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Clinical psychology

Exploring emotions in dialog between health provider, parent and child. An observational study in pediatric primary care



Explorer les émotions dans le dialogue entre médecins, parents et enfants. Une étude observationnelle en soins primaires pédiatriques

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ABSTRACT

Introduction. – This paper is part of the theoretical thread of health psychology and it presents a study aimed to recognize information useful to implement psychological interventions finalized to personalize medical treatments and engage users in pediatrics.

Objective. – In this paper is presented an observational study aimed to explore doctor–patient dialog about worries in pediatric primary care; it has been carried out identifying dialogical interaction patterns, or typical dialog between health providers, parent and child.

Method. – We documented conversations in 265 visits; we audio-recorded, transcribed and analyzed them with Verona Coding Definitions of Emotional Sequences. Dialogs between participants were analyzed one by one. Frequencies of emotions' signals (cues/concerns) and responses were analyzed through Redundancy Analysis, aimed to establish a quantitative relationship between these pair of groups of variables considering the asymmetrical relationship between them.

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Results. – Six “Dialogical Interaction Patterns” were obtained by interpreting these relationships; they show dialogs mainly aimed at obtaining information useful for diagnosis and treatment, with a limited exploration of worries or issues related to the condition of the child. Pediatric conversations seem to be characterized by a very high attention to cognitive aspects of medical questions with a poor consideration of emotions as useful information to medical practice.

Conclusions. – These dialogs seem to ensure the rapidity and the efficiency of medical visits. Nevertheless, it could be useful to implement psychological interventions to achieve an enrichment of the dialog between participants, helping them to recognize users’ emotions as useful to define shared medical strategies.

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R É S U M É

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Introduction. – Cet article fait partie du fil théorique de la psychologie de la santé et présente une étude visant à reconnaître les informations permettant la mise en oeuvre d’interventions psychologiques finalisées. Elles permettent de personnaliser les traitements médicaux et mobiliser les utilisateurs en pédiatrie.

Objectif. – Dans cet article est présentée une étude observationnelle explorant le dialogue entre le médecin et le patient sur ses inquiétudes en matière de soins primaires pédiatriques. Elle a été réalisée en identifiant des modèles d’interaction dialogiques typiques entre les prestataires de santé, les parents et les enfants.

Méthode. – Les conversations de 265 visites ont été enregistrées, transcrites et analysées avec le Verona CoDES. Les dialogues entre les participants ont été analysés un par un. Les fréquences des signaux d’émotions (indices/préoccupations) et les réponses ont été étudiés à l’aide de l’analyse de redondance, dans le but d’établir une relation quantitative entre ces deux groupes de variables, en tenant compte de la relation asymétrique existante entre ces deux groupes.

Résultats. – Six « schémas d’interaction dialogiques » ont été obtenus suite à l’interprétation de ces relations. Ils montrent des dialogues visant principalement à obtenir des informations utiles pour le diagnostic et le traitement, mais présente une exploration limitée des problèmes liés à la condition de l’enfant. Les conversations en pédiatrie semblent être caractérisées par une très grande attention aux aspects cognitifs et prennent peu en considération les émotions en tant qu’informations utiles à la pratique médicale.

Conclusions. – Ces dialogues semblent assurer la rapidité et l’efficacité des visites médicales. Néanmoins, il pourrait être utile de mettre en oeuvre des interventions psychologiques pour enrichir le dialogue entre les participants, en les aidant à reconnaître que les émotions des utilisateurs peuvent aider à définir des stratégies médicales partagées.

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1. Introduction

This observational study is part of the theoretical thread of health psychology, considering it an important field of application of psychological interventions (Esposito, Marano, & Freda, 2018b; Freda, González-Monteagudo, & Esposito, 2016). This paper intends to explore doctor–patient dialog, considering it as useful to implement psychological interventions aimed to help health providers to personalize medical treatment and engage users in medical care (Elwyn & Edwards, 2016; Mullins, Abdulhalim, & Lavallee, 2012).

In medical contexts, an important component of this dialog is the possibility, for physicians, to catch signals of worries expressed by users during medical visits. This possibility is considered as a backbone of a doctor–patient relationship aimed at involving users, in order to personalize the treatment following, if possible, their preferences and needs (Buckman, 2010). Furthermore, many studies (e.g. Mazzi, Bensing, & Rimondini, 2013; Kenny, Veldhuijzen, & Weijden, 2010) underline that, through dialog, physicians can mitigate users' anxiety and strengthen their enablement, with effects on better diagnostic and clinical outcomes based on shared aims (Jankovic, 2014). We talk about an empathetic patient-centered communication (Buckman, 2010), possible if the health provider is able to pick up users' signals and effectively acknowledge or respond to the emotions or concerns that emerge, to make the patient feeling understood and sustained (Sustersic et al., 2018; Richard & Lussier, 2016; Del Piccolo, Zimmermann, & Finset, 2008; Donizzetti & Petrillo, 2015).

