

How does mothering look like: A multidimensional approach to maternal cognitive representations

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Cognitive science applied to parenting emphasizes the importance of parental knowledge structures (i.e., perceptions, expectations, beliefs and ideas about parenting and children) in guiding adequate parental responses. This approach has allowed for a better understanding of the origins of risk in parenting (e.g., Azar, Reitz, & Goslin, 2008; Crittenden, 1993; Milner, 1993, 2003). Indeed, the content and structure of maternal schemata is known to influence mothers' interpretation of child signals as well as their responses in childrearing situations (e.g., McCarthy et al., 2013). This is to say that the way mothers represent mothering can influence their maternal practices and ultimately child abuse and neglect.

Cognitive representations are defined as knowledge stored in memory regarding situations, people and social groups. These representations influence people's feelings and behaviors (e.g., Smith & Mackie, 2009). With the development of cognitive science, cognitions in general and mental representations in particular began to be regarded as empirically researchable concepts whose existence is independent from particular theoretical approaches (e.g., Garrido & Garcia-Marques, 2003; Garrido, Azevedo, & Palma, 2011). Cognitive representations include concepts as attitudes (Allport, 1935), person impressions (Asch, 1946), stereotypes (Allport, 1954), as well as perceptions and attributions (Jones & Davis, 1965). In the parenting domain, these mental representations include for example, efficacy cognitions related with children and parent-child interactions, and with family life in general (Sigel & McGillicuddy-De Lisi, 2002). This line of research also specifies the cognitive factors underling adaptive and maladaptive parenting, as "Mothers with flexible, complex, and appropriately differentiated schemata are better equipped to perceive the nuances of mother-child interaction and avoid biases in cue processing, leading to more efficient and competent parenting" (Azar et al., 2008, p.298).

Without questioning the importance of ecological perspectives (e.g., Belsky, 1993) in the explanation of parenting, and particularly of abuse and neglect (Dubowitz, Black, Starr, &

Zuravin, 1993), the socio-cognitive approach to parenting here adopted aims at complementing these perspectives by emphasizing the role of information processing mechanisms in explaining parental cognitions namely those related to abusive and neglectful parenting (Azar et al., 2008; Milner, 2003). Several studies have been exploring this theoretical model in order to identify the associations between parental schemata and maladaptive parenting. Specifically, physical abuse has been associated with a) unrealistic expectations about child development (e.g., Slep & O’Leary, 2007); b) more negative evaluations of child misbehaviors (e.g., De Paúl, Asla, Pérez-Albéniz, & Cádiz, 2006); c) higher belief in the value of corporal punishment (Crouch & Behl, 2001); d) self-attributions to external locus of control (McElroy & Rodriguez, 2008); e) inadequate parenting attitudes (e.g., Rodriguez, Smith, & Silvia, 2016); f) higher accessibility of negative schemata attributes (e.g., Hiraoka et al., 2014); and g) less empathy (e.g., Rodriguez & Tucker, 2015). Studies conducted with neglectful parents are scarcer than those conducted with physically abusive parents, but have already shown that neglectful parents demonstrate higher unrealistic expectations (Azar, Stevenson, & Johnson, 2012; Azar, Robinson, Hekimian, & Twentyman, 1984) and lower empathic concern (Rodrigo et al., 2011).

Although several authors (e.g., Giovannoni, 1989) pointed out that the study of parenting, especially abuse and neglect, should take into account parents’ values that frame family life and education without imposing theoretically driven constraints, research about parental cognitions has not yet looked at the fundamental dimensions individuals *spontaneously* use when making sense of the different aspects (e.g., attributes, activities, emotions) involved in parenting. By *spontaneously used dimensions* we mean the ones that come to mind in the absence of theoretical constraints imposed by the research methods. In fact, most research conducted on parenting and maltreatment has relied on instruments (e.g., rating scales or questionnaires; Milner, Robertson, & Rogers, 1990) that may have constrained participants’ responses to the theoretical derived

dimensions underlying the development of those instruments in the first place. This research has been quite successful in finding theory supporting evidence but it may have neglected other potentially relevant dimensions people might naturally use. For example, in the domain of abusive parenting it has often been debated whether or not the concept of maltreatment constitutes an imposition of the values of the researchers, professionals, and favored classes on less privileged social classes or minority groups rather than a reflection of social reality (e.g., Giovannoni, 1989). In sum, previous research about parenting and abusive parenting rarely explored, in a bottom-up way, how parents in general and abusive and neglectful parents in particular perceive, evaluate and define parenthood and (mal)adjusted parenting.

