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Abstract

Mothers' beliefs about their practices in different Brazilian contexts were investigated in this study. A sample of 350 primiparous Brazilian mothers from seven cities, each from one of the five geographic regions of the country, participated in this study. As part of a major project, mothers answered an inventory concerning their beliefs about practices of child care and a sociodemographic questionnaire. Factorial analysis revealed three factors, named Proper Presentation (the importance mothers attribute to parental practices oriented by socially accepted daily rules), Stimulation (the importance attributed by mothers to practices that stimulate their children's development), and Responsiveness and Bonding (the importance attributed by mothers to the immediate responses to children's needs and to a bond of intense proximity and protection). The sample studied valued most Proper Presentation, followed by Stimulation. Less importance was attributed to Responsiveness and Bonding. Mothers' educational level was a predictor of scores on Stimulation, and fathers' educational level was a predictor of scores on Proper Presentation. Some regional differences were identified regarding Proper Presentation. A general model that encompasses aspects of socialization for group interaction and also cognitive and social stimulation seems to be shared by mothers of the different geographic regions of the country. This model is influenced by educational level and cultural conditions. Future studies need to address the development of instruments to analyze Brazilian parental cultural models and the implications of these models to children's development.

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Human development is generally conceived as a process influenced by sociocultural conditions (Cole, 1998; Harkness et al., 2007; Harkness & Super, 2005; Harkness, Super, Axia, Palacios, & Welles-Nyström, 2001; Keller, 2007; Keller, Demuth, & Yovsi, 2008; Valsiner, 1997). One important aspect of the developmental sociocultural context is the set of child-rearing beliefs. They are part of the context in which children develop and are related to the ways parents interpret and internalize the realities of their sociocultural group.

Considering human development as culturally and socially situated, it is important to understand the variety of contexts in which development takes place in different cultures. Although much has been done in this direction, literature on child development has been constructed based on data from a limited number of cultural groups (Dassen & Mishra, 2000). Data from Latin American contexts are still relatively scarce, including data from Brazil.

Although the importance to investigate beliefs about parental care is clear, not much has been done in this direction in Brazil. Based on international investigations and on the available literature, this study aims to investigate cultural models of Brazilian mothers concerning their beliefs about child-rearing practices. Brazil is the largest South American country, with a population of more than 184 millions inhabitants. Most of its population (83%) lives in urban centers. The country has a GINI index of 0.57,¹ indicating high concentration of income. According to the 2005 *Human Development Report* (published in 2007),² Brazil is a country of high human development (longevity, knowledge, and life quality), ranking 70th place (out of 177 countries with data), with a Human Development Index (HDI) of .80.³ The country hosts diverse historical and cultural backgrounds. According to a United Nations (2005) report, "Brazilian society is among the most culturally and racially diverse in the world" (p. 3). In contrast to most Latin American countries, Brazil was colonized by Portugal (and not by Spain) and later received groups of immigrants from all continents, which ended up interacting with one another in a diversified and plural society (Ribeiro, 1997). The country has diverse geographic regions characterized by different socioeconomic and cultural profiles. The general population shares the Portuguese influence, more specifically the influence of slavery across the country until 1888, and later a strong influence of Western and Eastern European and Asian immigrants. The country shares a weak federative organization, an ideological and political centralism, a strong centralizing government, beside the broad diffusion of communication media, especially television.

On the other hand, social differences can be identified in diverse regional realities, between urban and rural populations, and among different social classes. Nevertheless, since the end of the last century authors have been discussing a trajectory toward the predominance of an urban symbolic system, leading to some homogeneity of cultural models regarding parenting, despite the differences in concrete life conditions (Campos & Gomes, 1996). This may reflect on the set of parental child-rearing beliefs that constitute Brazilian children's "developmental niche." Studies to test this hypothesis are still needed.

Variations in Cultural Models of Parenting

According to Harkness and Super (2005), child-rearing beliefs and practices, or parental ethnotheories, are considered aspects of the "developmental niche." They are part of general cultural models, considered as sets of ideas organized and shared by members of a cultural group, generally implicit, taken for granted, and translated into practices (Cole, 1998; Harkness et al., 2001; Suizzo, 2002). General cultural models have been proposed and studied because of their impact

on socialization processes and on children's development; some major dimensions have been pointed out by different authors.

One of these models emphasizes the *independent* or *individualistic* dimension (i.e., the construction of the self as unique and distinct, with individual goals, valuing personal needs and rights) and has been identified as typical of urban postindustrial societies with high levels of education (Keller, Borke, Yovsi, Lohaus, & Jensen, 2005; Keller et al., 2004). A second model emphasizes the *interdependent* or *sociocentric* dimension (i.e., the self is constructed as basically connected to other members of the group to which the individual belongs) and is characteristic of rural environments based on a subsistence economy, in which group goals are predominant and the focus on social roles, duties, and obligations is emphasized (Keller et al., 2004, 2005). Besides these two models, Kagitçibasi (1996, 2005, 2007) considers two dimensions (Agency and Personal Distance) in the socialization process and proposes the development pathway of a self that is both autonomous (in terms of agency) and related (in terms of interpersonal distance), which has been denominated an *autonomous-related* (or relational) self. The author suggests that in traditional societies where a sociocentric model would be prevalent, education has an effect on parents' beliefs. For this author, educated middle-class families in these societies still have a tendency to present relational orientation toward social groups (especially the family), but they also value autonomy. Thus, Kagitçibasi (1996, 2005) suggests another possible trajectory in which the development of the self will go in the direction of autonomy and relation to others.

