Parental practices of Italian mothers and fathers during early infancy: The role of knowledge about parenting and child development

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Abstract

Our contribution aims to verify whether parental knowledge about child development and parenting constitutes a protective factor in the application of dysfunctional educational practices. Numerous studies have found that parental knowledge has a great influence on parenting, however it remains unclear whether both are casually linked in a direct and linear way. Data currently available on parental knowledge almost exclusively refers to mothers and subjects at risk. Furthermore, there are almost no studies which take into consideration subjects who are Italian citizens.

In contrast our work takes into consideration a normative sample of 157 Italian couples who are the parents of children aged between 16 and 36 months and who completed the Knowledge of Infant Development Inventory (KIDI; MacPhee, 1981) and the Parenting Scale (Arnold, O'Leary, Wolff, & Acker, 1993). The results highlight differences between mothers and fathers, both in terms of knowledge levels (higher for mothers) and educational practices (maternal practices are more frequently dysfunctional); knowledge influences educational practices above all in the case of fathers, although said effect is slight, which supports the idea that interaction between knowledge and parental practices is not linear but rather mediated by other factors.

Key Words

Parenting practices; parental knowledge; differences between mothers and fathers; protective factors

1 Introduction

Contemporary studies on parenting are increasingly focused on "parental cognitions", which include parental values, beliefs, socialisation objectives as well knowledge about child development and educational practices (Bornstein, Cote, Haynes, Hahn, & Park, 2010), which are considered to be a fundamental framework for the understanding of parental behaviours and child development processes (Goodnow, 1996; Tamis-LeMonda, Shannon, & Spellmann, 2002).

One of the most central of all these aspects is the field of knowledge, referred to as "the parent's understanding of developmental norms and milestones, processes of child development, and familiarity with caregiving skills" (Benasich & Brooks-Gunn, 1996, p. 1187).

Indeed international literature demonstrates that knowledge about child development has a profound influence on parenting: a good level of knowledge increases the perception of competence, satisfaction and investment in the parental role (Bornstein et al., 2003), is associated with better parenting skills (Booth, Mitchell, Barnard, & Spieker, 1989; Reis, Barbera-Stein, & Bennett, 1986;

Stevens, 1984) and more positive interaction with one's own children (Chamberlin, Szumowski, & Zastowny, 1979; Grusec & Goodnow, 1994), favours the correct interpretation of child behaviour (Bugental & Happaney, 2002) and the offering of age-appropriate stimuli and experiences (Frankel & Roer-Bornstein, 1982; Ninio, 1979; Parks & Smeriglio, 1986), and consequently has a positive influence on child development (Bornstein et al. 2010**;** Goodnow, 1988; Miller, Manhal, & Mee, 1991; Sigel & McGillicuddy-DeLisi, 2002), limiting the arising of behavioural problems (Benasich & Brooks-Gunn, 1996; McGillicuddy-DeLisi, 1982).

Conversely, mothers with scarce knowledge demonstrate lesser parenting abilities (Dukewich, Barkowski, & Whitman, 1996) and tend to experience stress and enter into conflict with their children due to discrepancies between their own unrealistic expectations and child behaviour (Crnic & Low, 2002; Teti & Gelfand, 1991), perceiving them to be less competent and providing less support for their development (Linde & Engelhardt, 1979; Jarrett, 1982; Ragozin, Basham, Crinic, Greenberg, & Robinson, 1982).

However some research questions the linearity of links between knowledge and parenting quality (Conrad, Gross, Fogg, & Ruchala, 1992; Hess, Teti, & Hussey-Gardner, 2004; Huang, Caughy, Genevro, & Miller, 2005; Myers, 1982), as no significant direct links have been found between such aspects, or due to the fact that they have only partially been observed in certain contexts, therefore there is a need for further investigation.

