

**A comparative analysis of interaction between parents and
children affected by diabetes or asthma or nonchronically
ill children**

Francesca Cuzzocrea^{1*}, Sebastiano Costa², Barberis Nadia¹,
Castiglione Claudia¹

¹ Department of Clinical and Experimental Medicine, University of Messina, Italy

² Department of Psychology, Nottingham Trent University, UK

Email Corresponding author: fcuzzocrea@unime.it

Abstract

Objectives: In accordance with the Global Focus Model, this study investigated parent–child interactions and analysed the differences between parenting interactions with children affected by asthma and diabetes by comparison with interactions with a child without special needs. Moreover, a comparison between fathers and mothers was made.

Methods: 96 parents aged 30–44 years were sampled. Sixteen couples had a child with diabetes mellitus type 1; 16 couples had a child affected by

asthma and 16 couples had children without any restrictions. All fathers and mothers completed the Parent Preference Test.

Results: The data analysis highlighted different interactions adopted by parents in relation to the characteristics of their children.

Conclusions: The results of this study reveal confirmed the differences in parenting styles adopted in presence of a child with asthma or diabetes. These results could be useful in order to support parent and help them improving their coping and management competences.

Key words: Parents, children, parent-child interaction, asthma, diabetes

Introduction

Parents play an important, almost essential role in the maturation and development of their children; a role that is more relevant when there is a child with issues related to health conditions such as asthma (Chiou, Hsieh, 2008) or diabetes (Cunningham, Vesco, Dolan, Hood, 2011). Studies have found that parents of a child with a chronic illness such as type 1 diabetes (Powers, Patton, Byars, et al., 2002; Mellin, Neumark-Sztainer, Patterson, 2004) or intellectual disabilities present more psychological distress than parents of a child without special needs (Cuzzocrea, Murdaca, Costa et al (2016).

However, actual results did not allow for a definitive conclusion (Mellin, Neumark-Sztainer, Patterson, 2004). Helgeson, Reynolds, Tomich, (2006) underlined that the presence of a child with diabetes is related to good psychological health, to better family health habits, and is related to increased maturity and a more conscientious nature of the child, while more recently Driscoll, Johnson, Barker, et al. (2010) reported as the presence of a child with diabetes represented a risk factor associated with depressive symptoms in caregivers.

In general, many researchers confirmed the impact of a chronic illness child on family functioning (Cuzzocrea, Larcan, Westh, 2013), marital satisfaction (Santamaria, Cuzzocrea, Gugliandolo, Larcan, 2012) even

because the relationship between marital conflict and parenting quality was confirmed by a more recent study of Benedetto and Ingrassia (2015).

The importance of family context for increasing the management skills of chronic illnesses is well described in the literature, such as the impact of parenting style on child's adjustment. For instance, Beveridge et al. (2007) suggested that an optimal parenting style is characterized by an adequate acceptance and attention to the demands of the child, control and regulation of his behaviour, and an active involvement of the parents during interactions. This style would lead to improved management of children with asthma and diabetes who perceive their parents as supportive and available. This appears to be more relevant during adolescence when the father-adolescent relationship seems to be important for diabetes management and when parents' acceptance of diabetes management occurs through parental monitoring (Berg, Butler, Osborn, et al., 2008).

Parents can play an important role in encouraging more responsibility in their children than could be expected given their developmental phases. When a child is affected by chronic illness, parents' expectations can influence children's beliefs, behaviours, and compliance. This point was confirmed by Burgess, et al. (2008) that focused their attention on factors associated with adherence in young children with asthma taking into consideration the parents' role and establish a link between parenting and adherence to the treatment in children with asthma. More recently, the meta-analysis performed by Graves, Roberts, Rapoff, Boyer (2010) analyzed the efficacy of adherence interventions for chronically ill children. In contrast, parents exercising low demand usually ask very little of their children and allow children to do anything they want to do (Hullmann, Wolfe-Christensen, Ryan, et al., 2010). For this reason, it is important to analyse parent-child interactions to guarantee authoritative child-centred parenting. Authoritative parenting, characterised by warmth and inductive control, i.e., control that includes requests for maturity on the part of the child and explanations about the position taken by the parents.