The social cognition approach to cognitive representations, namely implicit theories of personality (ITP; Bruner & Tagiuri, 1954) - widely shared mental representations about how different personality traits tend to occur in the same individual - may constitute a fruitful avenue to explore maternal schemas. Decades of research on ITP have converged on the identification of two main evaluative dimensions: a social and an intellectual dimension, each of them with positive and negative poles (Abele, Cuddy, Judd & Yzerbyt, 2008; but see also Koch, Imhoff, Dotsch, Unkelbach, & Alves, 2016), following a principle of evaluative consistency (people tend to infer positive attributes in the presence of other positive attributes, and to infer negative attributes in the presence of other negative attributes). Rosenberg, Nelson and Vivekananthan (1968) were pioneers in the description of personality impressions using multidimensional scaling. In their seminal study, participants began by sorting 64 personality traits into different groups. Having as grouping criterion the traits perceived as co-occurring in the same individual, the authors used multidimensional scaling to extract, in a bottom-up way, the fundamental dimensions underlying the relationships between the personality traits. The two aforementioned main evaluative dimensions emerged: a social dimension, which includes traits such as *happy*,

sociable, and *sincere*, versus *unpopular*, *unsociable* and *cold*, and an intellectual dimension, which includes traits such as *persistent*, *determined*, and *skillful*, versus *frivolous*, *unintelligent* and *fool* (Rosenberg et al., 1968). Over the last decades many studies have replicated the bi-dimensional structure of ITP's proposed by Rosenberg and collaborators (1968) and validated the social-intellectual dimensions across different countries (e.g., Ferreira et al., 2011; Fiske, Cuddy, & Glick, 2007) and population groups (e.g., children, elderly, disabled people, gender, nationalities; for a review see Abele et al., 2008).

Remarkably, neither the social perception of mothering nor mothers as a source of these perceptions have ever been systematically examined from a multidimensional perspective with similar data driven methods. However, the study of mothers' mental representations about mothering is crucial, since these representations influence how they perceive and interact with their children and may reveal important determinants of parenting and child maltreatment. Multidimensional scaling constitutes a suitable way to explore which dimensions typically underlie such representations and to reveal whether there are differences in these dimensions between maltreating and no-maltreating parents.

This paper presents two studies that examine the differences between the representations of mothering in mothers referred to child protection services and mothers with no reference to these services. Study 1 was conducted to obtain a set of attributes, behaviors and feelings associated with parenting, that mothers spontaneously evoke in a free description task, in order to explore the contents of mothers' cognitions about mothering, their perceived valence and their perceived likelihood of occurrence, comparing mothers with children referred to child protection services and mothers with no reference to these services. Study 2 was designed to examine how the attributes generated in Study 1 were represented in a multidimensional structure (e.g., Rosenberg

et al., 1968), as well as whether these representations differed among referred and non-referred mothers.

Despite the exploratory nature of the current studies, we expected differences between mothers referred to child protection services and non-referred mothers, in particular regarding: a) the valence of the attributes, with referred mothers presenting a more negative representation of motherhood (e.g., higher generation of negative attributes, evaluation of the attributes as more negative, evaluation of negative attributes as more likely); b) the complexity of the representations' structure, with referred mothers presenting less complex representations than non-referred mothers; and c) the contents of the dimensions represented in the multidimensional structure.

Study 1

Method

Participants. Seventy mothers participated in the study ($M_{age} = 34.9$, $SD = 6.4$). Thirty-five had children referred to child protection services (referred group) and the remaining 25 were not referred to these services (non-referred group). On average, mothers had two children ($SD = 1.2$). Despite our efforts to balance the sociodemographic characteristics of both groups, referred mothers had lower income (81.8% had an income lower than 500€ per month, compared with 25% of the non-referred group) and lower educational level (94.3% did not go further than high school while in the non-referred group 48.6% proceeded to university).

Instrument. The instrument consisted of a short questionnaire with three sequential tasks.

Free generation of words associated with the maternal role. The first part of the questionnaire requested a) a first list of 10 words (attributes, characteristics, interests or other words) associated with the role of a mother; and subsequently b) a second list of 10 positive words and 10 negative words (order counterbalanced) associated with the role of a mother. The

request for a second list of words of different valence (10 positive and 10 negative) was made to assure that both positive and negative words would be mentioned.

Evaluation of valence. The second part asked the participants to evaluate the valence of each word listed (from the first and the second lists) on a scale ranging from -2 (very negative) to +2 (very positive)(e.g., Haddock, Zanna, & Esses, 1993).

Assessment of the probability of occurrence. In the last section participants were asked to indicate the percentage of mothers who, in their opinion, could be characterized by each of the words generated on a scale ranging from 0 to 100 (Haddock et al., 1993).

Procedure. The study was approved by the university Research Ethics Board. After obtaining the permissions from the institutions, data from the referred mothers were collected in an agency of child protection services and data from the non-referred group of mothers was collected in a private institution of social solidarity¹.

After informed about the study and its goals, mothers were invited to complete the task in individual sessions. First, they were told that they would be asked to complete a questionnaire examining ideas and opinions associated with mothering, with no correct or incorrect answers. Then, they were informed about the ethical procedures, received guarantee of the confidentiality and anonymity of their data and that data analysis would be conducted on aggregate data and not on their individual responses. Whenever they accepted to participate, mothers signed the informed consent. After collecting the socio-demographic information, the questionnaire was applied. Before participants began responding they were provided (in addition to the instructions) with some (non-related) examples to make it easier to understand what was being asked (e.g., the

¹ As maltreatment and neglect are often associated with risk factors such as poverty, low educational level, high number of children, among others (e.g., Evans & English, 2002), data from the non-referred group of mothers was collected in a private institution of social solidarity where, given the nature of the provided social support, users were more likely to have demographic characteristics similar to those of referred mothers.

words associated with a football player could be athletic, strenuous, sportsman, run, money, cars).