Furthermore there is almost no research which takes into consideration the field of parental knowledge in Italian samples and despite copious amounts of studies in different cultural fields these tend to focus mainly on mothers insofar as they are primarily responsible for the care of young children and thus acquire greater skills and knowledge on the matter (Barnard & Solchany, 2002; Bornstein et al., 2010; Geary, 2000; Leiderman, Tulkin, & Rosenfeld, 1977; Parke, 2002; Weisner & Gallimore, 1977). Currently this setting appears deficient insofar as there have been rapid transformations in the differentiation of mother and father roles, at least this is the case in western industrialised cultures, which are increasingly characterised by an increase in the sharing of care and a higher level of paternal involvement (Hall, 2005; Lamb, 2010). Therefore it is important for research to involve fathers too, and to consider them as subjects of equal importance. Scarce available research investigating differences between maternal and paternal knowledge is also often characterised by contrasting data (Nobre-Lima, Vale-Dias, Mendes, Mónico, & MacPhee, 2014; Schreiber, 2001; Winter, Morawska, & Sanders, 2012).

Another shortcoming of current literature regards the fact that most research is based on subjects at risk (for example: adolescent, poor, depressed mothers or those with premature babies), thus yielding results which eschew generalisation.

1.1 Objectives of the Study

The aim of our contribution is to address some of the weaknesses of current studies regarding the link between knowledge and parenting through taking into consideration a normative group of Italian parent couples and exploring the differences between mothers and fathers. The aim is to verify whether parental knowledge concerning diversified fields (development norms and

milestones, general principles about development, health and parenting strategies) may constitute a protective factor against dysfunctional parenting practices (tendency towards laxness, overreactivity and verbosity).

The specific research aims are as follows:

- To investigate whether mothers and fathers have different level of knowledge on development, both at a general level and in reference to specific fields.
- To investigate the sources which mothers and fathers most commonly refer to for the acquisition of information on development and parenting.
- To investigate whether knowledge about development and parenting in mothers and fathers varies in relation to socio-demographic characteristics and the use of information sources
- To identify eventual differences between mothers and fathers in the use of dysfunctional parenting practices.
- To analyse if and how maternal and paternal knowledge is associated with and influences the implementation of said practices.

2 Method

2.1 Participants

The participants are 157 couples (N: 314) of Italian citizens who are the parents of children aged between 16 and 36 months (average: 25.9; d.s. 5.55), attending 6 nursery schools in a large northern Italian city, selected in diversified zones as a social and economic basin. After obtaining nursery management authorisation, parents were contacted and addressed in a preliminary meeting in which their voluntary collaboration was requested. Willing families received an envelope containing two questionnaires, one for the mother and one for the father, to be filled in at home and deposited anonymously in a special box which was left in the entrance hall of nurseries[1].

The average age of fathers is 37 years and 34 for mothers; most subjects are in clerk-level employment and have a medium-high level of education (Table 1); 67% of couples are married, 33% cohabit; 51% have one child, 38% two children, 11% more than two children. Couples with more than one child were requested to refer to the child aged between 12 and 36 months when completing the questionnaire (in 5% of cases said child was the first-born, in 75% the second born and in 20% third-born); 51.6% of children which are the subject of investigation are male and 43.9% female.

Table 1- Participants' age, education level and profession

		Mothers	Fathers	Total
Age	Minimum	23	26	/

[1]The research project was granted preliminary authorization by the University of Turin Bioethics Committee.

	Maximum	45	53	/
	Average	34.58	37.06	/
	s.d.	5.079	5.236	
Educational level	Primary school	0	1 (0.6%)	1 (0.3%)
	Middle School	8 (5.2%)	26 (16.6%)	34 (10.9%)
	Secondary school diploma	73 (47,1%)	79 (50.3%)	152 (48.7%)
	Degree/ post graduate degree	74 (47.7%)	51 (32.5%)	125 (40,1%)
Type of profession	Worker/ manual work	13 (8.3%)	24 (15.3%)	37 (11,8%)
	Freelance	23 (14.8%)	54 (34.4%)	77 (24.6%)
	Clerk	89 (57%)	54 (34.4%)	143 (45,7%)
	Intellectual, managerial	21 (13.5%)	20 (12.7%)	41 (13.1%)
	Homemaker, unemployed	10 (6.4%)	5 (3.2%)	15 (4.8%)

2.2 Measures

2.2.1 Socio-anagraphic data and information sources

A specially created questionnaire was used to record socio-anagraphic data and information sources used to acquire knowledge on children, where parents were requested to provide general information such as age, nationality, level of education, marital status, level of work commitment, profession, number of hours spent with child per day, family structure, child's gender and age.