The literature highlights that factors such as heat and control appear to be relevant to parents of children with asthma and diabetes. Parents are

required to meet the specific characteristics of the child and to create conditions that enable them to exercise their educational role, respecting the needs of their child. A climate of flexibility that has been associated with positive outcomes in child development (Rollins, Thomas, 2009; Lamborn, Mounts, Steinberg, Dornbusch, 2011).

However, less attention is given in parent–child interactions when the children are affected by chronic illness and, as underlined by Bonner et al. (2007) the inclusion of fathers in child-oriented psychology and specifically, paediatric psychology, has become a topic of interest for many researchers (Brown, 2006; Cuzzocrea et al. 2016). In these family contexts, the parent–child interaction is crucial for a better adaptation by the child, among the qualities that usually characterise the parent–child interaction. Helgeson, et al. (2012) underline that there are less studies on the effect of a child with diabetes on the lives of parents and suggest that future research should examine the nature of parent–child interactions surrounding diabetes care. Comparing families with a typically developing child and a child with an intellectual disability, parenting-style preference has been linked with parental stress and family functioning (Cuzzocrea, Larcan, Westh, 2013). Studies have confirmed that the presence of a child with a disability necessitates important changes in the parent interaction (Cuzzocrea, Larcan, Costa, Gazzano, 2014). It is possible that the diagnosis of a chronic illness could influence parent–child interactions in accordance with the transactional model of parent–child interactions note as Global Focus Model. In the Global Focus Model (Sameroff, Chandler, 1975), the parent–child interaction is described as a reciprocal, dynamic helix of learning and development, concentrating on three central aspects: attention, experiential modality, and regulation (Westh, 2006). It is our opinion that, in general, but more often in the presence of a child with chronic illness, parents must learn to understand a child's behaviour, intentions, needs, and perspectives. Similarly, the child must learn to read parent's initiatives, intentions, and perspectives.

For meteorological reasons, this research focused only on two chronic illness and more specifically, ee wanted to verify if there are differences in parent–child interactions in families with a child affected by asthma and diabetes compared with families with non-chronically ill children. In

accordance with the Global Focus Model, we analysed parent–child interactions through four general aspects: Focus of Attention, Experiential Modality, Regulation, and Energy.

Moreover, we wanted to verify if fathers and mothers interact differently with their children in relation to the child’s illness.

Method

Subjects

In total, 96 parents were sampled, controlling for cultural level, aged 30–44 years (mean [M] = 37.08 years; standard deviation [SD] = 2.86). Sixteen couples had a child with diabetes mellitus type 1 (age: M = 7.2 years; SD = 1.3); 16 couples had a child affected by asthma (age: M = 7.1 years; SD = 1.5); 16 couples had children without any restrictions aged 5–7 years (age: M = 7.4 years; SD = 1.6). All families were composed of a father, mother, and one child. Half of the children were males and half were female.

The fathers and mothers of children with asthma and diabetes were met in the hospital during normal medical appointments. All children were affected by asthma and diabetes mellitus for 1 year. The control group was selected by controlling for the age and gender of the children, family socio-cultural level. All parents were Italian, belonged in middle-class socioeconomical level, where at least one parent had obtained a degree and both parents are employees.

Before administration of the study, participants provided informed consent to participate in the study and release the use of data collected for research purposes. All participants were volunteers who benefitted from individual feedback.

Procedure and instruments

The Parents’ Preference Test ((PPT – Westh; 2003; Italian standardization by Baiocco, Westh, Laghi, et al., 2008)) was presented individually to each participant. The PPT is a multiple-choice graphic test that uses 24 vignettes representing everyday family activities. Each of the 24 items in the PPT is

composed of 5 figures: a larger figure that acts as a stimulus for presentation and 4 smaller images or vignettes representing the possible alternatives of choice with reference to the situation presented previously. The parents must choose one of the four images, which illustrate four different ways to interact. The PPT measures four general aspects of parent–child interactions: Focus of Attention (paedoptic vs. autoptic; min: 1 and max: 8), Experiential Modality (rational vs. emotional; min: 1 and max: 8), Regulation (preceptual vs. contextual; min: 1 and max: 8), and Energy (passive vs. active; min: 1 and max: 15).