In pediatric contexts, the realization of this kind of communication is more complex. In fact, the generally dyadic dialog between health providers and patients requires the presence of at least three interacting subjects (pediatrician, parent and child) (Audrain-Servillat, 2017; Pettoello-Mantovani, Campanozzi, Maiuri, & Giardino, 2009; Vatne, 2017; Caso & Iannario, 2018; Jankovic, 2014; Dicé, Maiello, Dolce, & Freda, 2017a; Dicé et al., 2018a; Freda & Dicé, 2017). So, the health provider has to involve two participants, of whom one is a child who may have difficulty to talk with adults (Gallina et al., 2015).

In primary care, many worries expressed are about the child's clinical condition, regardless of its severity (Cahill & Papageorgiou, 2007a; Vatne, 2017). Issues about the growth and development of the child are typically discussed and, in addition to the medical aspects of the check-up, the health provider has often to support and allay the worries of the child's whole family, who may need guidance in the daily management of the child's growth (Kazak & Noll, 2015). As is natural, in this context, adult participants primarily manage dialog about the child's care and the health provider is often chosen for his or her ability to support the anxiety of mothers as well as for medical competence (Jankovic, 2014). The health provider, through dialog, could help users to express their worries about the care and engage them in medical procedures, helping them to manage child's conditions, regaining their autonomy and participate in their therapy (Armstrong, Jackson, & Hoffman, 2018; Capone, 2009, 2014). Nevertheless, many studies (Elwell, Povey, Grogan, Allen, & Prestiwich, 2013; Philpott et al., 2017; Vatne, Finset, Ørnes, & Ruland, 2010) underline that the communication about medical conditions in pediatric primary care (e.g. flues, vaccination) may lead to a limited consideration of these worries as useful information for medical practices.

These issues offer new study and intervention perspectives in the field of health psychology (Valsiner & De Luca Picione, 2017; De Luca Picione, 2015; De Luca Picione, Martino, & Freda, 2017, 2018; Quattropiani et al., 2017; Quattropiani, Geraci, Lenzo, Delle Chiaie, & Filastro, 2018). This study is part of the research lines aimed at deepening characteristics of the pediatric dialog, in order to hypothesise the implementation of psychological interventions aimed to promote its resources for the medical practice (Carfora, Caso, & Conner; Martino & Freda, 2016; Martino, Onorato, & Freda, 2015; Dicé, Santaniello, Gerardi, Menna, & Freda, 2017b; Dicé et al., 2018b; Savarese et al., 2018). This paper aims to explore these dialogs where worries are scarcely deepened, with a rarely involvement of children confined in a peripheral role.

In a previous work (Dicé et al., 2017a), we identified Dialogical Interaction Patterns (DIPs) defining them as “typical characteristics of dialogs between pediatricians and their interlocutors”; DIPs were composed of signals of an unpleasant emotion expressed by patients and responses by pediatricians (for the signals expressed by the children, the answers of the parents were also catalogued); furthermore, health discussions were dedicated primarily to cognitive topics that rarely addressed the

informational value of the users' emotions or shared decision making processes. Even if this dynamic can be useful to preserve the speed of diagnostic and therapeutic practices, it can limit the possibilities for exchange and dialogical comparison regarding health procedures. In fact, in the case of decisions that generate concern in the participants (for example, a surgical operation or the intake of prolonged drug therapy) they can be determined either by stiffening positions or by a tendency to delegate each other; in both cases, there is a risk of health exodus.

In this paper, a new observational study is presented, to deepen pediatric dialog about worries; as a total innovation in literature, we intend to explore the causal link between the most typical expressions of worries of participants and their subsequent responses. In this way, we intend to propose a more deepen definition of DIPs – as directions taken in such dialogs.

2. Materials and methods

This observational study is aimed at identifying typical structures of doctor-patient dialog, observing the relationships between Health Providers and Parent, between Health Providers and Child, and finally between Parent and Child. The Parent was therefore considered in his/her dual role during the visit, as user and as privileged interlocutor for the Child. Observations will be focused on the following Dialogical Interaction Axes (DIA) (Dicé et al., 2016):

- Parent–Health Provider DIA, analyzing worries expressed by parents and responses provided by pediatricians;
- Child–Health Provider DIA, analyzing worries expressed by children and responses provided by pediatricians;
- Child–Parent DIA, analyzing worries expressed by children and responses provided by parents.

3. Context

An observational study was conducted in eight pediatric primary care practices in Naples, a city in Southern Italy. These practices belonged to the National Health Service and focused on children aged between 0 and 14 years. The doctors performed health assessments, screening, medical visits, drug prescriptions, therapies, and, if necessary, consulted with other specialists (e.g., cardiologists or orthopedics) or ordered laboratory analysis (e.g., blood analysis or urinalysis). Their patients came mainly from a low- to mid-level social class. The practices studied here were selected because they were situated in densely populated areas of the city. Three or four Health Providers worked at each of these practices, visiting about 1300 children a year.