These cultural orientations represent cultural idealized priorities; other types of orientations or combinations among them may also occur (Keller et al., 2008). Whether we consider the dimensions of independence and interdependence as distinct or coexistent, it is important to know the functions they serve and the conditions that might change them. Sociodemographic conditions, such as educational level, seem to have a strong connection to parents' cultural models. Mothers' educational level, for instance, has been shown to be a good predictor of parental knowledge about child development, as well as a relevant variable in the developmental niche (Goodnow, 1988; Miller, Manhal, & Mee, 1991; Ribas, Seidl de Moura, & Bornstein, 2003; Seidl de Moura et al., 2004).

There are not many instruments developed by authors with a Latin cultural background to investigate parents' beliefs. Suizzo (2002) brings a contribution to the literature with her inventory designed to study the cultural model of Parisian parents. In her study, participants obtained a high score in two dimensions: Awakening (the importance of promoting different kinds of stimulation to their children in relation to social, linguistic, and cognitive development) and Proper Presentation (practices that prioritize children's good behavior and hygiene in public environments). A third dimension, Responding and Bonding (related to parents' responses to children's needs) was identified, but parents do not seem to significantly value it. It is reasonable to think that due to France and Brazil's similar Latin cultural backgrounds, Suizzo's instrument and model can be adopted to investigate Brazilian mothers' beliefs. Furthermore, this will allow a comparison between these two countries.

Brazilian Studies on Parental Values and Practices

Recently, Brazilian studies (Kobarg, 2006; Piovanotti, 2007; Ruela, 2006) were carried out to identify the importance attributed by caretakers to the beliefs' dimensions verified by Suizzo (2002). Kobarg (2006), for instance, investigated mothers' child-rearing beliefs in rural and urban contexts in Itajaí (South region of Brazil), whereas Piovanotti (2007) investigated the same dimensions in primiparous mothers from a Brazilian state capital (Florianópolis), located in the same region. The results revealed that mothers from rural and urban areas with low educational level most strongly value their babies' Proper Presentation in public, followed by the stimulation category (Awakening). However, mothers with an undergraduate level of education (complete or

incomplete) value significantly more child-rearing practices related to the Awakening dimension than these related to Proper Presentation.

Also using Suizzo's (2002) instrument, Ruela (2006) investigated a rural community in Rio de Janeiro (located in the Southeast of Brazil). The author reported that mothers value significantly more the dimension Proper Presentation than grandmothers, and the latter value more the dimension Responding and Bonding than mothers. The author suggests that these results indicate a predominance of a sociocentric orientation in the rural area, although differences between generations could indicate a transformation in the direction of an autonomous-relational orientation.

Biasoli-Alves (1997), in a study with different generations of mothers who were born along the 20th century, concludes that there had been deep changes in child-rearing beliefs during this period. These changes include the emergence of the concept of an "ideal child" and the valorization of autonomy and of new strategies of care, such as close supervision in a highly stimulating environment. However, Brazilian studies demonstrate that this set of beliefs seems to be adopted mainly by parents of high socioeconomic status and from urban contexts (Kobarg, 2006; Lordelo, Fonseca, & Araújo, 2000; Moinhos, Lordelo, & Seidl de Moura, 2007; Piovanotti, 2007).

Although the studies mentioned previously shed some light on the Brazilian parents' beliefs about practices and socialization goals, they are still limited. They have focused on specific geographic areas and contexts and included a reduced number of participants. Considering the size of the country, the size of its population, and the cultural diversity among the different geographic regions, it is important to study Brazilian mothers' beliefs about child-rearing practices more broadly than previous studies have done.

Studies about cultural variations on parental ethnotheories sometimes equate nationality to culture. Although this equivalence is not explicitly made, the samples are usually from one city or particular region, and the results are often reported as manifestations of a national culture. Because the concept of culture includes material, linguistic, and customs elements (Cole, 1998), studies that aim to capture a cultural dimension should consider the inherent variability in any population. Although not constituting a representative sample of the Brazilian population, the participants in this study are from seven cities, each from one of the five geographic regions of the country (all of them are state capitals). We believe that this will contribute to a more accurate characterization of Brazilian mothers' beliefs about child-rearing practices.

The cities included in the study are: Belém (north region), João Pessoa and Salvador (northeast region), Campo Grande (central-western region), Rio de Janeiro (southeast region), Florianópolis, and Porto Alegre (south region). Each of the cities shares some general characteristics with the country's population, but has specificities to be considered. Belém, for instance, is located in the Amazon region and, among the cities selected, is the one that has more influence from the indigenous populations in Brazil (in terms of their food, traditions, and some customs). João Pessoa is in the coast of the northeast region, and it is one of the poorest capitals in Brazil. Salvador is a city with strong influence of African descendents (slaves who lived there until the 19th century). Rio de Janeiro is a cosmopolitan city (the second in the country in terms of population size) and receives immigrants from several states, especially from the northeast. Finally, Florianópolis and Porto Alegre (both in the south region) had a deep influence of the European colonization (mostly immigrants from German and Italy).

The aim of this study is to investigate Brazilian mothers' beliefs about child-rearing practices and the impact of different geographic areas of the country where they live on these beliefs. Specific goals of the study are to: report on the adaptation process of Suizzo's (2002) instrument, identify beliefs' dimensions in Brazil, and analyze the sociodemographic variables that predict these dimensions.

Based on both international and Brazilian literature, we hypothesize that a structure that encompasses aspects of a cultural model of parental beliefs related to socialization for group interactions and of a model that emphasizes cognitive and social stimulation will be identified in the group of

Table 1. Some Demographic Characteristics of the Participants' Cities

City	Number of inhabitants ^a	Index of Human Development	GNP per capita ^b
Belém (B)	1,405,871	.806	2,434
Campo Grande (CG)	749,768	.814	2,992
Florianópolis (F)	406,564	.881	4,960
João Pessoa (JP)	660,798	.783	2,755
Porto Alegre (PA)	1,428,696	.865	4,744
Rio de Janeiro (RJ)	6,094,183	.842	5,114
Salvador (S)	2,673,560	.805	2,102

a. Expressed in U.S. dollars.

b. Source: IBGE (Brazilian Institute of Geography and Statistics). All populations are estimates of September 1, 2006, obtained at <http://www.ibge.gov.br/cidadesat/>.