Paedoptic attention means that the parent's attention is primarily focused on the child during interactions, while autoptic attention refers to when the parent's attention is mostly focused on their beliefs. Rational experiential modality means that during interactions with the child, the parent is primarily logical, analytical, and rational in his/her way of perceiving and understanding the child and parent–child interactions. Emotional experiential modality indicates the parent is primarily emotional in his/her way of perceiving and understanding the child and parent–child interactions. Perceptual regulation means that during interactions with the child, the parent is regulating the child's behaviour primarily on the basis of an a priori set of rules and regulations governing what to do, how and when to do it, and what is right or wrong, or good or bad. Instead, contextual style means that the parent is regulating the child's behaviour primarily based on the functional options seemingly present in the situation as well as in the child. Active energy means that the parent is mostly a monitor; i.e., the parent is playing the initiating and active part in her/his interactions with the child. Passive energy means that the parent is mostly playing the expectant part, leaving the initiative to the child.

In this study, the PPT reliability was $\alpha = 0.75$ (parents of a child with asthma: fathers, $\alpha = 0.71$ and mothers, $\alpha = 0.74$; parents of a child with diabetes: fathers, $\alpha = 0.73$ and mothers, $\alpha = 0.75$; while parents of a child without specific illness: fathers, $\alpha = 0.72$ and mothers, $\alpha = 0.73$).

Results

The Statistical Package for the Social Science (version 19.0) was used to perform the statistical analyses. Given the small number of cases, non-

parametric statistics were used. To analyse possible differences among groups the Kruskal–Wallis (1952), based on the χ^2 statistic, and the Jonckheere–Terpstra (J–T) (1954) tests were used. In addition, to verify statistical differences between simple comparisons, the Mann–Whitney (U) test (1974) was applied.

To verify statistical differences within sub-scales, Friedman tests (1940) were used separately for fathers and mothers, while Wilcoxon signed-rank tests (1945) were used separately for dependent variables. Descriptive statistics of the variables are shown in Table 1. To better compare the results, all data were transformed to \sin^{-1} (Freeman, Tukey, 1950).

Children	Parents	Active Energy			Paedoptic Attention			Rational Modality			Perceptual Regulation		
		M	SD	M Rank	M	SD	M Rank	M	SD	M Rank	M	SD	M Rank
with asthma	Fathers	,93	,13	3,31	,85	,13	2,59	,67	,18	<i>1,50</i>	,87	,15	2,59
	Mothers	,92	,12	3,31	,73	,19	2,13	,57	,14	<i>1,31</i>	,87	,26	3,25
with diabetes	Fathers	,88	,14	2,75	,89	,19	2,69	,66	,11	<i>1,31</i>	1,00	,16	3,25
	Mothers	,94	,21	2,75	,91	,21	2,53	,68	,15	<i>1,38</i>	1,04	,14	3,34
Without Hills	Fathers	,85	,12	2,75	,74	,27	2,28	,67	,22	<i>1,72</i>	,95	,21	3,25
	Mothers	,94	,13	3,19	,88	,20	2,78	,53	,21	<i>1,13</i>	,91	,15	2,91

Table 1 - Descriptive Statistics (mean, standard deviation and mean rank) of fathers and mothers scoring on active dimensions Parents Preference Test (PPT)

As showed, in table 2, in contrast with fathers that appear to use the same modality interaction in all groups, mothers with a child with diabetes tend to pay more attention (paedoptic attention) and regulate behaviour primarily based on an a priori set of rules (perceptual regulation) more than mothers with children with asthma and without illness.

	Active Energy	Paedoptic Attention	Rational Modality	Perceptual Regulation
Fathers	$\chi^2(2)=3,452$; $p=.17$ J-T=1.87; $p=.07$	$\chi^2(2)= 3,082$; $p=.214$ J-T=.83; $p=.4$	$\chi^2(2)=,171$; $p=.92$ J-T=-.11; $p=.91$	$\chi^2(2)= 4,546$; $p=.1$ J-T= - 1.34; $p=.18$
Mothers	$\chi^2(2)=.44$; $p=.8$ J-T= -.393; $p=.69$	$\chi^2(2)= 7.03$; $p=.03^{**}$ J-T=-2.12; $p=.03^{**}$	$\chi^2(2)= 5.36$; $p=.06$ J-T=-.263; $p=.79$	$\chi^2(2)= 7.43$; $p=.02^{**}$ J-T=-.302; $p=.76$