Participants were asked to respond as quickly as possible and according to their intuition. In the end, they were thanked for their collaboration. All individual sessions were conducted by a researcher with experience in working in the child protection system.

Results

The first list of words generated included 275 parenting-related attributes, and the second list included additional 283 positive and 276 negative parenting-related attributes. On average, participants provided 8.4 attributes in the first list, and 7.3 positive and 6.5 negative attributes in the second list. These numbers indicate that participants understood the task and had no difficulty in complying with the instructions.

According to linguistic criteria, similar words (including singular and plural, feminine and masculine, different verb tenses and different grammatical forms) were aggregated. The attribute form with the highest frequency was used to name each aggregate of similar words in data analysis; in the case of attributes with the same frequency, the singular and feminine attribute were selected (for a similar strategy see Calheiros, Garrido, Lopes, & Patrício, 2015; Garrido, Patrício, Calheiros, & Lopes, 2016; Lopes, Calheiros, Patrício, & Garrido, 2017). Following this procedure we obtained 217 parenting-related attributes in the first list, and additional 210 positive and 220 negative parenting-related attributes in the second list. The frequency, average valence and average likelihood of occurrence were calculated for each attribute.

Data was analyzed with *IBM SPSS 24*. Dependent measures for comparative analyses included the mean number of attributes generated by each participant in the first list, and the mean number of positive and negative attributes generated in the second list, as well as the mean ratings of valence and likelihood of occurrence of the attributes generated in the two lists.

Number of attributes. The number of attributes generated in the first list ($M = 8.31$, $SD = 1.99$) was higher than the number of positive ($M = 7.14$, $SD = 2.42$), $t(69) = 4.624$, $p < .001$, $d = 0.53$, and negative attributes generated in the second list ($M = 6.50$, $SD = 2.38$), $t(69) = 6.119$, $p < .001$, $d = 0.83$. This was not surprising as the positive and negative attributes were requested after the first list of attributes. The overall number of attributes generated in the first and second lists did not differ between referred and non-referred mothers, all $t < 1$.

Overall, regarding the second list, mothers reported significantly more positive ($M = 7.14$, $SD = 2.42$) than negative attributes ($M = 6.50$, $SD = 2.38$), $t(69) = 2.354$, $p = .021$; $d = 0.27$. However, while the non-referred group reported more positive ($M = 7.34$, $SD = 2.59$) than negative attributes ($M = 6.49$, $SD = 2.22$), $t(34) = 2.214$, $p = .034$; $d = 0.35$, in the referred group of mothers this difference was not significant ($M = 6.49$, $SD = 2.25$; for positive and $M = 6.51$, $SD = 2.56$ for negative attributes), $t(34) = 1.106$, $p = .276$. This result suggests that referred mothers tend to attribute less overall positivity to mothering than non-referred mothers, as both referred and non-referred mothers are “equally” negative in the attributes listed but referred mothers are less positive than non-referred mothers.

Valence. The mean valence of the first list of attributes ($M = 1.63$, $SD = 0.41$) was significantly above the scale midpoint, $t(69) = 32.986$, $p < .001$. This pattern was observed for both referred ($M = 1.64$, $SD = 0.37$), $t(34) = 26.179$, $p < .001$, and non-referred mothers ($M = 1.62$, $SD = 0.46$), $t(34) = 20.948$, $p < .001$), which indicates that when asked to think about “the role of a mother” mothers tend to classify the generated attributes as more positive than negative.

As a manipulation check, we looked at the valence ratings of the positive and negative attributes of the second list. As expected, the valence of the positive attributes from the second list ($M = 1.82$, $SD = 0.24$) was rated significantly above the scale midpoint, $t(69) = 64.449$, $p < .001$, both by the referred group ($M = 1.81$, $SD = 0.28$), $t(34) = 38.199$, $p < .001$, and the non-

referred group ($M = 1.84$, $SD = 0.19$), $t(34) = 58.349$, $p < .001$. The negative attributes from the second list ($M = -1.66$, $SD = 0.47$) were rated significantly below the scale midpoint, $t(68) = -29.555$, $p < .001$, both by the referred ($M = -1.66$, $SD = 0.49$), $t(33) = -19.904$, $p < .001$, and the non-referred mothers ($M = -1.66$, $SD = 0.45$), $t(34) = -21.649$, $p < .001$. These results confirm that participants understood the task and complied with the instructions. No differences were found between referred and non-referred mothers regarding the valence ratings of the attributes from all lists, all $t < 1$.