Brazilian mothers. We also hypothesize that mothers' educational level will be a predictive variable for these models. Lower educational levels will be associated to a structure of beliefs that emphasizes dimensions that reflect a concern with social norms or rules of behavior. Higher levels of education will be associated to a structure of beliefs that emphasizes dimensions that reflect a concern with the child as an individual with his or her own potential to be developed. We make no predictions regarding the differences among mothers in different cities, as there are no previous broad comparative studies in the country.

Method

Participants

Participants in the study were 350 primiparous Brazilian mothers aged between 18 and 47 years old ($M = 26.6$, $SD = 6.2$), with children aged less than 3 years old ($M = 16.4$ months, $SD = 11.27$ months), distributed in seven subgroups ($N = 50$ in each group), from cities representing the five geographic regions of the country: Belém (B), João Pessoa (JP), Salvador (S), Campo Grande (CG), Rio de Janeiro (RJ), Florianópolis (F), and Porto Alegre (PA). The cities vary in population size, HDI, and GNP per capita.⁴ To identify differences related to the context, we have attempted to balance the sample characteristics in terms of the participants' educational and economic levels. Data from these cities are presented in Table 1, and the sociodemographic characteristics of the sample can be seen in Table 2.

Table 2 shows that mothers' educational level varied from *incomplete elementary school* (1) to *complete graduate studies* (7): 14.3% of mothers have a complete or incomplete elementary school level, 42.7% of them have a complete or incomplete secondary level, and 43% of them have a complete or incomplete undergraduate level. Most of the participants (81%) lived with the baby's father at the time of the study.

Mothers were recruited through schools, teachers, hospitals, pediatricians, and neighbors' indications; some of them were acquaintances of the research assistants. Mothers who took part in the study were also asked to indicate other families they knew to participate in it. As part of a larger study, participants were interviewed individually at their homes or in the institutions where they were recruited by members of the research group in each city.

Instruments

Inventory of Sociodemographic Data. An inventory of sociodemographic data was administered to gather basic data, such as: mother's age, father's age, mother and father's educational level,

Table 2. Sample's Characterization According to Sociodemographic Data

	Total		B		CG		F		JP		PA		RJ		S	
	Median	SD														
Mothers' age	26.6	6.2	25.3	5.4	25.8	6.2	27.2	6.6	27.5	5.7	28.1	6.1	27.2	6.4	26.7	6.4
Mothers' educational level	4.35	1.7	3.8	1.3	4.5	1.9	4.5	1.6	4.2	1.8	4.4	1.7	4.5	1.7	4.3	1.6
Fathers' age	30.4	7.5	29.8	7.9	30.7	8.2	30.0	6.3	28.5	6.1	31.8	7.0	31.0	7.0	31.0	9.3
Fathers' educational level	4.0	1.7	3.7	1.3	3.9	1.9	4.3	1.3	3.7	1.8	4.2	1.7	4.3	1.7	4.2	1.7
Babies' age (months)	16.4	11.3	15.1	10.8	15.5	10.9	18.0	10.5	17.4	11.6	16.4	10.9	16.3	12.0	16.5	12.3

Note: The cities are represented by letters, as follows: B = Belém; CG = Campo Grande; F = Florianópolis; JP = João Pessoa; PA = Porto Alegre; RJ = Rio de Janeiro; S = Salvador.

baby's sex and age. Mother's educational level was measured in a scale with 7 points, from *incomplete elementary school* (1) to *graduate studies* (7).

Beliefs and Ideas About Infants and Young Children. One adapted version of Suizzo's (2002) instrument, Beliefs and Ideas About Infants and Young Children, was employed in the study. The original instrument has 50 items, 25 related to babies younger than 1 year old and 25 related to infants between 1 and 3 years old. For each item, the mother is asked to rate the level of importance attributed to the practice using a 6-point Likert scale (0 = *disagree*, 1 = *without importance*, 2 = *of little importance*, 3 = *of average importance*, 4 = *very important*, and 5 = *extremely important*). The mother is asked to answer according to what she thinks and not according to what she does with her child.

Studying Parisian parents' cultural models, Suizzo (2002) performed a factorial analysis in the 50 original items and identified four dimensions, which can be related to different domains: (a) awaking and exposing the child to diverse stimuli, (b) ensuring the proper presentation of the child, (c) responding to and bonding with the child, and (d) toughening the child through harsh control. This last component had a low reliability and was discarded by the author.

To explore the different cultural models of Brazilian mothers, in this study we decided to use the 50 original items proposed by Suizzo (2002). This decision was based on the interest to compare the results with those obtained by the author in her original research, looking for commonalities and cultural differences. Each item was translated into Portuguese and submitted to a back-translation. The items' wording was reviewed by the different authors in order to adapt it to expressions that may vary across the Brazilian regions. The initial version was presented to mothers from the different regions to verify their understanding of the items. Some of the items had to be rewritten because they were either not easily understood by the mothers or they were misleading.

Data Analysis

Initially, the seven samples were compared on the sociodemographic variables to verify possible significant differences among them using univariate variance analyses (ANOVAs). To identify the dimensions' structure of the questionnaire, a main components factorial analysis of the 50 items of the scale was performed. The criteria used to decide on the number of factors were (Dancey & Reidy, 2006; Suizzo, 2002): (a) eigenvalue greater than 1, (b) the Catell's Scree plot test, and (c) the theoretical interpretation. Overall, 16 factors presented eigenvalue greater than 1, although only 5 of them were suggested by the Scree plot test as the factors that significantly explained the variance. Out of these 5 factors, the first 3 presented significant theoretical dimensions.