Table 2 - Comparison between groups (Kruskal Wallis and Jonckheere-Terpstra tests) of fathers and mothers scoring on active dimensions Parents Preference Test (PPT)

Wilcoxon signed-rank tests confirmed the same differences in parent–child interactions in relation to the presence of specific illnesses (see table 3). Fathers play an initiating and active part in interactions (active energy) with children with asthma more than fathers of children without specific problems, while mothers seem to pay more attention (paedoptoc attention) to the child with asthma when compared within their modality of interaction with children without a specific illness.

Comparing the results obtained by parents with a child with diabetes with parents with a child without a specific illness, it is possible to note that fathers used the same interaction modality in all sub-scales, while mothers of children with diabetes appear to be more rational and regulate behaviour primarily based on an a priori set of rules when compared with their modality of interaction with children without a specific illness.

		Active Energy	Paedoptoc Attention	Rational Modality	Perceptual Regulation
with asthma vs. without	Fathers	U=77,5; Z= -1,94; p=.05*	U=104,5; Z= -,92; p=.36	U=126,5; Z=-,06; p=.95	U=98,5; Z=-1,13; p=.26
	Mothers	U=116; Z=-,46; p=.65	U=70; Z=-2,23; p=.03**	U=119,5; Z=-,33; p=.74	U=117,5; Z=-,41; p=.68
with diabetes vs. without	Fathers	U=110; Z=-,69; p=.49	U=84; Z=-1,69; p=.09	U=117; Z=.43; p=.67	U=109,5; Z=-,716 p=.474
	Mothers	U=120,5; Z=-,29; p=.77	U=119,5; Z=-,33 p=.74	U=74,5; Z=-2,08; p=.04	U=70,5; Z=-2,24 p=.02**
asthma vs. without	Fathers	U=102,5; Z=-,97 p=.33	U=103,5; Z=-,94 p=.34	U=121; Z=-,27 p=.79	U=70; Z=-2,25 p=.02**
	Mothers	U=112; Z=-,62 p=.54	U=67,5; Z=-2,31 p=.02**	U=79,5; Z=-1,90 p=.06	U=65,5; Z=-2,44 p=.01**

Table 3 - Comparison between groups (U di Mann-Whitney tests) of fathers and mothers scoring on active dimensions Parents Preference Test (PPT)

Fathers and mothers appear to regulate behaviour primarily based on an a priori set of rules (perceptual regulation) when they interact with a child

with diabetes compared with parents of a child with asthma. In contrast with fathers, mothers pay more attention (paedoptoc attention) to children with diabetes compared with those with a child with asthma. These results were confirmed by Friedman tests, which underlined the same significant differences between parents.

Fathers interact with their children using perceptual regulation more than other modality: this result was confirmed if they have a child with diabetes [$\chi^2(3) = 21.63$; $p = .0001$] and without a specific illness [$\chi^2(3) = 12.72$; $p = .005$], while fathers of children with asthma seem to use more active energy than the other modalities [$\chi^2(3) = 17.77$; $p = .0001$].

Mothers interact with their children using active energy if they are affected by asthma [$\chi^2(3) = 27.66$; $p = .0001$] or if they are without chronic illness [$\chi^2(3) = 26.18$; $p = .0001$], while they tend to regulate their interactions using predefined rules when they interact with children affected by diabetes [$\chi^2(3) = 20.09$; $p = .0001$].

Our data analysis also includes a comparison between the scales investigated by the questionnaire with the non-parametric Wilcoxon test (table 4).