4. Participants and procedures

We collected audio-recorded conversations which were transcribed verbatim from 265 visits. The average visit lasted 12.43 minutes (SD 4.05 minutes). We involved 19 Health Providers (12 males, 7 females), 265 children (mean age 9.50 years, SD 2.47 years), 134 M (mean age 9 years, SD 4.24 years) and 131 F (mean age 9.25 years, SD 5.30 years), 251 mothers and 34 fathers. In the vast majority of cases, there was only one parent or, when both were present, the dialogue was mainly held by only one parent (mainly the mother); in no one of these cases, father expressed some worries. [Table 1](#) shows the distribution of children related to the various Health Providers.

The data collection period lasted three months and was undertaken twice a week on days agreed upon by the Health Providers who had verbally consented to observation and audio recording of their daily visits. Participation was required for all families seeking services, at the beginning of the medical visit. All parents accepted, except for two who refused, citing confidentiality. All parents signed written informed consent forms. The research was conducted in accordance with the ethical approval of the Biomedical Research Ethics Committee of the University of Naples “Federico II”.

Table 1
Health providers and children.

	Sex	Children	Males	Females
Ped. 1	M	4	3	1
Ped. 2	M	13	3	10
Ped. 3	F	5	1	4
Ped. 4	M	9	4	5
Ped. 5	F	25	15	10
Ped. 6	M	15	6	9
Ped. 7	M	5	4	1
Ped. 8	F	7	5	2
Ped. 9	M	6	4	2
Ped. 10	M	6	5	1
Ped. 11	M	9	2	7
Ped. 12	F	8	4	4
Ped. 13	M	23	8	15
Ped. 14	M	12	7	5
Ped. 15	F	21	11	10
Ped. 16	M	26	11	15
Ped. 17	F	17	12	5
Ped. 18	F	23	13	10
Ped. 19	M	31	16	15

Ped.: Pediatrician.

4.1. Tools

To analyze conversations, we used a specific tool that involves a grid to be completed by the observer after each visit. The Verona Coding Definitions of Emotional Sequences (VRCoDES) (Del Piccolo et al., 2010; Zimmermann et al., 2010) is used to identify cues (expressions in which emotions are not clearly verbalized) and concerns (clear verbal expressions of unpleasant emotional states) expressed by patients during medical consultations. Del Piccolo et al. (2008) also divided cues into seven sub-categories (Table 2) that more specifically describe anxieties of adults during doctor-patient dialog. Furthermore, Vatne et al. (2008) propose a further classification (also described in Table 2) in which, where necessary, they propose some additions in the description of cues that allow the instrument to identify anxieties of children.

VR-CoDES also identify responses of health care providers, classifying them as “explicit” (E), or “not explicit” (N), and as functions that either “provides” (P) or “reduces space” (R) (Table 3) (Del Piccolo et al., 2008).

Two independent judges analyzed the transcripts. To describe the relational context, we assumed a three-sided configuration labeled the HPC Triangle (Health Provider, Parent, Child) (Fig. 1) (Dicé et al., 2016; Dicé & Zoena, 2017; Cahill & Papageorgiou, 2007b).

The sides of this triangle are defined as Dialogic Interaction Axes (DIA). What happens along each of the sides, can influence the other sides of the triangle. The side indicating the interaction between the Health Provider and parent is labelled “Parent–Health Provider DIA”, the side indicating the interaction between the Health Provider and child as “Child–Health Provider DIA”, and the side indicating the interaction between the parent and child as “Child–Parent DIA”. For Parent–Health Provider and Child–Health Provider DIA, we classified the frequencies of the cues/concerns expressed by parents and children and the responses of the Health Providers. For Child–Parent DIA, we classified the frequencies of cues/concerns variables and to investigate how strongly the second block of variables depends on the first one.

We analyzed DIA one by one. We apply Redundancy analysis (Wollenberg, 1977), an alternative method to canonical correlation analysis (Hotelling, 1936) used when the aim of the analysis is to study an asymmetrical relationship between two sets of variables (Dolce et al., 2018), to assess the influence of a block of variables on another. Technically, redundancy analysis constructs components (i.e., linear combinations of the explanatory variables), such that the amount of variance in the dependent block explained by these components is maximized.

Table 2
Subcategories of cues.

