 mothers looked at the camera 3–5 times, mostly briefly, and 6 mothers looked more than 5 times during the 15 min of observation time. Eight mothers talked once or twice about being filmed, often in response to the infant showing an interest in the camera, sometimes to inquire about the duration of the filming. Four mothers talked about the filming more than twice, in all cases they repeatedly asked the infant to smile at or talk to the camera. Only three women expressed insecurity about being filmed. These expressions all referred to questions about what they could or could not do while being filmed (generally about breastfeeding).

Regarding observations of sensitivity, the mean observed Ainsworth Sensitivity score was 6.59 ($SD = 1.59$). Only two mothers scored in the insensitive range (scores lower than 5). Using a sum of the camera-related behavior scales reflecting total

Table 1. Results of K-cluster analysis examining correlates of observed sensitivity.

	Cluster 1 (N = 7)	Cluster 2 (N = 15)
Sensitivity score (All variables below: 0 = no; 1 = yes)	5	7
Low education	0.57	0.13
Low income	0.57	0.27
Mother \leq 21 years	0.57	0.13
Nonresident father	0.29	0.27
Slum residence	0.43	0.33
Unplanned pregnancy	0.86	0.73
Unwanted pregnancy	0.57	0.33
Late start prenatal care	0.71	0.40

“camera-awareness”, we found no significant association with sensitivity ratings, $r(21) = -.06$, $p = .79$.

Because of the small sample size, we chose a K-means cluster analysis as a more descriptive analysis to describe patterns of risk factors in relation to sensitivity. The results are shown in Table 1 and reveal that compared to the 15 mothers with higher sensitivity scores (one with score 6, the others with scores 7–9), the 7 mothers with lower sensitivity scores (two with score 3, three with score 5, and two with score 6) were characterized by lower educational levels, lower income, lower age, living in a slum, and unplanned and unwanted pregnancies, and later onset of prenatal care. Whether father was resident did not appear to distinguish between the lower and higher sensitivity groups.

Discussion

This is a study based on naturalistic videotaped home observations of mother–infant interactions in Rio de Janeiro – Brazil, and provides an important addition to the literature on infant caregiving in non-Western contexts. Less sensitive mothers were characterized by lower educational levels, lower income, lower age, living in a slum, and unplanned and unwanted pregnancies, and later onset of prenatal care than more sensitive mothers. Mothers generally appeared quite comfortable with being videotaped, and mothers’ camera awareness was unrelated to her sensitivity scores.

Despite the at-risk nature of the sample, most mothers showed at least adequate sensitivity. One of the reasons for this finding might be that almost all mothers chose to have close physical contact with their babies, keeping them on their laps or cradling them in various positions for most of the recording. This is consistent with the more physical closeness between mothers and infants that is common in non-Western cultures (Keller, 2007) and which is likely to foster easy access and responsiveness to infant signals. Further, there is likely to have been some self-selection in the process of recruitment for the study, with mothers who are more aware of the importance of high-quality infant care being more likely to participate.

Less sensitive mothers differed from more sensitive mothers on several risk factors. The three factors relating to disadvantaged socioeconomic backgrounds (low education, low income, and slum residence) have been noted as key predictors of the quality of parenting in many studies (e.g. Kim, Capristano, & Congleton, 2016; Mesman et al., 2012). The Family

Stress Model (Conger & Donnellan, 2007) described how such risk factors relate to higher stress levels in parents, which in turn compromise family functioning in general, and parenting quality in particular. In addition, slum residence itself represents a host of problematic living circumstances characterized by limited access to proper facilities and a generally unsafe physical environment (Kuy, Shannon, Georgiades, & Boyle, 2013), all of which are likely to generate stress in its residents, especially those needing to take care of vulnerable infants. In an urban non-Western context such as that of Rio de Janeiro where large sections of the population live in poverty (in slums or in other deprived areas), such processes are particularly salient and important to investigate in more depth to understand the family consequences of such economic conditions.