In order to investigate information sources used by parents to acquire knowledge about children, parents were requested to indicate, on a likert 5 point scale, ranging from 'nothing' to 'very much', what they had learnt about children from a series of 7 sources: family (parents, siblings,

grandparents); friends or other adults with children; their partner; mass media (radio, television, films); doctors, nurses, midwives; teachers/educators; the reading of articles or books.

2.2.2 Parental Knowledge

The Knowledge of Infant Development Inventory (KIDI; MacPhee, 1981) was used to assess parental knowledge and consists of 75 items concerning different fields of knowledge about children from birth to 2 years of age.

Items are divided into 4 sub-scales:

a) Norms and milestones (32 items): includes all items which describe typical infant's behaviour during a specific development period.

In this case items indicate the age in which children are able to do something and parents were required to answer either by: agreeing with the statement/ stating that they are unsure/ stating their belief that the ability in question is possessed by younger or older children.

b) Principles (17 items): contains affirmations, axioms and clichés, regarding development processes. Items regarding the description of general abilities as well as typical and atypical development were also included under this section.

c) Parenting (14 items): these items concern instrumental beliefs about parenting strategies, infant management and responsibilities of being a parent.

d) Health and safety (12 items): includes items regarding correct nutrition, health care, the identification and treatment of the most common ailments and accident prevention.

The standard technique of back-translation was used to adapt the KIDI for use with the Italian group; internal consistency is satisfactory: the Cronbach's alpha value, referring to the global scale, corresponds to that of the original questionnaire (0.82).

The KIDI manual provides the option of using three different indexes: accuracy, attempted, and total score. We used the latter index, which corresponds to the average of correct answers to total questions, where 1 point is awarded for each correct answer and 0 for every incorrect or uncertain answer.

2.2.3 Educational practices

The **Parenting scale (Arnold, O'Leary, Wolff, & Acker, 1993)** was used to investigate the use of dysfunctional parenting practices; it is a self-report tool which enables the measurement of parenting style in situations requiring the application of discipline. The scale uses three dimensions: laxness, which assesses permissive and incoherent discipline applied by parents whenever the child misbehaves; overreactivity, which measures angry, frustrated and irritable parent behaviours associated with an authoritarian behavioural style; verbosity, which assesses attitudes such as grumbling and complaining, continuous scolding and a reliance on talking even when talking is ineffective.

It consists of 30 items on a 7 level Likert scale, in which 7 indicates a high probability of committing disciplinary errors, and in contrast 1 suggests a high probability that alternative and

effective disciplinary strategies shall be applied; the highest scores indicate a more dysfunctional discipline style (internal consistency is high; Cronbach's alpha, referring to the global scale: 0.84).

2.3 Data Analysis

The analysis, which was executed with the SPSS statistical package 22.0, provided a preliminary check of the outliers and the normal distribution of data, foresaw the calculation of total points obtained on used scales and the comparison of mothers and fathers of each couple with the T test for paired samples[2]; for each scale Pearson's R Correlation test was used to analyse correlation between scores obtained by mothers and fathers.

In order to analyse the influence of socio-anagraphic variables and used sources on knowledge levels, a multiple linear regression analysis was executed with the stepwise method, separately for mothers and fathers (independent variables: education level, parent's age, child's age and use of information sources; dependent variables: total KIDI score).

In order to analyse the influence of knowledge on parenting practices, a series of multiple linear regressions were executed, with the stepwise method, separately for mothers and fathers, (independent variables: education level, parent's age, child's age and KIDI subscale scores; dependent variables: Parenting Scale total score and sub-scales scores).

3 Results

3.1 Differences in the levels of knowledge of mothers and fathers

In reference to the first research aim, regarding eventual differences between mothers and fathers in knowledge levels, we compared correct answers submitted by mothers and fathers, taking into consideration total points for the KIDI scale and sub-scales.

The mothers are better informed compared to their partners, although knowledge possessed is not optimal: on average they submitted a correct answer to 65% of questions, indicating a slightly lower level of knowledge than the normative sample (72%, MacPhee, 1981), whereas an even lower level of knowledge was detected in fathers (63% correct answers).

The fields in which parents demonstrate the greatest lack of knowledge are norms and milestones and health, whereas they appear to be best informed on practical aspects linked to education and parenting (Table 2)

[2] The paired sample t-test is usually used when the two groups of values that we want to compare are connected to each other on same way, as couples of mothers and fathers (Giorgetti & Massaro, 2007; Rubin, 2012).