	Adults	Children
Cue A	Words or phrases in which the patient uses vague or unspecified words to describe his/her emotions	No additions
Cue B	Verbal hints to hidden concerns	Definition based: emphasizing/unusual words/unusual description of symptom/profanities/exclamations/metaphors/ambiguous words/double negations/expressions of uncertainty and hope Based on comments to cue criteria and examples in the manual. Imperative statements about a topic currently in focus of shared attention (Don't do it too fast!). Clear denial or refusal of permission No additions
Cue C	Words or phrases which emphasise physiological or cognitive correlates of unpleasant emotional states	No additions
Cue D	Neutral expressions that mention issues of potential emotional importance which stand out from the narrative background and refer to stressful life events and conditions	No additions
Cue E	A patient elicited repetition of a previous neutral expression	No additions
Cue F	Non-verbal cue	Onomatopoeia ("ouch", "uhuu" or "yak")
Cue G	A clear and unambiguous expression of an unpleasant emotion which is in the past or is referred to an unclear period of live	Verbal cues about experiences of negative emotional importance (with or without a stated time frame) suggesting a similar situation or emotional state in the present (last time she did it (medical procedure) so fast I blacked out)?

Table 3
Health provider's response.

Non-explicit (n)		Explicit (E)	
Reduce space (NR)	Provide space (NP)	Reduce space (ER)	Provide space (EP)
NRIg (ignore)	NPSi (silence)	ERSw (switching)	EPCAc (acknowledgement)
NRSd (shutting down)	NPBc (back channel)	ERPp (post – poning)	EPCEx (exploration)
NRIa (information advise)	NPAc (acknowledgement)	ERLa (information advise)	EPAAc (acknowledgement)
	NPAi (active invitation)	ERAb (active blocking)	EPAEx (exploration)
	NPIm (implicit empathy)		EPAEm (empathy)

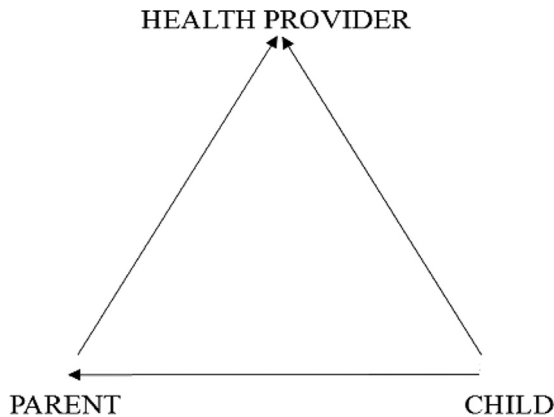


Fig. 1. The HPC Triangle, showing DIAs.

Table 4
Frequencies of cues/concerns and responses on the Parent–Health Provider DIA.

Parents		Health providers	
	Frequencies		Frequencies
Cue A	57	EPAAC	6
Cue B	220	EPAEM	5
Cue C	163	EPAEX	3
Cue D	39	EPCAC	12
Cue E	71	EPCEX	53
Cue F	16	ERIA	208
Cue G	13	ERSW	56
Concerns	37	ERPP	18
		ERAB	40
		NPAC	10
		NPAI	3
		NPBC	15
		NPSI	10
		NPIM	4
		NRIA	55
		NRIG	58
		NRSD	60

$K = .762$

Because data obtained from the present observational study suffers from the rarity problem (i.e., matrices are sparse, that is to say, they have a large number of zeros values meaning non-presence), application of redundancy analysis may produce quite distorted and uninterpretable results. To get around this problem, we use a simple solution proposed by [Karadžić, Jaric, Marinkovic, & Mitrović \(2014\)](#), based on hypercorrelated matrices. Compared to the redundancy analysis applied on the original matrices, redundancy analysis on hypercorrelated matrices have produced much more meaningful and interpretable results in the present study.

Due to the non-normal distributions of data, the global test of validity of the overall model is based permutation tests instead of classical parametric tests ([Legendre & Legendre, 1998](#)). Through permutation tests, it is also possible to test the significance of each individual component in explaining the dependent block. Statistical tests on components and the proportion of the total variance explained by each component are used to identify how many components should be considered for each DIA. Furthermore, the loadings associated to each variable are analysed to define and interpret the components and the relative relationships between them. Finally, for Child–Health Provider DIA and Child–Parent DIA, children are divided in three age groups (0–4, 5–8 and 9–12 y/o) and it is examined the difference of the mean score for each component over the three groups. Finally, a one-way ANOVA is applied for each component to test whether children's age has a significant effect.

The data analysis is carried out with the statistical computing software R, using the vegan package ([Oksanen et al., 2017](#)). The p -value < 0.05 was taken as the level of significance.

5. Results

5.1. Parent–Health Provider DIA

The following tables described frequencies of cues/concerns ([Table 4](#)) and Health Providers responses ([Table 5](#)).

As a whole, the asymmetrical relationship between “Health Provider” and “Parent” is statistically significant ($F(8, 256) = 12.86, p < 0.001^1$), which means that “Health Provider” variables explain much of the variability of Parent variables. The test of the significance for each component separately suggests that two components are significant ($F(1, 256) = 99.05, p < 0.001$ for the first component, and

¹ All the p -values below are obtained by permutation, except for the analysis of variance (one way ANOVA).