Because the correlation between the factors was not high, a varimax rotation with principal axis factoring was performed. Only items with factorial loadings equal or higher than .3 and the ones related to only one factor were considered (Dancey & Reidy, 2006). According to these criteria, 17 of the 50 items were excluded. Another varimax rotation was performed using the 33 remaining items to ensure less interference of the excluded items in the factors' internal consistency. Finally, means and internal consistency (Cronbach's alphas) of the items grouped in the same factor were calculated.

A two-step analysis of the influence of the sociodemographic variables and of the mothers' city of residence in the beliefs' dimensions was performed. First, a Pearson product-moment correlation matrix of all the variables of interest was performed. Second, to determine more precisely the role of the explaining variables in each of the beliefs' dimensions, stepwise multiple regression analyses were performed. These analyses were performed into two steps: (a) In the first model, only the sociodemographic variables were included (e.g., mother's educational level and age), and (b) in the second model, besides the sociodemographic variables, the mother's city of residence was included as a possible explaining variable.

Results

Comparative Analysis of Mothers' Sociodemographic Characteristics

Univariate analyses revealed no significant differences in relation to the different variables: mother's age, $F(6, 343) = 1.32, p = .25$; mother's educational level: $F(6, 343) = 0.98, p = .44$; father's age: $F(6, 343) = 1.04, p = .4$; father's educational level: $F(6, 343) = 1.02, p = .41$; and baby's age: $F(6, 343) = 0.39, p = .88$. As expected, because of the balancing in the sample, the results indicate that the subgroups of mothers from different cities did not differ in the sociodemographic variables investigated.

Belief Dimensions About Care Practices

In relation to the last rotation performed, three factors were identified, since all indices have shown satisfactory internal consistency. The first factor, named Exposing the Child to Diverse Stimulation (Stimulation), is composed by 12 items ($\alpha = .70$). The second factor, named Ensuring the Proper Presentation of the Child (Proper Presentation), is composed by 10 items ($\alpha = .70$). The last factor, Responsiveness and Bonding, is constituted by 5 items ($\alpha = .60$).

The results obtained in the last factorial analysis are presented in Table 3. Of the 33 original items, 27 remained. Means and standard deviations for mothers' scores in each item are also presented in the table. The higher the score the more importance mothers attributed to the item.

The results of the present study are in the same direction of those found in Suizzo's (2002) study, although some items were excluded and others were regrouped into different dimensions in the Brazilian version. For instance, the dimension Stimulation, originally composed by 16 items, was reduced to 12 items in the Brazilian version of the instrument. Of the items, 3 did not present adequate factor loading on any of the three factors, and 1 item was transferred to another dimension. The majority of the items grouped in the Stimulation dimension in Brazil are related to practices of parents who expose the child to varied play situations (in group, alone, with children of the opposite sex, of other social classes and cultures, and with different toys) and to practices that emphasize cognitive stimulation, such as talking, reading stories, and paying attention to objects. The items excluded from this dimension ("Encouraging one's child to develop his/her own tastes and pleasures," "Ensuring that father and mother equally participate in the caring for their baby," "Having one child's taste everything," and "Massaging one's baby") do not seem to represent Brazilian mothers' practices that expose children to stimuli directly related to their development, especially in the cognitive realm.

In relation to Proper Presentation, the factorial analysis of the Brazilian sample indicated a different configuration in comparison to the Parisian parents in Suizzo's (2002) study: Two items were excluded and four items were included. The items "Having one's baby sleep according to schedule" and "Not showing one's child when you are sad" were probably excluded because they are not directly related to Brazilian mothers' daily routines with the child. The items included were: "Preparing homemade soups for one's baby," "Intervening to resolve a conflict between one's child and another of the same age," "Massaging one's baby," and "Putting one's child on the potty as soon as he/she can sit up alone."

Hence, it appears that the dimension Proper Presentation for Brazilian mothers involves questions of physical well-being or primary care (hygiene, nutrition, and protection) and practices that encourage the child's good manners in public. Although primary care practices can be applied mainly in private context, they can be related to proper presentation. In the Brazilian social context it seems to be desirable to have a child with proper demeanor, good health, and high standards of hygiene. Parents are probably well accepted by the community when they show practices and values related to these characteristics.

Table 3. Summary of Factor Loadings for Varimax Principal Axis Factoring for the 33 Items and Mean Importance Scores of Respondents ($N = 350$)

Item	Factor loading				
	<i>M</i>	<i>SD</i>	1	2	3
1. Encouraging one's child to play in groups	4.45	0.79	.579		
2. Having one's baby play with others of his/her same age	4.35	0.84	.552		
3. Teaching one's child to share his/her toys with others	4.65	0.53	.510		
4. Drawing one's baby's attention to people	4.37	0.84	.505		
5. Reading stories to one's child	4.46	0.76	.499		
6. Attracting one's baby's attention to objects	4.44	0.69	.458		
7. Talking a lot with one's child	4.83	0.38	.415		
8. Encouraging one's child to play alone	2.65	1.67	.392		
9. Encouraging one's child to play with others of different social classes	3.72	1.14	.388		
10. Giving toys to one's baby to waken his/her senses	4.76	0.57	.386		
11. Having one's child play with toys for girls and boys, regardless of his/her own sex	2.72	1.50	.374		
12. Encouraging one's child to play with others of different cultures	3.37	1.22	.360		
13. Putting one's child on the potty as soon as he/she can sit up alone	3.62	1.48		.569	
14. Teaching one's child to say "hello" and "thank you"	4.72	0.56		.541	
15. Teaching one's child to be quiet (tranquil) in public	4.70	0.59		.520	
16. Washing one's baby every day	4.74	0.54		.496	
17. Preparing homemade soups for one's baby	4.42	0.78		.469	
18. Preventing one's baby from putting dirty things in his/her mouth	4.27	1.07		.434	
19. Intervening to resolve a conflict between one's child and another of the same age	3.35	1.35		.431	
20. Changing one's baby diapers before letting him/her fall asleep	4.62	0.70		.422	
21. Not letting one's child see his/her parents quarrel	4.63	0.79		.382	
22. Massaging one's baby	3.98	0.92		.328	
23. Picking up one's baby as soon as he/she starts crying	3.02	1.48			.660
24. Holding one's baby near you a lot	1.89	1.50			.626
25. Never hitting one's child	2.67	1.79			.383
26. Being indulgent with one's child	3.24	1.52			.347
27. Establishing a close and intimate bond between baby and his/her mother	4.10	1.09			.315

Note: Factor 1: Stimulation; Factor 2: Proper Presentation; Factor 3: Responsiveness and Bonding.