		Active Energy			Paedoptoc Attention		Rational Modality
		Paedoptoc Attention	Rational Modality	Preceptual Regulation	Rational Modality	Preceptual Regulation	Preceptual Regulation
children with asthma	Fathers	-2,097; $p = .036$	-3,155; $p = .002$	1,659; $p = .097$	-2,478; $p = .013$	-,417; $p = .677$	-2,547; $p = .011$
	Mothers	-2,510; $p = .012$	-3,520; $p = .000$	-,517; $p = .605$	-1,906; $p = .057$	-2,351; $p = .019$	-2,741; $p = .006$
children with diabetes	Fathers	-,388; $p = .698$	-3,310; $p = .001$	-1,837; $p = .066$	-2,913; $p = .004$	-1,992; $p = .046$	-3,311; $p = .001$
	Mothers	-,827; $p = .408$	-2,898; $p = .004$	-1,526; $p = .127$	-1,710; $p = .087$	-2,693; $p = .007$	-3,424; $p = .001$
children without hill	Fathers	-1,811; $p = .070$	-2,121; $p = .034$	-1,526; $p = .127$	-,541; $p = .588$	-2,019; $p = .043$	-2,826; $p = .005$
	Mothers	-1,011; $p = .312$	-3,520; $p = .000$	-,854; $p = .393$	-,726; $p = .468$	-3,191; $p = .001$	-3,413; $p = .001$

Table 4 - Comparison between dimensions Parents Preference Test (PPT) (Wilcoxon tests) of fathers and mothers scoring

Both parents of children with asthma obtained a higher active energy score in and a lower rational modality score. Fathers of children with asthma use active energy more than paedoptoc attention [$Z(15) = -2.09$; $p = .04$]. They

used rational modality less than active energy [Z(15)= 3,15; p=.002], paedoptic attention [Z(15)= 2.48; p=.01], and less then perceptual regulation [Z(15)= 2.55; p=.002]. The same results were found in mothers. Mothers of children with asthma use active energy more than paedoptic attention [Z(15)= - 2,51; p=.01], and rational modality less than active energy [Z(15)= 3.52; p=.0001], paedoptic attention [Z(15)= 2.35; p=.02], and less then perceptual regulation [Z(15)= 2.74; p=.006].

Both parents of children with diabetes obtained a higher perceptual regulation score and a lower rational modality score. Fathers of children with diabetes used perceptual regulation more than paedoptic attention [Z(15)= 1.99; p=.05], and used rational modality less than active energy [Z(15)= 3.31; p=.001], paedoptic attention [Z(15)= 2.91; p=. illness perceptual regulation [Z(15)= 3.32; p=.001]. Different results were found in mothers. Mothers of children with diabetes did not use perceptual regulation more than paedoptic attention [Z(15)= 1.71; p=.08]. They used rational modality less than active energy [Z(15)= 2.89; p=.004], paedoptic attention [Z(15)= 2.69; p=.007], and less then perceptual regulation [Z(15)= 3.42; p=.001].

In the control group, fathers and mothers used different modalities to interact with their children: fathers obtained a higher score in perceptual regulation while mothers obtained a higher score in active energy. Both parents obtained a lower score in rational modality.

Fathers of children without a specific illness used perceptual regulation more than paedoptic attention [Z(15)= 2.02; p=.04] and rational modality less than active energy [Z(15)= 2.12; p=.03] and perceptual regulation [Z(15)= 2.83; p=.005]. Different results were found in mothers. Mothers of children without a specific illness used rational modality less than active energy [Z(15)= 3.52; p=.0001], paedoptic attention [Z(15)= 3.19; p=.001] and perceptual regulation [Z(15)= 3.41; p=.005].

Discussion and Conclusions

The role of maternal involvement in disease management and the monitoring of diabetes care tasks in young children has been well analysed (Wiebe, Berg, Palmer, et al. 2005; Wiebe, Berg, Gelfand, et al., 2011;

Mackey, Struempfler, Powell, et al., 2014). However, diabetes-specific monitoring has been relatively unstudied in relation to both parents even though it is known that parental monitoring is related to poorer glycemic control (Hansen, Schwartz, Weissbrod, Taylor, 2012; Hilliard, Holmes, Chen, et al., 2013). Moreover, Morawska, Stelzer, Burgess, (2008)

identified parenting challenges in families with asthmatic children. Although the role of parents in these contexts has been well analysed, many studies have focused on parent self-focused negative attributions, parental overprotection, perceived child vulnerability, parenting stress (Carpentier, Mullins, Wolfe-Christensen, Chaney, 2008) and parenting style (Gray, Steinberg, 2009; Larzelere, Morris, Sheffield, Harrist; 2013).