Table 5
The Parent–Health Provider DIA loadings.

	Parents (explanatory)		Health providers (dependent)		
	Component 1	Component 2	Component 1	Component 2	
Cue A	0.372	0.331	EPAAC	0.149	0.049
Cue B	0.718	0.003	EPAEM	0.065	−0.021
Cue C	0.547	−0.016	EPAEX	0.087	0.029
Cue D	0.337	0.295	EPCAC	0.189	0.019
Cue E	0.347	0.607	EPCEX	0.359	−0.018
Cue F	0.173	0.447	ERIA	0.951	−0.121
Cue G	0.140	0.478	ERSW	0.371	−0.082
Concerns	0.317	0.167	ERPP	0.230	−0.016
			ERAB	0.431	−0.017
			NPAC	0.141	0.045
			NPAI	0.112	−0.021
			NPBC	0.217	0.057
			NPSI	0.268	−0.004
			NPIM	0.105	0.023
			NRIA	0.440	0.134
			NRIG	0.399	0.032
			NRSB	0.458	0.136

$F(1, 256) = 3.15, p = 0.049$ for the second one). Moreover, the proportion of the variance explained by the first two components is 0.995, suggesting that we can extract just two components to interpret our results.

To identify which variables in the first group are mostly related to the first two components, and which variables of the second group are best explained by these two components, we examine the loadings in the following tables. The following results refer to the Parent–Health Provider DIA (Table 5).

The component of the first explanatory block (AXIS 1) is mainly represented by the variables Cue B or “Verbal hints of hidden concerns” (0.718) and Cue C or “Words or phrases that emphasise physiological or cognitive correlates of unpleasant emotional states” (0.547). Parents seem to express their worries through metaphorical and emphatic expressions, and the component can be interpreted as Dramatic expressions.

The primary variables better explained by this component are ERIA or “Explicit information advise” (0.951), NRDs or “Shutting down” (0.458), NRIA or “Implicit information advise” (0.440) and ERAB or “Blocking” (0.431). All responses are intended to reduce dialogic space and may refer to a tendency of Health Providers to prevent the “invasion” of dramatic expressions of emotions into medical interviews.

This relationship can be interpreted as DECREASING DIALOG, as shown by the following examples:

Example 1:

Mother: “Doctor, I feel like death warmed up (Cue B)! My son was ill, and I hadn’t slept for a whole week (Cue C)!”

Health Provider: “Do not exaggerate (ERAb)!”

Example 2:

Mother: “Have these percentiles increased? (Cue C)”

Health Provider: “Yes, but don’t get anxious now! (NRIA)”

The component of the second explanatory block (AXIS 2) is, instead, mainly represented by variables Cue E or “A repetition of a previous expression” (0.607), and Cue G or “A clear and unambiguous expression of an unpleasant emotion which is in the past” (0.447). Parents seem to bring to the attention of the pediatrician worries already expressed during the visit or referring to past times, and the component can therefore be interpreted as Recurring expressions.

The variables primarily explained by this component are ERIA or “Explicit information advise” (−0.121), NRDs or “Shutting down” (0.136) and NRIA or “Implicit information advise” (0.134); in this

Table 6
Frequencies of cues/concerns and responses on the Child–Health Provider DIA.

Children	Health providers	
	Frequencies	Frequencies
Cue A	4	EPAAC 2
Cue B	17	EPAEM 5
Cue C	4	EPAEX 5
Cue D	5	EPCAC 4
Cue E	3	EPCEX 10
Cue F	257	ERIA 18
Concerns	8	ERSW 54
		ERPP 1
		ERAB 11
		NPAI 12
		NPBC 1
		NPSI 11
		NPIM 1
		NRIA 17
		NRIG 123
		NRSO 23

K = .768

case too, all responses are intended to reduce dialogic space, but now explicit responses decrease, while implicit ones increase. Thus, Health Providers seem to reassure recurring anxiety through the preferred use of implicit modalities of dialog.

This relationship can be interpreted as SUPPORTING DIALOG, as in the following examples:

Example 1:

Mother: “Yes, but that erythema. . . it does not go away. . . [. . .] that erythema. . . (Cue E).”

Health Provider: “Bah . . . (NR1a)!”

Example 2:

Mother: “It’s not right yet, but he is growing. . . (Cue E)”

Health Provider: “He is not really a basketball player (NR1a)”

5.2. Child–Health Provider DIA

The following tables described frequencies of cues/concerns and Health Providers responses (Table 6).

For this axis, the values of Cues G and responses NPAC are omitted because they were not detected in the analysis.

The asymmetrical relationship between the two groups of variables “Health Provider” and “child” is also significant ($F(4, 260) = 44.09, p < 0.001$). The first component is significant ($F(1, 260) = 171.66, p < 0.001$), while the second component is non-significant ($F(1, 260) = 3.33, p > 0.05$). However, the proportion of the total explained variance explained by only the first component is 0.973, increasing to 0.992 upon adding the second component (Table 7).