Table 2- Means (standard deviations) for scores on the Knowledge of Infant Development (KIDI) of mother and fathers

	Norms and milestones	Principles	Parenting	Health	Total score
Mothers	0.6055	0.6878	0.7666	0.6184	0.6588
	(0.121)	(0.116)	(0.115)	(0.142)	(0.086)
Fathers	0.5705	0.6732	0.7344	0.5902	0.6305
	(0.118)	(0.125)	(0.120)	(0.128)	(0.086)

The analysis of the T test for paired samples indicates that, within each parent couple, mothers tends to have more knowledge on development, both in global score (t: 3.089; $p < .01$), and in almost all specific fields: in sub-scales of norms and milestones (t: 2.990; $p < .01$), parenting (t: 2.933; $p < .01$), and health (t: 2.048; $p < .05$), whereas the only area in which differences are insignificant is that of principles.

There is a correlation between the knowledge of mothers and fathers in all the fields**,** as can be seen in table 3; the higher associations concern the knowledge of norms and milestones and the knowledge about parenting.

Table 3- Pearson's Correlation between correct KIDI answers of mothers and fathers

	Fathers: TOTAL	Fathers: Knowledge of norms and milestones	Fathers: Knowledge about principles	Fathers: Knowledge about parenting	Fathers: Knowledge about health
Mothers: TOTAL	.440**	.444**	.170	.314**	.325**
Mothers: Knowledge of norms and milestones	.342**	.398**	.154	.214*	.159
Mothers: Knowledge about principles	.367**	.273**	.210*	.213*	.264**
Mothers: Knowledge about parenting	.205*	.125	.034	.335**	.244*
Mothers: Knowledge about health	.113	.175*	-.028	.071	.252*

*$p < .05$

**$p < .001$

3.2 Information sources of mothers and fathers

In reference to the second aim, which regards the analysis of information sources mothers and fathers refer to for the acquisition of knowledge on development, it was found that for mothers the

most significant sources are friends and family. In the case of fathers, the most significant source for the acquisition of knowledge is their partner, also in this case followed by family and friends. Mass media was the least used source for both parents (Table 4).

Table 4- Means (standard deviations) for levels of importance attributed to information sources used by mothers and fathers

	Partner	Family	Friends	Articles/ books	Teachers	Doctors	Mass media
Mothers	3.25 (0.891)	3.43 (0.87)	3.44 (0.877)	2.97 (0.888)	3.34 (0.986)	3.20 (1.026)	2.02 (0.752)
Fathers	4.03 (0.803)	3.39 (1.074)	3.37 (0.921)	2.43 (0.88)	2.88 (1.035)	2.89 (0.928)	1.89 (0.720)

The analysis of the T test for paired samples confirms that fathers use their own partner as a source of information much more than their female partners use them (t: -9.249; $p < .001$); it also emerged that compared to their partners, mothers rely much more frequently on "expert" knowledge sources such as articles and books (t: 5.992; $p < .001$), teachers/educators (t:4.617; $p < .001$) and doctors (t: 2.984; $p < .01$).

3.3 Influence of socio-demographic characteristics and information sources on the knowledge of mothers and fathers

In reference to the third aim, in order to investigate whether development and parenting knowledge of mothers and fathers varies in relation to socio demographic characteristics and the use of information sources, a multiple regression analysis with stepwise method was executed, separately for mothers and fathers, with KIDI total score as a dependent variable and some socio-anagraphic variables (education level, age, child's age) and the use of information sources as independent variables. For the latter, as suggested by literature (MacPhee, 1981), both direct information sources- derived from direct contact with one's own child (average number of hours spent with the child per day, more than one child in family)- and indirect or vicarious information sources - learning from specific information sources (books and articles, mass media, partner, etc.) -were considered.

As can be noted in Table 5, for mothers the only significant predictors are education level and child's age (R^2: 0.192; F: 12.734; $p < .001$), whereas for fathers information sources are more relevant: the most influential sources are mainly indirect ones, such as the reading of articles and books and learning from relatives, but also direct experience, as fathers with more than one child and therefore those who in the past had more opportunities to observe child development on a daily basis, appear to have a greater level of knowledge (R^2: 0.301; F: 22.762; $p < .001$).