Finally, the dimension Responsiveness had four items in the Brazilian version, five less than in the original version. The items excluded were: "Not becoming a slave to one's baby," "Not letting one's baby become too dependent on his/her mother," "Never raising one's voice when angry with one's child," and "Letting one's baby cry a little before picking him/her up (if he/she is neither hungry nor ill)." It appears that these items, despite being related to the immediate response to the child's demands and to the development of a strong bond between mother and child, had problems concerning the negative expression used in the beginning of the sentence, which may have created difficulties for the Brazilian mothers to understand and assess their importance. In addition, mothers may have understood that these sentences suggest an overprotective or negligent relationship.

Beliefs About the Most and Least Valued Child Care Practices

Means and standard deviations were calculated to examine the degree of importance attributed to the practices referred to each of the three dimensions described previously. For the dimension Proper Presentation, the mean was 4.3 ($SD = .47$), indicating that mothers attribute high importance to parental practices oriented by socially accepted daily rules, such as fostering good behavior and cleanliness. In total, 70% of the items had means higher than 4 (varying from *very important* to *extremely important*). These items are basically related to health and physical care, as well as to practices related to teaching social rules. The three items with highest value were "Washing one's baby every day," "Teaching one's child to say 'hello' and 'thank you,'" and "Teaching one's child to be quiet (tranquil) in public," respectively. No item of this dimension received scores below 3 in the scale. Thus, none of them was assessed as unimportant or of little importance.

For the Stimulation dimension, the mean was 4.0 ($SD = .47$), indicating that mothers also attribute high importance to the child exposure to different stimuli, including opportunities for group and dyadic interactions, and the use of toys and language. In total, 67% of the items had means higher than 4. These items are related to the stimulation of the child mainly in the physical and social realms. The three items with the highest scores were "Talking a lot with one's child," "Giving toys to one's baby to waken his/her senses," and "Teaching one's child to share his/her toys with others." Two items obtained means below 3: "Having one's child play with toys for girls and boys, regardless of his/her own sex" and "Encouraging one's child to play alone."

Finally, the dimension Responsiveness has the lowest means ($M = 3.0$, $SD = .92$). Only the item "Establishing a close and intimate bond between baby and his/her mother" obtained a mean higher than 4 in the scale, while two items' means were below 3: "Picking up one's baby as soon as he/she starts crying" and "Never hitting one's child."

To verify whether the means obtained in the three dimensions were significantly different, analysis of variance for repeated measures was carried out. The Greenhouse-Geisser test revealed significant differences between the means, $F(1, 65) = 471.64$, $p < .001$, and post hoc comparisons confirmed the order of the dimensions in terms of the degree of importance attributed by the mothers: Proper Presentation, Stimulation, and Responsiveness.

Sociodemographic Variables, City Differences, and Belief Dimensions

The correlation coefficients obtained indicated that the three dimensions are positively correlated, with higher correlations between the dimensions of Stimulation and Responsiveness. Significant results were found between some of the sociodemographic variables and the beliefs' dimensions. For instance, Stimulation presented a significant positive correlation to mother's age ($r = .27$, $p < .05$) and educational level ($r = .47$, $p < .05$) and between father's age ($r = .14$, $p < .05$) and educational level ($r = .40$, $p < .05$). The older the mother and the father, and the higher their level of education, the more importance mothers attributed to practices that stimulate their children. The inverse is observed regarding Proper Presentation: Significant negative correlation coefficients were observed in relation to mother's educational level ($r = -.16$, $p < .05$), father's educational level ($r = -.13$, $p < .05$), mother's age ($r = -.14$, $p < .05$), and father's age ($r = -.13$, $p < .05$). Finally, Responsiveness was positively correlated to mother's educational level ($r = -.16$, $p < .05$).

The multiple regression analysis without including the cities confirmed the results indicated in the correlation matrix (Table 4). The model of regression for Stimulation was the one with the highest index of explained variance (22%), and the variables mother and father's educational level were the main ones responsible for this result, positively associated to the dimension. However, because of the high colinearity between the variables mother and father's educational level,

Table 4. Regression Analysis Related to the Three Factors With Different Sociodemographic Variables

Dependent variables	Intercept	SE	Mothers' educational level	Fathers' educational level	F	R ²
Stimulation	3.46***	.06	.01***		90.29***	.20
Proper Presentation	4.51***	.07		-.05**	12.27**	.03
Responsiveness	2.71***	.13	.06*		4.84*	.01

* $p < .05$. ** $p < .01$. *** $p < .001$.

we decide to base our analysis on the results from the first model, in which only mother's educational level was included. In this model, the explained variance rate dropped to 20%.

For the Proper Presentation model, the set of variables explained less than 4% of the variance, and father's educational level was the only predictor included in the regression equation, in the opposite direction: The lower the father's educational level, the higher the score in Proper Presentation. The model for Responsiveness was the least correlated to sociodemographic variables, which explained less than 2% of the variance. As it was observed with Stimulation, the scores in this dimension are mainly influenced by the maternal level of education.