The component of the first explanatory block (AXIS 1) is mainly represented by variables Cue F or “No verbal cue” (0.905) and Cue B or “Verbal hints of hidden concerns” (0.430). A typical expression of a child’s anxieties seems to be crying, lamenting and metaphorical expressions, and the component can therefore be interpreted as Pervasive expressions.

This component better explains NRIG or “Ignore” (1.257), ERSW or “Switching” (0.792) and NRDS or “Shutting down” (0.527). All responses are intended to reduce dialogical space and may refer to a tendency of Health Providers to avoid children’s cries.

This relationship can be interpreted as AVOIDANT DIALOG, as in the following examples:

Example 1:

Child: (Cries) (Cue F)

Table 7
The Child–Health Provider DIA loadings.

	Children (explanatory)		Health providers (dependent)		
	Component 1	Component 2		Component 1	Component 2
Cue A	0.190	−0.699	EPAAC	0.0729	0.035
Cue B	0.430	−0.182	EPAEM	0.141	−0.106
Cue C	0.189	0.282	EPAEX	0.160	−0.033
Cue D	0.213	0.097	EPCAC	0.119	−0.093
Cue E	0.152	0.0469	EPCEX	0.167	−0.183
Cue F	0.905	0.0790	ERIA	0.348	0.022
Concerns	0.303	−0.165	ERSW	0.792	−0.017
			ERPP	0.230	−0.016
			ERAB	0.322	−0.029
			NPAI	0.218	−0.045
			NPBC	0.016	−0.073
			NPSI	0.245	−0.088
			NPIM	0.104	0.023
			NRIA	0.377	0.025
			NRIG	1.257	0.066
			NRSD	0.527	0.027

Health Provider: “How strange this cotton is! It is like paper. (NRIG)”

Example 2:

Child: “Noo. . .”(Cries) (Cue F)

Health Provider: “No! (tickling) ERSw”

The component of the second explanatory block (AXIS 2) is, instead, mainly represented by variables Cue A or “Physiological correlates” (−0.7). Children seem to express their worries by explaining the symptoms and the component can therefore be interpreted as Description of medical contents. The variables better explained by this component are EPAEm or “Empathy” (−0.106) and EPCEX or “Exploration” (−0.183). All responses are intended to provide dialogical space and may refer to the tendency of Health Providers to deepen these contents. This relationship can be interpreted as EXPLORING DIALOG, as in the following example:

Example:

Child: “I feel so bad (Cue A)!”

Health Provider: “Tell me better (EPCEX).”

5.3. Child–Parent DIA

The following tables described frequencies of cues/concerns and Health Providers responses (Table 8).

For this axis, the values of Cues G and responses NPIm were omitted because they were not detected during the analysis.

The asymmetrical relationship between the two groups of variables “Parent” and “Child” is significant ($F(4, 260) = 76.23, p < 0.001$). The first three components are significant, $F(1, 260) = 281.84, p < 0.001$ for the first component, $F(1, 260) = 18.01, p < 0.001$ for the second component, $F(1, 260) = 4.43, p = 0.03$ for the third one. The proportion of the total explained variance explained by the first component is 0.924. Adding a second component the explained variability increased to 0.983, while adding the third component the explained variability is 0.997. The model with just two components account for almost all of the explained variability, and some difficulties may be found in the interpretation of the third component. Therefore, only the first two components are considered in the following (Table 9).

Table 8
Frequencies of cues/concerns and responses on the Child–Parent DIA.

Children		Parents	
	Frequencies		Frequencies
Cue A	4	EPAAC	5
Cue B	17	EPAEM	1
Cue C	4	EPAEX	3
Cue D	5	EPCAC	3
Cue E	3	EPCEX	8
Cue F	257	ERIA	38
Concerns	8	ERSW	56
		ERPP	1
		ERAB	21
		NPAC	1
		NPAI	8
		NPBC	1
		NPSI	19
		NRIA	2
		NRIG	117
		NRSD	14

$K = .765$

Table 9
The Child–Parent DIA loadings.

Children (explanatory)			Parents (dependent)		
	Component 1	Component 2		Component 1	Component 2
Cue A	0.113	0.247	EPAAC	0.156	0.049
Cue B	0.185	0.564	EPAEM	0.017	−0.007
Cue C	0.023	−0.044	EPAEX	0.126	−0.040
Cue D	0.185	0.705	EPCAC	0.000	−0.006
Cue E	0.166	−0.213	EPCEX	0.083	0.053
Cue F	0.984	−0.012	ERIA	1.036	0.900
Concerns	0.246	0.625	ERSW	1.717	−0.397
			ERPP	0.065	0.083
			ERAB	0.525	0.110
			NPAC	0.010	0.008
			NPAI	0.121	−0.050
			NPBC	0.005	−0.006
			NPSI	0.221	0.385
			NRIA	0.064	0.081
			NRIG	3.326	−0.154
			NRSD	0.565	194

The component of the first explanatory block (AXIS 1) is mainly represented by variable Cue F or “No verbal cue” (0.984) and can therefore be interpreted as Crying and laments, the typical manifestation of anxieties by children.