Table 5 - Predictors of total level of knowledge in KIDI for mothers and fathers

		ß	t	p
Mothers	Education level	0.388	4.467	**<0.001**
	Age of child	0.205	2.354	**<0.05**
	Mother's age	0.051	0.563	0.575
	Number of hours spent with child per day	-0.009	-0.107	0.915
	More than one child	-0.039	-0.456	0.649
	Sources: mass media	0.140	1.604	0.112
	Sources: articles/books	-0.006	-0.060	0.952
	Sources: family	-0.010	-0.112	0.911
	Sources: friends/others adults	0.040	0.442	0.659
	Sources: partner	0.031	0.352	0.726
	Sources: doctors	-0.102	-1.173	0.244
	Sources: teachers	-0.157	-1.822	0.071
Fathers	Sources: articles/books	0.384	4.563	**<0.001**
	Sources: family	0.314	3.596	**<0.001**
	More than one child	0.256	2.936	**<0.005**
	Education level	0.030	0.345	0.731
	Age of child	0.017	0.197	0.845
	Father's age	-0.055	-0.605	0.546
	Number of hours spent with child per day	0.104	1.237	0.219
	Sources: mass media	0.021	0.232	0.817
	Sources: friends/others adults	0.018	0.192	0.848

Sources: partner	-0.043	-0.487	0.627
Sources: doctors	0.161	1.924	0.057
Sources: teachers	0.064	0.732	0.466

3.4 Differences between disciplinary practices applied by mothers and fathers

In reference to the fourth aim, regarding eventual differences between mothers and fathers in the use of dysfunctional disciplinary practices, the T test analysis of paired samples shows that mothers tend to apply more dysfunctional behaviours, both on a general scale (t: 3.036; $p < .01$), and within the specific fields of overreactivity (t: 3.567; $p < .001$) and verbosity (t: 2.252; $p < .05$). Fathers appear to be more laxist although this difference does not appear to be significant (Table 6).

Table 6- Means (standard deviations) for scores in disciplinary practices detected on the Parenting Scale of mother and fathers

	Total	Laxness	Overreactivity	Verbosity
Mothers	3.3345 (0.422)	2.6701 (0.660)	3.1993 (0.568)	4.4114 (0.718)
Fathers	3.2158 (0.395)	2.7015 (0.717)	3.008 (0.586)	4.2448 (0.827)

The scores of mothers and fathers are always correlated (table **7**): the partners are influenced each other on all the dysfunctional parenting style that we considered.

Table **7**- Correlations between Parenting scale scores of mothers and fathers

	Parenting scale TOTAL father	Parenting scale laxness father	Parenting scale overreactivity father	Parenting scale verbosity father
Parenting scale TOTAL mother	.367**	.255*	.242*	.210*
Parenting scale laxness mother	.302**	.322**	.069	.130
Parenting scale overreactivity mother	.193*	.024	.353**	.085
Parenting scale verbosity mother	.236*	.103	.137	.319**

*p < .05

**p < .001

3.5 Influence of knowledge on disciplinary practices

In reference to the fifth objective, aimed at investigating whether and how knowledge levels influence the implementation of dysfunctional parenting practices, a series of multiple linear regressions were executed, with the total score of dysfunctional behaviours and sub-scales of the Parenting Scale as dependent variables, and education level, age, child's age and knowledge level in different fields assessed with the KIDI scale, as independent variables.

In the case of mothers, it emerged that only laxness is influenced by the level of knowledge about development norms and milestones (with negative coefficient), constituting a modest, yet significant, contribution towards total model variance ($R^2 = 0.039$; F: 4.899; $p < .05$) (Table 8), whereas no other significant predictors emerged from variables taken into consideration, neither for the total scale nor for other sub-scales of the Parenting Scale.