Parenting style is defined as the set of attitudes that the father and the mother manifest towards their children, and the ways in which educational and nurturing parents perform the typical functions of parenthood.

The aim of this research was, instead, to compare the parent–child interaction. The results highlighted different interactions adopted by parents with their children with asthma, diabetes, or without a specific illness: the presence of a child with asthma or diabetes can be linked to a change in the parent–child interaction. The interactions of parents with their chronically ill children appear to be more emotional, while the mothers and fathers of children with typical development adopt a more rational interaction.

The mode of interaction appears to also vary with respect to the role; mothers and fathers interact in a slightly different way with their child: fathers appear to not discriminate with respect to the condition of the children and prefer a more reflective and emotional interaction compared with mothers.

In general, the parents of children without any restrictions adopt a style of interaction characterised by a high degree of involvement in the relationship. In this family context, parents are vigorously active

participants and the attention is directed to the demands and needs of the child.

The presence of a child with asthma appears to be crucial especially for fathers who are more likely to adopt a kind of rational interaction, limiting their emotional involvement. However, both mothers and fathers of children with asthma, as well as parents of children without a serious illness, exhibit active, energetic, and responsive interactions.

By contrast, the parenting style of parents of diabetic children is characterised by paedoptic attention, in which the parents respond to the needs and requests of their children. What is common between these different parenting styles is the dimension of energy and the involvement of both parents appears to be constant in the parent–child interaction whether the child is asthmatic, diabetic, or does not have a serious illness.

All parents then, as participants, are active and responsive in relation to the different needs shown by their children.

Our results should be interpreted in the context of some limitations. First, this study is cross-sectional. It could be interesting to realise longitudinal research to verify how parent–child interactions change over a lifetime. It could also be interesting to analyse the reciprocal influences and transactions in the parent–child relationship. Moreover, the small number of families involved did not allow generalisation of the results and limited the opportunity to confirm causality between the presence of chronic illness children and interactions with their parents. In this explorative research, we believed it was more important to select families with the same characteristics to better guarantee internal validity. This choice significantly impacted the number of parents involved. Thus, it will be important for future studies to increase the sample size. Moreover, the aim of this research was not to evaluate child's or family's wellbeing and the absence of a measure that assesses child's or family's wellbeing in order to deepen the relation between parent-child interactions and child's health outcomes can be considered a limit. This could also be important for further studies.

These results have implications for healthcare professionals who work with families who have a child with chronic illness. In their meta-analysis, Graves, et al. (2010) reported that health outcomes were significantly better (improved adherence to asthma regimens) for studies using a combination of educational and behavioural interventions that could be more potent in impacting health outcomes than either strategy used alone. To reduce hospitalisations for children with poorly controlled asthma and

caregivers under stress, it could be useful to propose home-based interventions to address medical and psychosocial needs (Celano, Holsey, Kobrynski, 2012). For instance, Dicé, Dolce, Freda (2016) suggested the need for research aimed at helping health providers and parents recognize and understand the role of emotional developing the skills needed for shared management of medical care.

However, we believe that the analysis of the family system is important for the development of educational and behavioural interventions. It is not enough to focus on the impact of the illness on the parents and children, but also necessary to look at family functioning, parenting style, and parent-child interactions. This research could be one way to study the complex family system, which is influenced by many aspects (e.g., age of child and parents, typology of illness, family resilience) and we believe our results will encourage the study of variables that could represent protective factors.