Probability of occurrence. Results showed that the percentage of mothers who could be characterized by the first list of attributes ($M = 69.26$, $SD = 15.49$) was significantly above the scale midpoint (50%), $t(68) = 10.333$, $p < .001$, by both the referred ($M = 67.66$, $DP = 17.18$), $t(33) = 5.995$, $p < .001$, and the non-referred group, ($M = 70.82$, $DP = 13.72$), $t(34) = 8.979$, $p < .001$. The percentage of mothers who could be characterized by positive attributes ($M = 71.30$, $DP = 14.44$) was significantly rated above the scale midpoint, $t(68) = 12.250$, $p < .001$, and by both the referred ($M = 69.13$, $DP = 15.85$), $t(33) = 7.039$, $p < .001$, and the non-referred group ($M = 73.40$, $DP = 12.81$), $t(34) = 10.809$, $p < .001$. Nevertheless the percentage of mothers who could be characterized by negative attributes was not significantly different from the scale midpoint ($M = 47.08$, $SD = 21.64$), for both the referred ($M = 51.04$, $SD = 20.55$), and the non-referred group ($M = 43.35$, $SD = 22.27$), all $p > .086$. Moreover, the perceived percentage of mothers described by positive attributes ($M = 71.02$, $DP = 14.36$) was significantly higher than the percentage of mothers described by negative attributes ($M = 47.08$, $DP = 21.64$), $t(67) = 6.697$, $p < .001$; $d = 1.30$, both for the referred group, $t(32) = 3.435$, $p = .002$; $d = 0.96$, and the non-referred group, $t(34) = 6.168$, $p < .001$; $d = 1.65$. No significant differences emerged between referred and non-referred mothers regarding the probability of occurrence of the attributes, all $p > .143$.

Study 2

Method

Participants. A different sample of 71 mothers participated in the study ($M = 35.9$ years, $SD = 7.6$). Thirty-six with children referred to child protection services (referred group) and the remaining 35 without children referred to these services (non-referred group). On average, mothers had two children ($SD = 1.2$). Despite our best efforts to balance the sociodemographic characteristics of both groups, referred mothers had lower income (69.7% had an income lower than 500€ per month, compared with 33.3% of the non-referred group) and lower educational level (94.4% did not go further than high school while in the non-referred group 54.3% proceeded to university).

Instrument. The instrument consisted of a list of attributes selected from Study 1. First, words generated by both groups of mothers were aggregated. Second, these attributes were ordered by frequency of occurrence (number of times that the attribute was reported). Finally, we calculated Katz and Braly indexes (Katz & Braly, 1933) for positive and negative attributes to reach a final number of words. The Katz and Braly Index usually applied in the stereotypes literature serves to estimate the consensus regarding the attributes / traits assigned to a given group. This index is obtained by computing the number of attributes required to reach 50% of the total cumulative frequency of the attributes used to describe the category or group. Thus, the smaller the number of attributes needed to describe the category, the clearer the stereotype (i.e., the higher the consensus among the participants regarding the group characterization). With these procedures, 24 positive and 34 negative attributes were selected. Third, some of the selected attributes were transformed into adjectives (e.g., *love* into *loving*), and three words that were not traits, adjectives or feelings were dropped (*kisses*, *caress* and *walks*) and replaced by other three attributes with similar frequency and referred by both groups (*worry*, *present* and *smiling*).

As pointed out in the “multiple selves” literature (Roberts & Donahue, 1994), there are personal characteristics that go beyond a specific social role (e.g., mother’s role). In order to promote a higher variability in the multidimensional structure we searched for additional attributes that did not appear in Study 1 and that previous research on ITPs has consistently shown to be the best representatives of the semantic dimensions that typically emerge regarding the general self. Specifically, we wanted to make sure that the following dimensions (and their most representative attributes) were included: competence (*competent, incompetent, confident, halting, capable, incapable, skillful and unskillful*) and sociability (*friendly, unfriendly, warm, cold, good-natured, bad-natured, sincere and false*; Cuddy, Fiske, & Glick, 2008; Cuddy et al., 2009), trustworthiness (*attractive, unattractive, reliable, dishonest, sensitive, insensitive, responsible and irresponsible*) and dominance (*dominant, submissive, physically strong, physically weak, threatening, gentle, aggressive and tender*; e.g., Oosterhof & Todorov, 2008), status (*employed, unemployed, rich, poor, well-educated, less-educated, successful and unsuccessful*; e.g., Cuddy et al., 2008, 2009), and finally two attributes of general valence (*pleasant and unpleasant*). From this set of attributes, more than half completely (e.g., *responsible, cold*) or partially (e.g., *bad-natured/bad; friendly/friend*) overlapped with those listed in the first study. After the selection of the additional attributes, the final instrument included 89 attributes (44 positive and 45 negative), as well as a sociodemographic questionnaire. The attributes were printed in cards of 21cm x 5cm.

Each participant was given the standard instructions of the grouping task used in ITP studies using multidimensional scaling (e.g., Rosenberg et al., 1968):

In this study we are interested in knowing the characteristics that, in your opinion, best describe different types of mothers. We will provide you a set of words that represent personality traits, feelings and behaviors from a diverse set of mothers. Your task is to

group these words together to form several categories. In other words, you should put together the attributes that characterize the same mother on the same stack and put items that rarely occur in the same mother in different stacks. One way to accomplish this task is to think of several types of mothers you know (friends, family, neighbors, public figures, etc.) who are quite different from each other. Each group of words will then correspond to the profile of each of these mothers. You can use the categories you want but try not to use more than 10. You can also use an additional category "Miscellaneous" to include those features that do not seem to fit into any of the profiles you've created, but this category should only be used as a last resource.