Table 8: Predictors of disciplinary practices in mothers (laxness)

Dependent variables	Predictors	ß	t	P
Laxness	Knowledge of norms and milestones	-0,196	-2,213	**<0.05**
	Knowledge about principles	-0.011	-0.123	0.903
	Knowledge about parenting	-0.081	-0.820	0.414
	Knowledge about health	-0.016	-0.151	0.880
	Education level	0.018	0.184	0.855
	Mother's age	-0.022	-0.246	0.806
	Child's age	-0.049	-0.539	0.591

In fathers laxness is predicted by knowledge regarding principles ($R^2 = 0.057$; F: 6.951; $p < .05$) and overreactivity by knowledge about parenting (in both cases with negative coefficient) ($R^2 = 0.046$; F: 5.479;$p < .05$) (Table 9), whereas there are no other significant predictors among variables taken into consideration, neither for the sub-scale of verbosity nor for the total score of the Parenting Scale.

Table 9: Predictors of disciplinary practices in fathers (laxness and overreactivity)

Dependent variables	Predictors	ß	t	P
Laxness	Knowledge about principles	-0.239	-2.636	**<0.05**
	Knowledge of norms and milestones	-0.122	-1.205	0.231
	Knowledge about parenting	-0.109	-1.127	0.262
	Knowledge about health	-0.154	-1.594	0.114
	Education level	-0.075	-0.824	0.411
	Father's age	-0.115	-1.268	0.207
	Child's age	0.032	0.348	0.728
Overreactivity	Knowledge about parenting	-0.215	-2.341	**<.05**
	Knowledge about principles	-0.079	-0.809	0.420
	Knowledge of norms and milestones	0.024	0.241	0.510
	Knowledge about health	-0.162	-1.727	0.087
	Education level	-0.163	-1.774	0.079
	Father's age	-0.016	-0.177	0.860
	Child's age	0.168	1.542	0.068

4 Discussion

In reference to the first research query, this study found that the overall score for knowledge of child development is quite low, with participants scoring less for the norms and milestones subscale, as some recent studies showed (September, Rich, & Roman, 2015). Indeed it is possible to

observe that despite changes in contemporary society, where fathers are much more present and involved in the care of children from birth (Hall, 2005**;** Lamb, 2010; Zajczyk & Ruspini, 2008), in the present study mothers were still the most informed on child development and parenting, in line with the results of Schreiber (2001) and Winter, Morawska, & Sanders (2012), but in contrast with those obtained by Nobre-Lima and collaborators (2014). The area of general principles of development was the only area in which there was no difference between fathers and mothers regarding knowledge level; this result is in line with some studies which have shown that fathers possess generic knowledge about childhood, whereas mothers' knowledge is more specific and circumstantial, also due to greater direct experience with their own children (McGillicuddy-DeLisi, **1982**).

In reference to the second focus area of research, our data confirm findings of international studies in showing that parents use multiple knowledge sources, based both on direct and vicarious experience offered by the socio-cultural context, including family and friends as well as expert sources (paediatricians, teachers, educational texts or articles) (Civitas Initiative, Zero to Three, & Brio Corporation, 2000; Goodnow & Collins, 1990; MacPhee, 1981; Vukelich & Kliman, 1985).

Compared to their partners, mothers rely on "expert knowledge" much more frequently and this could explain, at least in part, the greater level of acquired knowledge. Indeed previous studies have evidenced that maternal accuracy of knowledge is improved by the use of formal, rather than informal, sources of information (MacPhee, 1983).

Fathers indicated their own partner as the main knowledge resource, demonstrating an awareness of the knowledge gap between them and their own partners.

The fact that they rely on their partner as a resource may explain the correlation between mothers' and fathers' knowledge, even if exchange within couples is not reciprocal: mothers turn to their family of origin and friends much more frequently and do not consider their own partner as an authoritative source of information on children: this confirms results obtained in the '80s by MacPhee (1983), despite changes in the role of fathers over the last few decades.

Although "new fathers" are more involved and present in the lives of children already from birth, it is also true that they often perceive their role as being mediated by mothers (Hauser, 2012; Miller 2011; Townsend, 2002, 2005), who act as relationship coordinators, taking on the responsibility of facilitating "involved fathering" (Kushner, Pitre, Williamson, Breitkreuz, & Rempel, 2014).

The theme of knowledge in this sense is crucial: some studies identify control over parenting information as one of the elements which may also be negatively exercised by mothers in order to increase their own centrality in the relationship with a child, thus inhibiting the participation of fathers in care, through the so -called "gatekeeping" process (Hauser, 2012). In contrast, the sharing of educational responsibilities requires mothers' and fathers' trust not only in their own competence and parental skills, but also in those of their partner (Scarzello **&** Arace, 2015).