This component explains better NRIG or “Ignore” (3.326); ERSw or “Switching” (1.717) and ERIA or “Explicit information advise” (1.036). All responses are intended to reduce dialogical space and may refer to the tendency of parents to stop the expression of crying by reassuring children.

This relationship can be interpreted as CONFINED DIALOG, as in the following examples:

Example 1:

Child: (Crying) (Cue F)

Mother: “And, so, doctor? Which is the medicine (NRIG)?” Example 2

Child: Oooh. . . (Cue F)

Mother: “We’re done! (ERSw)”

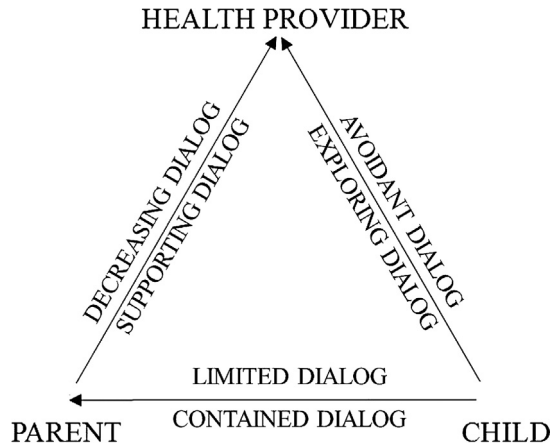


Fig. 2. The HPC Triangle with DIPs.

The component of the second explanatory block (AXIS 2) is, instead, mainly represented by variables Cue D or “Neutral expressions that mention issues of potential emotional importance” (0.705), Concerns or “Clear verbal expressions of unpleasant emotional states” (0.625) and Cue B “Verbal hints of hidden concerns” (0.564), and can therefore be interpreted as Description of emotional contents.

The primary variables explained by this component are ERIa or “Explicit information advise” (0.900), NPSi or “Silence” (.385) and ERSw or “Switch” (−0.397) and may refer to the tendency of parents to contain children’s emotions. This relationship can be interpreted as CONTAINING DIALOG:

Example:

Child: “I’m afraid (Concern)!”

Mother: “Come on, it’s ok (ERIA).”

Finally, component scores in the Child–Health Provider DIA and in the Child–Parent DIA are subjected to a one-way ANOVA considering three groups of children age. In particular, it is tested if the mean score of each component differs significantly in the three age groups. The ANOVA shows that the effect of children’s age is non-significant for all components, except for Crying and laments (in the Child–Parent DIA). For this latter component, results indicate that the mean score significantly decrease as age increase ($M=51.6$, $SD=11.05$, in the first group; $M=50.8$, $SD=11.72$ in the second group; $M=47.87$, $SD=6.53$ in the third group; $F(2, 262)=3.63$, $p=.028$).

6. Discussions

This observational study has allowed to deepen the main characteristics of the dialog about worries in pediatric primary care. The proposed statistical analysis allowed us to identify Dialogical Interaction Patterns, or directions taken in such dialogs, through the analysis of the causal relationship between cues/concerns and responses, in pediatric primary care. The focus on the triangular configuration emphasized the description of DIAs and the dual role of parents as both consumers of medical care and caregivers of their children (Fig. 2).

In particular, in the Parent–Health Provider DIA, the pattern is characterized by emphatic expressions through which parents dramatize the described contents. As a consequence, Health Providers try to scale down dramatic tones. Anxieties already expressed in the past, and apparently well known in the healthcare context, seem to elicit responses aimed to reassure the parents.

In the Child–Health Provider DIA, the pattern is characterized by tears and laments expressed by children, that seem to elicit avoidant responses on the part of the Health Provider, in order to preserve medical practice. Nevertheless, it presents a greater possibility to deepen children’s emotions, if they

are linked to a description of symptoms, which could be useful for detecting information needed for diagnosis and prognosis.

Finally, in the Child–Parent DIA, the pattern is characterized by a strong tendency of parents to contain the child’s weeping; this is always done in order to prevent it from taking up too much time during the visit.

This ensures the efficiency of the visit, orienting the dialog on medical information useful for diagnosis and treatment. Nevertheless, this limits the exploration of information that could be useful for understanding the parental issues about the clinical condition of her child, and its implications for familiar daily life. The pediatric primary care visit, therefore, appears to be a place where the worries expressed by participants have to be immediately contained in order to ensure the efficiency of the medical visit and its rapid diagnostic effectiveness.