Procedure. After obtaining the approval of the university Research Ethics Board and the permission from the institutions, data were collected in an agency of child protection services (referred mothers) and in a private institution of social solidarity (non-referred mothers). Ethical procedures were strictly followed. The task was conducted in individual sessions by a researcher with experience in the child protection system. Participants were informed that they would participate in a study examining ideas associated with mothering, and that there were no correct or incorrect answers. After reading and signing the informed consent, socio-demographic information was collected and the task was applied. In the end, participants were thanked, debriefed and received a 5€ gift card.

Results

According to MDS methodology (e.g., Schiffman, Reynolds, & Young, 1981), the data collected were first introduced in a matrix of 89 lines by 89 columns for each participant. The co-occurrence of each pair of traits was introduced in each cell of the matrix - 0 (no co-occurrence) or 1 (co-occurrence). In a second stage, the individual matrices of each participant were grouped into two separate matrices (for referred mothers and for non-referred mothers). In both matrices,

high values in a pair of attributes meant that several participants had placed that pair together in the same cluster, and low levels meant the reverse. The attributes included in the "miscellaneous" group were not considered for the analyses. Finally, similarities between attributes were analyzed with Multidimensional Scaling (Kruskal, 1964) for each group of the sample using the *Proxscal* algorithm implemented in *SPSS Statistics* (v.20, IBM SPSS, Chicago, IL).

The selection of the minimum number of dimensions required to parsimoniously reproduce the similarities between the attributes was evaluated according to the Scree Plot criterion of the graphs of the transformed proximities versus distances (Maroco, 2011). The final quality of the model was evaluated by *STRESS-I* and *DAF* (*Dispersion Accounted For*) using the reference values defined in Maroco (2011). Note that *stress* is a measure of mediocrity of the solution, and the higher the stress, the worse the quality of the retained solution; *DAF* refers to the dispersion of proximities and should be interpreted as R^2 in a linear regression (Maroco, 2011).

The outcome of this procedure constitutes a measure of proximity that reflects the proportion of times that the attributes are put together by the participants, that is, their frequency of co-occurrence. Attributes seen as similar or related are located close to each other. In other words, a group or social category that is perceived as having one of the attributes is likely to be perceived as having the other as well. Attributes seen as different are positioned far from each other, that is, it is unlikely that these attributes are perceived as co-occurring in the same category.

Referred mothers. According to the quality criteria of the solution, two dimensions were retained. These were able to reproduce appropriately the observed perceptions of referred mothers (*STRESS-I* = 0.150; *DAF* = 0.977). Figure 1 shows the two-dimensional configuration based on the perceived similarities among the attributes about parenting by the referred mothers.

By analyzing the positions of the attributes, two broad dimensions emerged: *Responsiveness* and *Status*.

(INSERT FIGURE 1)

The most important dimension was *Responsiveness*, and is plotted on the right and left areas, with the right hand side characterized by positive attributes such as *friendly*, *affectionate*, *warm*, *respectful*, *responsible*, *sincere* and *helpful*, and the left hand side by negative attributes such as *unfriendly*, *carefree*, *dishonest*, *aggressive*, *violent*, *uninterested* and *cold*. This dimension includes characteristics of sociability, trustworthiness and competence. The other dimension, represented in the upper and lower areas, is *Status*, with the upper pole representing attributes of high status (e.g., *rich*, *well-educated* and *successful*) and the lower pole representing attributes of low status (e.g., *poor*, *less-educated* and *unsuccessful*).

Regarding *Responsiveness*, it is worth noticing that the positive cluster of this dimension reveals higher density than its negative cluster. This higher density of positive information in mental representations is a well-known phenomenon and is usually taken as evidence that positive information is more similar or less distinctive in meaning than negative information in impression formation (Unkelbach, Fiedler, Bayer, Stegmüller, & Danner, 2008).

In addition, the two dimensions are not fully orthogonal, as “high responsiveness” is closer to “high status” and “low responsiveness” to “low status”. This suggests the existence of a halo-effect where good (i.e., responsiveness attributes) tends to go with good (i.e., high status) and bad (i.e., unresponsiveness attributes) with bad (low status; see Rosenberg et al., 1968).

Non-referred mothers. Regarding the results of the non-referred group, the two dimensions retained reproduced appropriately the observed perceptions of these mothers (*STRESS-I* = 0.198; *DAF* = 0.961). Figure 2 shows the two-dimensional configuration of non-referred mothers. By analyzing the positions of the attributes, one of the dimensions seems to

overlap the pattern observed for the referred group, namely the *Responsiveness* dimension, while the second dimension presents a different configuration of attributes.

(INSERT FIGURE 2)

Specifically, the *Responsiveness* dimension includes attributes such as *attentive, tender, sincere, protective, sensitive, caregiver* and *playful* on the positive pole, and *unpleasant, uninterested, neglectful, selfish, irresponsible, cold* and *disrespectful* on the negative pole. This dimension is represented in the horizontal axis, with the positive attributes of a mother represented on the left hand side and the negative attributes placed on the right hand side. Moreover the negative pole of attributes suggests different forms of being a mother, with attributes of a “passive” mother clustered together (e.g., *neglectful, uninterested, incompetent, incapable, absent*), while attributes of an “aggressive” mother tend to form another cluster (e.g., *violent, threatening, aggressive, mistreats, impatient*). In the vertical axis another dimension emerged, characterized with attributes such as *dominant, physically strong* or *physically weak* and *submissive*. We named this dimension *Control*. “High control” attributes cluster together at the bottom and “low control” attributes at the top.