In reference to the third focus area of research, it can be observed that maternal knowledge is predicted by level of education, a key factor which has already been highlighted in many studies (Berger & Brooks-Gunn, 2005; Conrad et al., 1992; McGillicuddy-DeLisi, 1982; Morawska,

Winter, & Sanders, 2009; Nobre-Lima et al., 2014; Reich, 2005), confirming the "knowledge gap hypothesis", which asserts that individuals with a higher socio-economic-cultural level have a head start in sourcing and adopting relevant information present in the social system and in accessing expert knowledge, especially in reference to the reading of texts and articles (Bornstein et al., 2010; Deutsch, Ruble, Fleming, Brooks-Gunn, & Stangor, 1988); these results allowed to affirm that interventions designed to potentiate parental knowledge may be best targeted towards those from lower education level groups (Morawska et al., 2009).

In the case of mothers, knowledge levels are not influenced by having more than one child, as found in many previous studies (MacPhee, 1981; McGillicuddy-DeLisi, 1982; Morawska et al., 2009) nor by the amount of time spent with their own children, although direct experience with children is important as child's age was found to be a predictor of knowledge: the opportunity to directly observe the growth of a child past its second year of life facilitates knowledge of fundamental development milestones; mothers with younger children have less acquired knowledge.

Parents' age does not play an important part in knowledge influence; many studies highlight that adult mothers possess greater levels of knowledge compared to adolescent mothers (Benasich & Brooks-Gunn, 1996**;** Bornstein et al., 2010; Hammond-Ratzlaff & Fulton, 2001), although in adult mothers, such as those in our group, a link between knowledge and age is not always found (Conrad et al., 1992; Nobre-Lima et al., 2014).

In the case of fathers, used information sources are the most significant factors, in line with some studies which show that vicarious information sources are the most effective in positively influencing knowledge levels (MacPhee, 1981; Frankel & Roer-Bornstein, 1982).

Although fathers mainly turn to their own partner for knowledge about development, this is not associated with an effective increase in knowledge, whereas the most effective knowledge level predictors are sources linked to scientific publications- rarely used by fathers- followed by knowledge obtained from family of origin. Direct experience is important in fathers too as those with more than one child and therefore have had the opportunity to experience development processes in different children, appear to be better informed.

In reference to the fourth focus are of research, mothers obtained higher scores than their partners, both in general levels of dysfunctional practices and within the specific fields of overreactivity and verbosity; fathers appear to be more lax- although in a statistically insignificant way. These results are in line with those of some previous studies which - in contrast with the traditional model in which the father is perceived as the authority figure- indicate mothers as generally stricter and more aggressive (Day, Peterson, & McCracken, 1998; Kim, Lee, Taylor, & Guterman, 2014; Lee, Altschul, & Gershoff, 2015; Straus & Stewart, 1999), probably due to the fact that they spend more time caring for their child on a day to day basis and therefore have more opportunities to exercise discipline (Craig, 2006); conversely, the fathers are more lax in response to child misbehavior, probably because fathers' time with children tends to center more around playful interactions, in which he doesn't need to discipline his own child (Hallers-Haalboom et al., 2016; Huerta et al., 2013).

Disciplinary practices implemented by both partners are always correlated, indicating the reciprocal influence of mothers and fathers as well as the tendency towards a convergence of educational

practices implemented by couples, as already highlighted in literature (Kim et al., 2014; Martin, Ryan, & Brooks-Gunn, 2007; Ryan, Martin, & Brooks-Gunn, 2006; Simon & Conger, 2007). This may constitute an element of risk when used strategies are ineffective or dysfunctional for the child's development.

In reference to the fifth focus area of investigation, it can be noted that greater levels of maternal knowledge do not always constitute a facilitating element for implemented disciplinary practices. Indeed in the present study, knowledge only constitutes a protective factor for tendencies towards laxness, in particular knowledge regarding development norms and milestones: an exact knowledge on when a child is ready to exercise a certain ability enables mothers to have correct expectations and to express requests for maturity directed at the child with a greater level of determination.