Regression analyses were performed including the variable mother's city of origin for each dimension. In the models for Stimulation, the inclusion of this variable did not alter the results found previously, regarding the strong influence of parental education. Thus, there were no significant differences among the groups of mothers from the seven cities studied.

Considering Proper Presentation in the models in which the variable maternal residence was included, significant results were found for two cities. In the first case, $F(1, 348) = 18.42, p < .001$, the explained variance was of 10%, and the variable living in Belém was significant and positively associated to parental beliefs about child's presentation practices ($\beta = .341, p < .001$). In relation to the second case, $F(1, 348) = 5.28, p < .05$, the explained variance was of only 4.3%, and the variable living in Porto Alegre was negatively associated to presentation practices ($\beta = -.165, p < .05$). The models for the Responsiveness and Bonding dimension remained not significant after the inclusion of the variable mother's city of origin.

Discussion and Conclusions

The present study has the advantage of having been conducted with mothers from cities representing the five geographic regions in Brazil. Nonetheless, it has limitations that should be taken into account when considering its results. First, the sample is not representative of the Brazilian population of mothers with children in this age range (younger than 3 years old), even though we had attempted to capture some of the country's diversity. Second, although the cities have different demographic characteristics, the groups studied do not differ much in the sociodemographic variables considered. Only mothers living in cities were studied, and all the cities were state capitals. This may result in a population with common influences, which could mask possible regional differences. Finally, the instrument adopted, although based on the interest in cross-cultural comparisons, may have brought some restriction to the full exploration of Brazilian mothers' beliefs about child-rearing practices, as it may not have captured all the possible dimensions of this subject. Other dimensions may have been identified with different instruments or data collection methods.

The results of this study confirmed some of the results from Brazilian studies previously conducted in cities from only two regions (south and southeast). In the present study, as well as in

the previous Brazilian studies (Kobarg, 2006; Piovanotti, 2007; Ruela, 2006), the most valued dimension was the adequate presentation of the child in public (Proper Presentation), followed in order of importance by the child's exposure to varied stimuli (Stimulation). In general, these results appear to indicate that there is some homogeneity in the beliefs valued by Brazilian mothers. However, the results differ from the ones in Suizzo's (2002) study, in which Parisian mothers valued more Stimulation than Proper Presentation. We can say that in general, this group of Brazilian mothers values most the appropriate presentation of the child to others, but they also give great importance to providing their child with stimulating opportunities.

As explained in the Results section, some items constructed by Suizzo (2002) did not show factor loadings in the dimensions identified in the Brazilian version of the instrument, and other items were regrouped into different dimensions. Although the same dimensions were found, some of the items do not seem to have the same meaning for Brazilian and Parisian mothers. Another important point refers to the absence, among the Brazilian mothers, of answers in the dimension Discipline. Suizzo found this dimension in her study, but the rates of internal consistency were unsatisfactory. One possibility to explain both French and Brazilian results is that practices of Discipline may not be well established in the age range assessed by the instrument (0 to 3 years old). At this developmental stage, parental practices may be more focused on care than discipline. Hence, the dimension Proper Presentation may be related to discipline, but only when children are older.

Although this study had been conducted with mothers who live in state capitals, it is possible that other variables (e.g., the sociocultural context), besides those related to the environment and to the economy, become conditions for the emergence of specific parental cultural models. For example, the variable city of origin had a significant effect on the Proper Presentation dimension, which was the dimension most valued by Brazilian mothers. However, no significant differences were found on the sociodemographic variables among mothers from the seven cities studied. Hence, this difference cannot be explained by sociodemographic differences among the groups studied. It is possible to suggest that the greater importance attributed to Proper Presentation dimension by mothers from Belém and the lower valorization of this dimension by mothers from Porto Alegre are related to specific cultural aspects of these regions.

As discussed previously, Belém is located in the north of Brazil and is a city with stronger influence of the indigenous culture than the others included in the study. Although the indigenous culture is not homogeneous, a sociocentric orientation can be generally identified. Children are carried by mothers until around 2 years old and are reared to identify themselves as members of a group (i.e., Parakanan) and not as separate selves (Gosso, 2005). Porto Alegre, in contrast, is located in the South region and is a city with great influence of European colonization (mostly German and Italian), which could foster a more individualistic orientation. This may explain, at least partially, the results described previously. In addition, other factors can be considered. For instance, one could think that the difference between these two cities can be explained by their GNP indices, since Belém has a lower GNP per capita than Porto Alegre. However, the economic status does not seem to explain the difference in the valorization of the Proper Presentation dimension because this result was not observed in cities with lower economic status. Thus, new studies need to be done to explain the results obtained in these two cities, further exploring the differences in their cultural background.

Stimulation was considered important by Brazilian mothers. This was also observed in Suizzo's (2002) study. It is important to emphasize that the idea of stimulation is not restricted to cognitive stimulation: Mothers seem to value social development, teaching their children to share their toys, encouraging them to play in groups, and drawing their attention to people. The item with the highest mean in this factor (and in general), for instance, is "Talking a lot to one's child." The same result was observed by Suizzo. This practice can stimulate the child's cognitive and social

development, but it is also important for bonding and emotional development. Further studies should explore the extent to which this practice may be differently valued among Brazilian mothers.

The importance attributed to stimulation is influenced by the mother's educational level, confirming one of the hypotheses of the present study. Mothers with a high educational level stress more the importance of stimulation than those with lower educational levels. Studies show that there is relationship between educational level and the emphasis on dimensions related to the development of autonomy and of individual potential (Kobarg, 2006; Piovanotti, 2007). Educational level was also shown to be related to parental knowledge about child development and, by consequence, is considered a relevant variable in the developmental niche (Goodnow, 1988; Miller et al., 1991; Ribas et al., 2003; Seidl de Moura et al., 2004). The access to university is still not universal in the Brazilian society, and those who have this opportunity are considered to be a privileged group. Mothers with university educational level may have been more exposed to books about child development and to have contact with specialists. It should be said, however, that mothers from all levels of education considered stimulation highly important, above the median point in the scale.