As in the referred mothers, the non-referred group also displayed higher density of positive information. Moreover, the two dimensions were not fully orthogonal, “high responsiveness” is closer to “high control” and “low responsiveness” is closer to “low control”, suggesting once more the existence of a halo-effect.

Discussion

In an attempt to characterize the semantic organization of the mental representations of mothering and to compare the representations held by referred mothers and mothers with no reference to child protection services, we conducted two studies that revealed specific contents and dimensions of their representations about the parental function.

Results of Study 1 showed that, in general, mothers tend to associate the parental role to positive things, reporting more positive than negative attributes and characterizing mothers as more likely to have positive than negative attributes. However, while mothers with no reference to child protection services generated more positive than negative attributes, referred mothers generated the same number of positive and negative attributes. The lower cognitive accessibility of positive attributes in the referred group of mothers suggests that, overall, these mothers perceive mothering in a less positive and eventually more ambiguous way. This result is consistent with past studies demonstrating that abusive parents reported more negative feelings related to their parenting role, such as anger, unhappiness and rigidity (Milner & Wimberley, 1980; Spinetta, 1978). However, parents' initial negative feelings and rigid preconceptions concerning parenthood are not the only way to account for this result. Another possible explanation stems from the influence of parents' childrearing experiences in shaping parental cognitions as the parent-child interaction unfolds. While global beliefs (e.g., expectations about developmental milestones) may be particularly resilient to change as they are not tied to specific interactions or contexts of child rearing (e.g., Boggiano, Barret, Weiher, McClelland, & Lusk, 1987; Hess, Kashiwagi, Azuma, Price, & Dickson, 1980; McGillicuddy-DeLisi, 1982), more specific beliefs, such as parents perceived competence and effectiveness, are likely to be more susceptible to feedback from parent-child interactions (Goodnow, 1985). Since the children's characteristics and the parent-child relationship are important sources of parental cognitions (e.g., Grusec, Hastings, & Mammone, 1994; Sperling & Mowder, 2006), mothers involved with child protection services are more likely to have undergone negative experiences in their parental role and, subsequently, to have developed more negative ideas and perceptions about parenthood. Moreover, results of Study 1 showed that the task was well-understood by the mothers, the number of attributes generated was appropriate, the valence difference between negative and

positive attributes was as expected, and the likelihood ratings were high, suggesting that the generated attributes were suitable for the multidimensional analysis conducted in Study 2.

Study 2 used multidimensional scaling and showed that cognitive representations of mothering were organized in two main dimensions. For both groups of mothers, a *Responsiveness* dimension emerged, composed by attributes that are theoretically grounded in the dimensions of sociability, trustworthiness and competence of a mother. The second dimension differed between the groups, namely a dimension with attributes of *Status* emerged for the referred group, and a dimension of *Control* for the non-referred group.

The first and most important dimension that emerged in both groups - *Responsiveness* – is characterized by attributes of sociability, trustworthiness and competence in their positive and negative poles (social/unsocial; trustworthy/untrustworthy; competent/incompetent). This dimension leads us to Baumrind's concept of responsiveness: "Responsiveness refers to emotional support, warmth, and actions that intentionally foster individuality and are acquiescent to the child's needs and demand" (Baumrind, Larzelere, & Owens, 2010, p.162). Overall, positive information in this dimension seemed to be less distinctive in meaning than negative information for both groups. In line with Unkelbach et al. (2008)'s density hypothesis, positive information has a processing advantage because is more similar to other positive information compared to the overall similarity of negative information. However, it seems that for non-referred mothers (compared to referred mothers), the negative pole of *Responsiveness* dimension is more complex and descriptive, representing various forms of negative parenting suggesting that they are more informed about parenting and they are more aware of different parental responses, even if they do not use them. Their semantic map suggests the contrast between passive mothers, characterized with attributes related to indifference and detachment, which are characteristics of parental neglect, and aggressive mothers characterized with aggressive-oriented

attributes usually related with physical abuse. Referred mothers seem to think about inadequate parenting in a less complex manner, as suggested by the higher density of negative attributes in their semantic map, when compared to the non-referred mothers' semantic representation of motherhood. These somehow more simplistic schemata in referred mothers has already been suggested by previous research, showing that abusive parents have less control techniques, revealing simple standards of punishment (Bugental, 2004), and schemata rigidity (Azar et al., 2008; Cole & Reitz, 2005).