In contrast, knowledge does not appear to have an effect on other disciplinary practices; this is in line with some cross-cultural studies in which a discrepancy between beliefs and behaviours in Italian mothers is highlighted and where mothers are described as "dysregulated" in their educational practices, incapable of implementing disciplinary techniques in a determined and rational manner and acting above all under the impulse of emotionality and anger (Arace, Scarzello, & Occelli, 2013; Lo Coco, Zappulla, & Di Maggio, 2003). The discordance between knowledge and practices for mothers can also be due, at least in part, to lack of support from the less knowledgeable partner, as September and colleagues (2015) affirm.

In the case of fathers, knowledge appears to have a much greater impact. On the one hand, a general knowledge of principles acts as a protective factor in the tendency towards laxness: the possession of certainties on axioms regarding development processes probably favours educational coherence and firmness. On the other hand, knowledge about parenting reduces overreactivity: awareness of correct educational dynamics reduces the risk of reacting on impulse and with uncontrolled anger when faced with a child's transgression.

However both for mothers and fathers regression models present a highly modest explained variance, therefore it can be stated that parental knowledge exercises only a marginal effect on dysfunctional disciplinary practices taken into consideration in the study.

This only partially supports the part of literature which indicates that mothers with greater knowledge about development have better parenting skills and interact with their own children in a more positive manner (Reis et al., 1986; Stevens, 1984), for example in resorting less frequently to authoritarian and blackmailing strategies (Smith, 2002), whereas in contrast mothers with a limited knowledge repertoire tend to enter into conflict with their own children and resort to strict yet inconsistent discipline (Dukewich, et al., 1996; Teti & Gelfand, 1991).

However this discrepancy may derive from the different sample composition: previous research has mainly focused on adolescent mothers or mothers at risk; in "normal" conditions, knowledge may influence the orientation of parental practices to a lesser degree, as confirmed in studies which took into consideration low risk samples (Conrad et al., 1992; Huang et al., 2005; Myers, 1982), where knowledge often fails to predict parental practices in a direct and linear way. In this respect some authors (Hess et al., 2004; Huang et al., 2005) hypothesize that knowledge interacts with other cognitive variables (such as socialisation goals or self-efficacy) in influencing practices; it indicates the need to take these variable into account in future research.

5 Conclusions

There are numerous potential applications of research results for preventative action in the field of parenting support.

Firstly, data indicates weak areas of parental knowledge requiring reinforcement. Both parents have scarce knowledge in the field of norms and milestones, which is particularly important for guidance when structuring an appropriate environment for the child and providing age-appropriate activities (Huang et al., 2005); in the present study it also emerges as a protective element against the tendency towards laxness, in the case of mothers.

Health knowledge also requires reinforcement as there is a considerable deficit in sample parents: clinical and paediatric anamnesia is largely based on what is perceived or reported by parents, who in turn depend on aspects deriving from their pool of knowledge and information about child health (Bornstein **&** Cote, 2004).

In the case of fathers, the reinforcement of knowledge about general principles and parenting appears to be particularly important: both are central insofar as they have an impact on disciplinary practices and therefore indirectly on child development.

The importance of helping fathers to achieve a greater degree of autonomy from their own partners should also be taken into account, by strengthening their information acquisition processes and ability to access scientific sources such as articles and books, which are significant predictors of knowledge levels, despite being under used.

Increasing paternal knowledge would also facilitate a greater level of reciprocity in couples where men also constitute a resource for their partner, thus increasing their own self-efficacy and also reducing their partner's burden of responsibility.

There are also some limits to our research and it would be appropriate to overcome them in future investigations.

The exclusive use of self-report tools means that some answers may be unreliable due to the mechanism of social desirability, mainly in reference to dysfunctional educational practices; in the future it would be desirable to introduce observational measures for parental behaviours in specific situations.

Our investigation of parental practices focused exclusively on dysfunctional disciplinary practices implemented when faced with transgressive or problematic behaviour of own children, thus neglecting proactive behaviours or those congenial to development. In the future it shall be necessary to also consider the role of knowledge in the increase of positive behaviours.

Lastly, given that some studies indicate the need to consider the influence between knowledge and practices as non-linear, it shall be necessary to take into consideration a more complex configuration of interacting variables, with the introduction of other factors, both cognitive (such as self-efficacy and socialisation goals), and contextual ones (such as the co-parenting relationship and sources of stress) as well as those regarding the child (such as temperament).

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