Differences of mean scores among the three children’s age groups are not significant for both components in the Child–Health Provider DIA and for the second component in the Child–Parent DIA. This is a peculiar result. As a matter of fact, a difference in the mean score of the components, which explain the specifics of the dialogs, was expected in the three children’s age groups.

In this case, the tendency of adults to avoid, indistinctly, worries expressed by children may be due to the prevalent treatment, in these dialogs, of physiological and developmental health status changes (flu, seasonal illnesses, vaccines). These are part of everyday life and therefore could be interpreted as habitual and little worrying for adult interlocutors; this especially for Health Providers, that could be also affected by a state of demotivation. As a consequence, the deepening of this worries may not be considered useful during medical visits.

Only for the first component in the Child–Parent DIA, there is a significant difference between the first two age groups (0–4 and 5–8) and the third one (9–12). This component is interpreted as “Crying and laments” and characterizes intensely dialogs with younger users. This may be why babies, who don’t yet actively attend the visit, express their fears through very invasive non-verbal Cues (F) (such as an excruciating cry during vaccines or invasive visits) and parents tend to restrict them, early to prevent they occupy too space during the visit and prevent dialog between adults. This may not apply to non-verbal expressions of older children, who can express their worries with a limited lament.

Limitations: the study presents some limitations that may have led to the results that have emerged. First of all, the issues dealt with in pediatric primary care, which are mainly related to physiological conditions regarding children’s growth, could have led to targeting and observing synthetic conversations. It could be useful to expand these studies to hospital pediatrics, where complex medical conditions, requiring more difficult decisions, are treated. In addition, the choice of audio recording of dialog may limit the identification of some important elements of non-verbal communication, reducing emerging results and contributing to the detection of sparse matrices. Nonetheless, it was possible to observe a rigid asymmetric structure in the doctor–patient relationship in pediatric primary care, intended to achieve operational efficiency, with strong limits for recognition of the subjective position of participants as useful elements for structuring medical practice.

We underline the lack of insights about differences between participants (e.g., age and gender of children, type of medical conditions, gender of the parents, different dialogical patterns of health providers, etc) and of an exploration of the pediatricians’ emotional difficulties (defenses, limits) that can influence the dialog, it could be a starting point for future new researches.

As another limitation, we underline that, although we consider pediatrics a relational context in which DIAs influence each others, the tool used only analyze them one by one. Therefore, such influence can be commented only on a discursive level. Also a quantitative analysis of these can be another starting point for other future researches.

7. Conclusions

In line with other studies (Vatne et al., 2010; Del Piccolo et al., 2015; Zimmermann et al., 2010; De Luca Picione & Valsiner, 2017; Dicé et al., 2017a, 2018a; Freda & Dicé, 2017), in this observational study emerges that dialog about worries is reduced, in order to speed up diagnostic and therapeutic paths. Worries seem to be primarily considered a slowdown and an obstacle to medical practice. However, when these anxieties are already known in the medical room, because they have already

been expressed, or they have been referenced by physiological correlates, it is possible to deal with them, but always via immediately containing their expressions: in particular, Health Providers contain expressions of worries of parents, and parents contain expressions of worries of their children.

This dialogical dynamics pose the risk that the pediatric visit will be reduced to a procedural and bureaucratic delivery of a medical service, in which it is impossible to recognize worries as useful information for defining care strategies that are understandable and manageable by the whole family. Our analyses confirm that worries are scarcely considered as useful in achieving diagnostic and therapeutic purposes in pediatric primary care; the only possible way to treat them is by containing them. Parents too, observed in their role of dialogical mediator between the child and the Health Provider, seem to share this relational dynamic; worries expressed by children are recognized only if they are related to the medical content.

It could be useful to implement psychological interventions aimed at integrating emotional contents in medical dialog in order to promote a mutual consideration of the subjective positions of participants with regard to care strategies. We propose consultative interventions as a training opportunity (Esposito, Savarese, & Squitieri, 2018a; Esposito et al., 2018b; Freda et al., 2016) for health providers in order to support the relationship with their users during medical practices and in the pursuit of shared objectives. We think about Joint Listening Settings (Freda & Dicé, 2017; Dicé et al., 2018a), in whom psychologist could participate to the visit and help, through little comments, participants in their dialog. Furthermore, it could be useful structure medical-psychological reflection groups; during this setting, pediatricians could discuss with psychologist about their own emotional difficulties. This training aim at accompanying the doctor–patient relationship in a dialogical opening, enabling the insertion of psychological functions, e.g. focusing on emotional context or encouraging the transformation of information received into meaningful resources for all participants. This perspective could help Health Providers and users to transform a medical visit into a meeting space in which relational and dialogical competences of all participants are recognized, with a consequent integration of knowledge and skills (Dicé et al., 2018a).

Disclosure of interest

The author declares that he has no competing interest.

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