The greater complexity of the perceptions about maladaptive parenting held by non-referred mothers may be, at least partially, the result of their higher educational and socioeconomic level. Such possibility is consistent with the emergence of more multifaceted knowledge structures. It is known that low levels of education of parents have been associated with child neglect (e.g., Casady & Lee, 2002; Coohey, 2007), which can lead us to think that this lower complexity of parental schemata is related with a general lack of cognitive functioning, and not specific to parenting cognitions. However, and despite the fact that the differences in schema complexity are associated with sociodemographic variables (e.g., Calheiros & Rodrigues, 2016; Narciso et al., 2018; Sameroff & Fiese, 1992), previous studies about the definitions of child abuse and neglect have shown that mothers are homogeneous in their conceptions about the basic elements of caregiving independently of their educational and socioeconomic level (Polansky, 1981).

Regarding the second dimension, a *Status* dimension (with high and low-status poles) was observed for the referred mothers; whereas for the non-referred mothers, the attributes characterizing the second dimension pertain mainly to a *Control* dimension, with low-control and high-control poles. Specifically, while attributes like *rich/ poor*, *well/ less-educated* and *successful/ unsuccessful* are central of the status dimension for referred mothers, these same

attributes lose importance in the explanation of the second dimension of non-referred mothers. For these mothers, the “core” attributes of the second dimension are *physically strong/ weak* and *submissive/dominant*. Despite the differences observed in the bi-dimensional semantic spaces, in both groups of mothers the two dimensions were not fully independent of each other, indicating the existence of a halo effect. Both high-status and high-control attributes were closer to “high-responsiveness” attributes and low-status and low-control attributes were closer to “low-responsiveness” attributes. Interestingly, and in line with previous research (e.g., Oliva, Moreno, Palacios, & Saldaña, 1995), this suggests that, for referred mothers, contextual and exogenous attributes (like *poor/ rich* or *well/ less educated*) are associated with parenting, while for non-referred mothers parental adjustment is more related to individual and endogenous characteristics (*submissive/dominant*). Furthermore, the cognitive representations observed for the group of referred-mothers indicates a need for self-protection and preservation of self-esteem. Indeed, mothers referred to the child protection system are likely to have experienced negative outcomes and to perceive lower self-efficacy in their parental role. Therefore, they may be more likely to attribute their caregiving failure to external factors that do not directly depend on them. Such interpretation is in line with a) the self-serving bias or the tendency for people to use externalization strategies to justify poor performance (e.g., Myers, 2015); and b) research evidence on the parenting domain showing that mothers with low perceived control over caregiving are more likely to show abusive and coercive parental practices (Bugental, Blue, & Cruzcosa, 1989).

Finally, it is worth noticing that the bi-dimensional mapping obtained by Rosenberg and collaborators (1968), as well as the more recent results reported by Ferreira and collaborators (2011) in a Portuguese sample of university students, was not replicated in the representation of mothering obtained with the current samples of Portuguese mothers. Instead of the classic social-

intellectual dimensions, the results of our study presented a broader dimension of valence (*Responsiveness*) that conflates both dimensions of warmth and competence (e.g., Cuddy et al., 2008, 2008). This dimension is in line with Baumrind's (1968) conceptualization of authoritative parental style, which combines affection and attentive responsiveness to children's needs, imposition of clear requirements for responsible behaviors, as well as kindness, affection and understanding.

Overall, the dimensions derived from our study, using an unconstrained method, seem to be in line with other theory-driven proposals, such as the two-dimensional framework proposed by Maccoby and Martin (1983), that defined parenting in an orthogonal structure of responsiveness and demandingness. Specifically, the *Responsiveness* dimension, referring to high/low parental sensitivity and adaptation to the child's signals, states, and needs (Maccoby & Martin, 1983). And the second dimension (*Status* for the referred and *Control* for the non-referred group), in line with the demandingness dimension, with referred mothers emphasizing external self-attributions of control (low control) and non-referred mothers focusing on internal self-attributions of control (high control).

In short, the results of the studies indicate that mothers referred to child protection services attribute less positivity to mothering, which is consistent with previous studies about parental representations (Crouch et al., 2010; Rodriguez, Cook, & Jedrzewski, 2012), and revealed a less complex constellation of negative aspects of parenting. This pattern is congruent with previous research that has associated schemata rigidity to inadequate parental practices (Azar et al., 2008; Cole & Reitz, 2005). Furthermore, these mothers showed a tendency to associate parental adjustment with external and contextual factors, which is likely to be related with low perceived control over caregiving (Bugental et al., 1989).

Important limitations of the current research stem from the one-shot nature of data collection as well as the exploratory and correlational methods used to carry on data analysis. Given the complexity of the relationships between family cognitions, emotions, and behaviors, future research could use longitudinal designs and experimental paradigms (e.g., Bugental & Johnston, 2000; Holden & Edwards, 1989) to confirm, complement and go beyond the presented findings. Additionally, in terms of socio-demographic characteristics, there were significant differences between the groups, with non-referred mothers showing higher educational level and higher income than referred mothers, which could contribute to explain the differences observed across groups. Although a more balanced sample could help disentangling these issues in the future, the differences observed between groups may mirror the reality, to the extent that low educational (e.g., Casady & Lee, 2002; Coohy, 2007) and socioeconomic levels (e.g., Kang, 2013; Klein, 2011; Magnuson & Duncan, 2002) have been associated with child abuse and neglect cases. Furthermore, while referred mothers had children referred in the child protection system, there was no control for this variable in the non-referred group. In future research, the same indicators of abuse and neglect should be evaluated across all mothers. Finally, although data collection in Study 1 was based on a completely bottom-up procedure where participants spontaneously generated attributes (descriptive of mothering) in an unconstrained way, MDS carried out in Study 2 also included attributes taken from the literature (i.e., the best representatives of different ITP's). However, our approach is still largely unconstrained when compared with typically used top-down instruments like self-report questionnaires or rating scales. First participants were not directly questioned on different theoretically driven attributes; they just had to put in the same piles the attributes they felt that went together. Second, attributes that were not perceived as relevant could be put in the miscellaneous category (thus not affecting the emerging ITP's of mothering). Finally, the use of self-report methods might limit the access