It may be the case that the emphasis on Stimulation is a characteristic of urban mothers in general, but with influence of the educational level. Hence, the tendency of a change in parental beliefs and practices pointed out by Biasoli-Alves (1997) in the direction of a close supervision in a stimulating environment may not describe parents from all Brazilian contexts. Mothers from rural contexts and with lower educational levels, for instance, may give less importance to this kind of practices. The considerations of Biasoli-Alves (2002) regarding the importance attributed by Brazilian parents (since the second half of the last century) to children's free expression may help to understand the present results related to Proper Presentation, although only father's educational level was predictive of scores in this dimension. Because parents with higher educational level value practices that expose children to diverse stimulating situations, they may believe that asking them for good behavior in public may restrict the freedom necessary to explore the environment.

The present result supports an extended literature that shows that mother's educational level is an important variable in the study of parental beliefs. In Brazil, studies show that between the years of 1991 and 2000 there was an increase of 17% in the population older than 25 years old with university education (undergraduate or graduate level; IBGE, 2000), whereas from 1940 and 2000 there was an increase of 45% in the population who could read and write (IBGE, 2007). The increase in educational levels is considered a factor that exerts a great influence in organizing people's daily activities. This factor is also considered to have an effect on the way parents raise and educate their children (Biasoli-Alves, 2002).

Although there are some differences in Brazilian mothers' beliefs in relation to child-rearing practices, it is possible to identify a cultural model shared by mothers in different regions of the country. One of the features of this model is a greater emphasis on the appropriate presentation of the child in public than in stimulating the child, although mothers seem to value both dimensions. Other studies conducted in different Brazilian regions and contexts (rural and urban) showed similar results (Kobarg, 2006; Piovanotti, 2007; Ruela, 2006). However, there are specific aspects of Brazilian mothers' parental beliefs that are modulated by educational level and cultural aspects.

Future studies should include groups from rural contexts and investigate the implications of the different cultural models of parenting to children's development. The relationship between beliefs about practices and parents' actual behaviors should be the focus of future Brazilian studies. This could be done through observational studies and/or the use of interviews and instruments that allow the characterization of families' routines. In addition, it is necessary to develop specific instruments to evaluate beliefs and child-rearing practices in the Brazilian context and to

explore parents' understanding of different practices included in the instruments used in cross-cultural investigations.

Finally, some theoretical discussion is necessary regarding the relationship between the dimensions and the different cultural models. Can the dimension Proper Presentation be associated to the interdependent and sociocentric model? And could the dimension Stimulation be related to independent and autonomous models? In other words, is it possible to state that stimulation is associated to an emphasis on individual separation and autonomy?

One last question refers to one of the main findings in the present study. It has been found that Brazilian mothers believe that proper presentation and stimulation are important for child rearing. It is necessary to understand whether this result confirms recent studies (Keller et al., 2008) that show the importance attributed by parents to autonomy and to interpersonal relatedness, and if both domains can coexist in the same context.

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Notes

1. The GINI Index indicates the degree of inequality in the country. It varies from 0 to 1, with 0 corresponding to perfect equality (everyone having exactly the same income) and 1 corresponding to perfect inequality (where one person has all the income, while everyone else has zero income).
2. Available from <http://hdr.undp.org/en/statistics/>.
3. The HDI is a composite measure of human development that involves three dimensions: living a long and healthy life (measured by life expectancy), being educated (measured by adult literacy and enrollment at the primary, secondary, and tertiary level), and having a decent standard of living (measured by purchasing power parity – PPP – income).
4. All populations are estimates of September 1, 2006, available at <http://www.ibge.gov.br/cidadesat/>.

References

- Biasoli-Alves, Z. M. M. (1997). Famílias Brasileiras do século XX: Os valores e as práticas de educação [Brazilian families in the 20th century: Educational values and practices]. *Temas de Psicologia, Ribeirão Preto, 2*(4), 33-49.
- Biasoli-Alves, Z. M. M. (2002). A questão da disciplina na prática de educação da criança, no Brasil, ao longo do século XX [The question of discipline in child education practices in Brazil throughout the 20th century]. *Veritati, 2*, 243-259.
- Campos, M. M., & Gomes, J. V. (1996). Brazilian children: Images, conceptions, projects. In C. P. Hwang, M. E. Lamb, & I. E. Sigel (Eds.), *Images of childhood* (pp. 143-166). Mahwah, NJ: Lawrence Erlbaum.
- Cole, M. (1998). *Cultural psychology: A once and future discipline*. Cambridge, MA: Belknap.
- Dancey, C. P., & Reidy, J. (2006). *Estatística sem matemática para psicologia* [Statistics without math for psychology]. Porto Alegre, Brazil: Artmed.