References

1. Baiocco, R., Westh, F., Laghi, F., et al. (2008). Psychometric properties and construct validity of the Parents Preference Test (PPTe) in the Italian context. *International Journal of Psychology*, 43(3-4), 442.
2. Benedetto L., Ingrassia M. (2015) What connections between Marital conflict and Parenting Quality? Evidence from parent's gender in spillover effects. *Mediterranean Journal of Clinical Psychology*, 3(2).
3. Berg, C.A., Butler, J.M., Osborn, P., et al. (2008). The Role of Parental Monitoring in Understanding the Benefits of Parental Acceptance on Adolescent Adherence and Metabolic Control of Type 1 Diabetes. *Diabetes Care*, 31(4), 678-83.
4. Beveridge, R.M, Berg, C.A., Wiebe, D.J., Palmer, D.L. (2007). Mother and adolescent representations of illness ownership and stressful events surrounding diabetes. *Journal of Pediatric Psychology*, 31, 818-827.
5. Bonner, M.J., Hardy, K.K., Willard, V.W., Hutchinson, K.C. (2007). Brief report: Psychological functioning of fathers as primary caregivers of paediatric oncology patients. *Journal of Pediatric Psychology*, 32(7), 851-856.
6. Brown, R.T. (2006). *Emerging areas in pediatric/child health psychology*. In: National Conference on Child Health Psychology, Gainesville, FL.
7. Burgess, S.W., Sly, P.D., Morawska, A, et al. (2008). Assessing adherence and factors associated with adherence in young children with asthma. *Respirology*, 13, 559-563.
8. Carpentier, M.Y., Mullins, L.L., Wolfe-Christensen, C., Chaney, J.M. (2008). The relationship of parent self-focused negative attributions to ratings of parental overprotection, perceived child vulnerability, and parenting stress. *Families, Systems, & Health*, 26,147-163.
9. Celano, M.P., Holsey, C.N., Kobrynski, L.J. (2012). Home-based family intervention for low-income children with asthma: A randomized controlled pilot study. *Journal of Family Psychology*, 26(2), 171-178.
10. Chiou, H.H., Hsieh, L.P. (2008). Parenting stress in parents of children with epilepsy and asthma. *Journal of Child Neurology*, 23, 301-306.
11. Cunningham, N.R., Vesco, A.T., Dolan, L.M., Hood, K.K. (2011) From caregiver psychological distress to adolescent glycemic control: The

- mediating role of perceived burden around diabetes management. *Journal of Pediatric Psychology*, 36, 196-205.
12. Cuzzocrea, F., Larcan, R., Costa, S., Gazzano, C. (2014). Parents' competence and social skills in sibilings of disabled children. *Social Behavior and Personality*, 42(1), 45-58.
 13. Cuzzocrea, F., Larcan, R., Westh, F. (2013). Family and Parental Functioning in Parents of Disabled Children. *Nordic Psychology*, 65(3), 271-287.
 14. Cuzzocrea F., Murdaca, A.M., Costa S., Filippello P., Larcan R. (2016). Parental Stress, coping and social support in families of children with a disability. *Child Care in Practice*, 22 (1), 3-19.
 15. Dicé F., Dolce P., Freda M.F. (2016) Exploring emotions and the shared decision-making process in pediatric primary care. *Mediterranean Journal of Clinical Psychology*, 4(3).
 16. Driscoll, K.A., Johnson, S.B., Barker, D., et al. (2010). Risk factors associated with depressive symptoms in caregivers of children with type 1 diabetes or cystic fibrosis. *Journal of Pediatric Psychology*, 35, 814-822.
 17. Freeman, M.F., Tukey, J.W. (1950). Transformations Related to the Angular and the Square Root. *Annals of Mathematical Statistics*, 21, 607-611.
 18. Friedman M. (1940). A comparison of alternative tests of significance for the problem of m rankings. *Annals of Mathematical Statistics*, 11, 86-92.
 19. Graves, M.M., Roberts, M.C., Rapoff, M., Boyer, A. (2010). The efficacy of adherence interventions for chronically ill children: a meta-analytic review. *Journal of Pediatric Psychology*, 35(4), 368-382.
 20. Gray, M.R., Steinberg, L. (2009). Unpacking authoritative parenting: Reassessing a multidimensional construct. *Journal of Marriage and Family*, 61, 574-587.
 21. Hansen, J.A., Schwartz, D.D., Weissbrod, C., Taylor, W.P. (2012). Paternal involvement in pediatrics type 1 diabetes: Fathers' and mothers' psychological functioning and disease management. *Families, Systems, & Health*, 30, 47-59.
 22. Helgeson, V.S., Becker, D., Escobar, O., Siminerio, L. (2012). Families with children with diabetes: Implications of parenting stress for parent and child health. *Journal of Pediatric Psychology*, 37(4), 467-478.