to parental representations since these metrics depend upon a conscious awareness of feelings, cognitions and behaviors and are influenced by social desirability (e.g., Fazio & Olson, 2003). Social desirability effects are likely to be particularly impactful in child protection contexts since parents want to avoid public negative judgments or even legal intervention (Portwood, 2006). Moreover, maltreating parents may have unrealistic expectations, and judgment biases (e.g., misattribution of children's behavior) about their interactions with their children (Hansen & MacMillan, 1990; Lau, Valeri, McCarthy, & Weisz, 2006), which may influence the reports.

The current studies represent a first contribution of MDS to the parenting domain, both theoretically and empirically. At a theoretical level, the comprehension of the content and structure of maternal schemata assumes substantial importance as these cognitions shape parental responses in childrearing situations (e.g., McCarthy et al., 2013). At a more practical level, this research sets the stage to future development of empirically based guidelines for intervention work based on parental schemata (for a review see Azar, Nix, & Makin-Byrd, 2005). Specifically, a better understanding of mothers' implicit theories about mothering may help developing better intervention strategies for cognitive restructuring, problem-solving training, and re-attribution training (e.g., Azar & Wolfe, 2006; Kolko, 1996). The same may be true for the development of attachment-focused interventions (Marvin, Cooper, Hoffman, & Powell, 2002), parent training (Camilo & Garrido, 2013; Webster-Stratton, 1981), and societal level prevention such as mass media campaigns (Sanders, 1996). Last but not least, these results may inform the development of intervention programs that consider implicit family and education conceptions supported by different social groups and recognize implicit values, ideas and beliefs of parents that influence their disciplinary choices (Camilo, Garrido, & Calheiros, 2016; Garbarino, Cohn, & Ebota, 1982; Mann, 1990).

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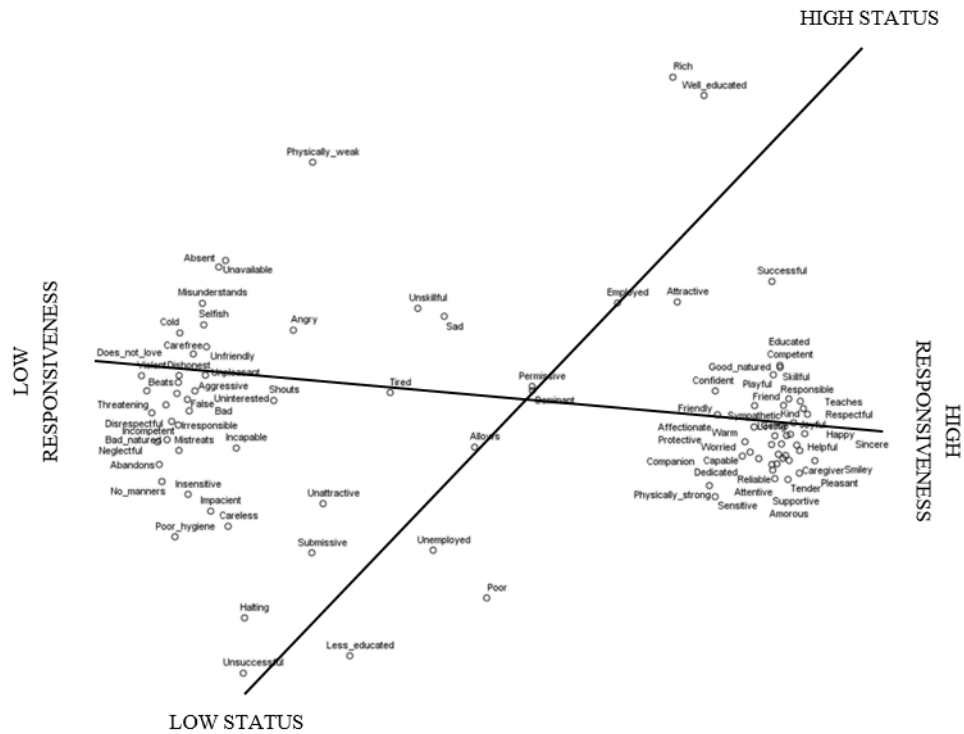
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Figure 1

Two-dimensional configuration of 89 traits showing best-fitting axes of “Valence” and “Status” in the group of referred mothers.



Two-dimensional configuration of 89 traits showing best-fitting axes of “Valence” and “Dominance” of non-referred mothers.