Another important set of risk factors for less sensitive parenting was related to issues of planned parenthood. Over three-quarters of the participants were surprised by an unplanned pregnancy. About half of these mothers did report wanting to have the baby, but this leaves another half reporting explicitly that the baby was unwanted. Interestingly, there is very little research on the effect of unwanted pregnancies on the quality of parenting once the infant is born. This is probably due to mothers feeling reluctant to admit that their babies are or were unwanted, which makes this group difficult to reach and study. Indeed, it surprised us that a relatively large group of women ($9/22 = 41\%$) explicitly noted the pregnancy as being unwanted. The few studies that have investigated this phenomenon demonstrate that several factors are associated with an unintended pregnancy: a history of previous unintended pregnancy, the husband not wanting to limit family size, the desire for at least two children, (Hamdela, Gmariam, & Tilahun, 2012), concern about guilt feeling, the father's negative attitude towards the fetus, anxiety about the future of the child, including economic, social, and relational problems, a lack of maternal emotional support (Akbarzadeh, Yazdanpanahi, Zarshenas, & Sharif, 2016), maternal age (<20 years), having no partner, having no paid job, and alcohol abuse with risk of alcoholism (Theme-Filha et al., 2016)

A related issue to planned parenthood is that of prenatal care. Mothers showing lower levels of sensitivity in this sample started prenatal care arrangements later than those showing higher levels of sensitivity. This is likely to be intertwined with the unplanned/unwanted nature of the pregnancies, as well as some of the more deprived living circumstances in part of this sample. Unplanned pregnancies are likely to be discovered later, unwanted pregnancies may be "denied" before actually seeking appropriate prenatal care, and lack of easy access to facilities will also play a role in delayed care arrangements. Gipson, Koenig, and Hindin (2008) conducted a literature review about the effects of unintended pregnancy and also found an association between unintended pregnancy and delayed prenatal care.

The combination of economic and family-planning challenges in large portions of urban areas such as Rio de Janeiro points to the importance of studying the processes explaining their occurrence as well as their impact from a family perspective. Our study showed that unplanned and unwanted pregnancies were related to lower maternal sensitivity towards the infant, and there is evidence that such negative effects on the mother-child relationship can persist into adolescence (Barber, Axinn, & Thornton, 1999; Nelson & O'Brien, 2012). In addition, unintended pregnancies have been shown to predict parental relationship instability (Guzzo & Hayford, 2012), maternal depression (Suh, Ma, Dunaway, & Theall, 2016), and parenting stress (Claridge, 2017) which in turn are known risk factors for lower levels of sensitivity (Campbell, Matestic, Von

Stauffenberg, Mohan, & Kirchner, 2007; Goldstein, Diener, & Mangelsdorf, 1996; Leerkes & Crockenberg, 2002).

Thus, research specifically aimed at developing interventions with at-risk families regarding support for appropriate family planning is necessary for fostering sensitive parenting. It has been noted that simply improving access to family planning services is not always enough, as there are multiple complex reasons underlying unplanned pregnancies that also vary by country and region (Casterline & Sinding, 2000). Careful examination of context-specific obstacles to family planning (also known as “unmet needs for family planning”) is necessary to develop effective policies and interventions.

Although most mothers appeared to be quite comfortable with the camera, there were also some mothers who were clearly very aware of the camera, and either tried to have their infant “perform” in front of the camera, or expressing some insecurities about what they were allowed to do while being filmed. There was no particular sociodemographic profile that seemed to explain these individual differences between mothers’ camera awareness. More explicit instructions about ignoring the camera, being allowed to breastfeed, and the importance of observing the infants even when they were not smiling or vocalizing might reduce this awareness in future studies. Filming for a longer period of time to get mothers more used to the camera might also be effective.

The main limitation of the study is its small sample size. As such, the results need to be treated with caution. Nevertheless, the use of naturalistic home observations is a great asset of the study, given that these are rarely used in research on parenting in Brazil. The value of the findings of the present study lies in its potential as groundwork for future studies in larger samples, addressing the precise nature of the social-contextual risk factors that have been identified as relevant for the understanding of individual variations in mothers’ sensitivity toward their infants in a Latin American urban context. Such future studies can contribute to more robust knowledge on the mechanisms underlying the relation between parenting quality on the one hand and socioeconomic risk, planned parenthood issues on the other hand. This in turn can inform the development of (preventive) intervention programs aimed at fostering sensitive parenting, positive family functioning, and ultimately positive child development in urban Brazil and similar Latin-American locations. Broadening the literature to include such regions is crucial to a more culturally inclusive science of parenting and child development.

Disclosure statement

No potential conflict of interest was reported by the authors.

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