23. Helgeson, V.S., Reynolds, K.A., Tomich, P.L. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology, 74*(5), 797-816.
24. Hilliard, M., Holmes, C., Chen, R., et al. (2013). Disentangling the role of family conflict in adolescents' management of type 1 diabetes. *Health Psychology, 32*(4), 388-396.
25. Hullmann, S.E., Wolfe-Christensen, C., Ryan, J.L., et al. (2010). Parental overprotection, perceived child vulnerability, and parenting stress: A cross-illness comparison. *Journal of Clinical Psychology in Medical Settings, 17*, 357-365.
26. Jonckheere, A.R. (1954). A test of significance for the relation between m rankings and k ranked categories. *British Journal of Mathematical and Statistical Psychology, 7*, 93-100.
27. Kruskal, W.W., Wallis, W.A. (1952). Use of ranks in one-criterion variance analysis. *Journal of the American Statistical Association, 47*, 583-621.
28. Lamborn, S.D., Mounts, N., Steinberg, L., Dornbusch, S. (2011). Patterns of competence and adjustment among adolescents from authoritative, authoritarian, indulgent and neglectful families. *Child Development, 62*, 1049-1065.
29. Larcán, R., Cuzzocrea, F. (2011). Family functioning and psychosocial adjustment of siblings of children with intellectual disabilities. *Psicologia Clinica dello Sviluppo, 15*(1), 123-153.
30. Larzelere, R.E., Morris, A., Sheffield, A., Harrist, A.W. (2013). *Authoritative parenting: Synthesizing nurturance and discipline for optimal child development*. Washington DC: American Psychological Association.
31. Mackey, E., Struempf, K., Powell, P., et al. (2014). Maternal Depressive Symptoms and Disease Care Status in Youth with Type 1 Diabetes. *Health Psychology, 33*(8), 783-791.
32. Mann, H.B., Whitney, D.R. (1974). On a test of whether one of two random variables are stochastically larger than the other. *Annals of Mathematical Statistics, 18*, 50-60.
33. Mellin, A.E., Neumark-Sztainer, D., Patterson, J.M. (2004). Parenting adolescent girls with type 1 diabetes: Parents' perspectives. *Journal of Pediatric Psychology, 29*, 221-230.

34. Morawska, A., Stelzer, J., & Burgess, S. W. (2008) Parenting asthmatic children: identification of parenting challenges. *Journal of Asthma*, 45, 465–472.
35. Powers, S.W., Patton, S.R., Byars, K.C., et al. (2002). Parent report of mealtime behavior and parenting stress in young children with type 1 diabetes and in healthy control subjects. *Diabetes Care*, 25, 313–318.
36. Rollins, B.C., Thomas, D. (2009). Parental support, power and control techniques in the socialization of children. In: Burre WR, Hill R, Nye FI, Reiss IL (eds) *Contemporary theories about the family: Research-based theories*. New York: Free Press, 317-364.
37. Sameroff, A.J., Chandler M.J. (1975). Reproductive risk and the continuum of caretaking casualty. *Review of child development research*, 4, 187-244.
38. Santamaria, F., Cuzzocrea, F., Gugliandolo, M.C., Larcan, R. (2012). Marital satisfaction and attributions style in parents of children with Autism Spectrum Disorder, Down Syndrome and nondisabled children. *Life span and disability*, 15(1), 19-37.
39. Westh, F. (2003). Parents Preference Test – PPT, Copenhagen: Westh Development & Psykologisk Forlag.
40. Westh, F. (2006). Fokusmodellen. In Westh F, Christian A, Stewart Ferrer MA, Dip MA (eds) *I dialog med familien*. Copenhagen: Dansk Psykologisk Forlag, pp. 163-175.
41. Wiebe, D.J., Berg, C.A., Gelfand, D., et al. (2011) Longitudinal associations of maternal depressive symptoms, maternal involvement, and diabetes management across adolescence. *Journal of Pediatric Psychology*, 36, 837–846.
42. Wiebe, D.J., Berg, C.A., Palmer, D.L., et al. (2005). Children's appraisals of maternal involvement in coping with diabetes: Enhancing our understanding of adherence, metabolic control, and quality of life across adolescence. *Journal of Pediatric Psychology*, 30(2), 167-178.
43. Wilcoxon, F. (1945) Individual comparisons by ranking methods. *Biometrics*, 1, 80-83.