- Dassen, P. R., & Mishra, R. C. (2000). Cross-cultural views on human development in the third millennium. *International Journal of Behavior Development, 24*, 428-434.
- Goodnow, J. J. (1988). Parents' ideas, actions, and feelings: Models and methods from developmental and social psychology. *Child Development, 59*, 286-320.
- Gosso, Y. (2005). *Pexe oxemorai: Brincadeiras infantis entre os índios Parakanã* [Pexe oxemorai: Children's play among the Parakanã indigenous group]. Unpublished doctoral dissertation, University of São Paulo, São Paulo, Brazil.
- Harkness, S., & Super, C. M. (2005). Themes and variations: Parental ethnotheories in Western cultures. In K. H. Rubin & O.-B. Chung (Eds.), *Parental beliefs, parenting, and child development in cross-cultural perspective* (pp. 61-79). New York: Psychology Press.
- Harkness, S., Super, C. M., Axia, A. E., Palacios, J., & Welles-Nyström, B. (2001). Cultural pathways to successful parenting. *International Society for the Study of Behavior Development Newsletter, 38*, 9-11.
- Harkness, S., Super, C. M., Moscardino, U., Rha, J., Blom, M., Huitrón, B., et al. (2007). Cultural models and developmental agendas: Implications for arousal and self-regulation in early infancy. *Journal of Developmental Processes, 2*, 6-40.
- IBGE. (2000). *Censo Demográfico—2000. Instituto Brasileiro de Geografia e Estatística* [Brazilian census. Brazilian Institute of Geography and Statistics]. Retrieved July 13, 2007, from <http://www.ibge.gov.br>
- IBGE. (2007). *Estatísticas do século XX. Instituto Brasileiro de Geografia e Estatística* [Statistics of the 20th century. Brazilian Institute of Geography and Statistics]. Retrieved July 13, 2007, from <http://www.ibge.gov.br>
- Kagitçibasi, Ç. (1996). The autonomous-relational self: A new synthesis. *European Psychologist, 1*, 180-186.
- Kagitçibasi, Ç. (2005). Autonomy and relatedness in cultural context: Implications for self and family. *Journal of Cross-Cultural Psychology, 36*, 403-422.
- Kagitçibasi, Ç. (2007). *Family, self, and human development across cultures: Theory and applications*. Mahwah, NJ: Lawrence Erlbaum.
- Keller, H. (2007). *Cultures of infancy*. Mahwah, NJ: Lawrence Erlbaum.
- Keller, H., Borke, J., Yovsi, R., Lohaus, A., & Jensen, H. (2005). Cultural orientations and historical changes as predictors of parenting behavior. *International Journal of Behavioral Development, 29*, 229-237.
- Keller, H., Demuth, C., & Yovsi, R. D. (2008). The multi-voicedness of independence and interdependence: The case of the Cameroonian Nso. *Culture & Psychology, 14*, 115-144.
- Keller, H., Hentschel, E., Yovsi, R. D., Lamm, B., Abels, M., & Haas, V. (2004). The psycho-linguistic embodiment of parental ethnotheories: A new avenue to understanding cultural processes in parental reasoning. *Culture and Psychology, 10*, 293-330.
- Kobarg, A. P. (2006). *Crenças e práticas de mães sobre o desenvolvimento infantil nos contextos rural e urbano* [Mother's beliefs about child development and maternal practices in the rural and urban contexts]. Unpublished master's thesis, Universidade Federal de Santa Catarina, Florianópolis, Santa Catarina, Brazil.
- Lordelo, E. R., Fonseca, A. L., & Araújo, M. L. V. B. (2000). Responsividade do ambiente de desenvolvimento: crenças e práticas como sistema cultural de criação de filhos [Responsiveness of the developmental environment: Beliefs and practices as a cultural system of childrearing]. *Psicologia Reflexão & Crítica, 13*, 73-80.
- Miller, S. A., Manhal, M., & Mee, L. L. (1991). Parental beliefs, parental accuracy, and children's cognitive performance: A search for causal relations. *Developmental Psychology, 27*, 267-276.
- Moinhos, M. V. C., Lordelo, E. R., & Seidl-de-Moura, M. L. (2007). Metas de socialização de mães baianas de diferentes contextos socioeconômicos [Socialization goals of mothers from Bahia living in different socio-economic contexts]. *Revista Brasileira de Crescimento e Desenvolvimento Humano, 17*, 114-125.

- Piovanotti, M. R. (2007). *Metas de socialização infantil e crenças sobre práticas de cuidado parental na perspectiva de mães primíparas* [Child socialization goals and childrearing beliefs in the primiparous mothers' perspective]. Unpublished master's thesis, Universidade Federal de Santa Catarina, Florianópolis, Santa Catarina, Brazil.
- Ribas, R. C., Jr., Seidl de Moura, M. L., & Bornstein, M. H. (2003). Socioeconomic status in Brazilian psychological research. Part 2: SES and parenting knowledge. *Estudos de Psicologia*, 8, 385-392.
- Ribeiro, D. (1997). *O povo brasileiro: A formação e sentido do Brasil* [Brazilian people: The formation and meaning of Brazil]. São Paulo, Brazil: Companhia das Letras.
- Ruela, S. F. (2006). *Um estudo intergeracional de crenças valorizadas por mães em uma comunidade rural do estado do Rio de Janeiro* [An intergeracional study about mothers' valued beliefs in a rural community in Rio de Janeiro]. Unpublished master's thesis, Universidade do Estado do Rio de Janeiro, Rio de Janeiro, Rio de Janeiro, Brazil.
- Seidl-de-Moura, M. L., Ribas, R. C., Jr., Piccinini, C. A., Bastos, A. C. S., Magalhães, C. M. C., Vieira, M. L., et al. (2004). Conhecimento sobre desenvolvimento infantil em mães primíparas de diferentes centros urbanos do Brasil [Primiparous mothers' knowledge about child development in different Brazilian urban centers]. *Estudos de Psicologia*, 9, 421-429.
- Suizzo, M. A. (2002). French parents' cultural models and childrearing beliefs. *International Journal of Behavioral Development*, 26, 297-307.
- United Nations. (2005). *A UN reading of Brazil's challenges and potential: Common country assessment by Brazil's UNCT*. Retrieved October 13, 2008, from [http://www.unodc.org/pdf/brazil/Final%20CCA%20Brazil%20\(eng\).pdf](http://www.unodc.org/pdf/brazil/Final%20CCA%20Brazil%20(eng).pdf)
- Valsiner, J. (1997). *Culture and the development of children's actions* (2nd ed.). New York: John Wiley.

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