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# Pediatric pain assessment: A pragmatic analysis of dialogues in the interactions of healthcare providers, children and their parents

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## Abstract

In pediatric care, despite a triadic communication system, only physician and parent are involved in the definition of symptoms, diagnosis and treatment. However, children are competent participants when parents are absent. In this study, our interest is to highlight the pragmatic aspect of the adult-child dialogue comparing chronic versus acute pain and to understand the stages of construction of a common ground. Twenty-three children aged 6 to 15 years (12 girls and 13 boys,  $m=9,8$  years old) were recorded during a pain assessment interview. Fifteen children aged 7 to 15 years consulted for acute pain (7 girls, 8 boys,  $m=10$  years old) and eight children aged 6 to 15 years were seen in a chronic pain consultation (4 girls and 4 boys,  $m=9,6$  years old). In the interviews for pain assessment, healthcare providers can benefit of knowing their referencing process to adapt their discourse in way to promote an understanding of the patient's pain experience. Verbal self-report of pain is an important way to understand the subjectivity of pain, it also becomes necessary to highlight the dialogue cues. In a patient-centered approach, the child's role in the consultation should be as important as the parent's. In the chronic pain context, all the speakers are taking an active part in the interaction. It is now relevant to investigate what is said and especially by who, when there are confused data about the reliability of information given by the parents.

**Keywords:** Pediatrics, child health, pain, assessment

## Introduction

The healthcare provider-patient communication has been gaining interest within the last decade (1,2). In the patient-centered approach, the focus of the studies has been on interactions between physicians and patients (3). There is growing evidence that patient-centered approach is particularly positively associated with patient satisfaction (4-6), patient compliance (7-9) and a greater partnership in decision-making (10).

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The development of the patient-centered approach has also led to a more egalitarian relationship between clinician and patient (11).

In pediatric care, despite a triadic communication system, only physician and parent are involved in the definition of symptoms, diagnosis and treatment (12). However, children are competent participants when parents are absent, despite the fact that they stay inactive when a parent is talking (13). The study of children's roles in communication with their pediatricians should be included (14). Studies who paid attention to the structural aspects of clinician-parent-child communication revealed that it was mainly the parent who was responsible for excluding the child from medical conversation but they also showed an increase in the number of initiatives on the part of the child itself in the course of time (15).

In the pediatric pain management domain, studies have first paid attention to the abilities of children to self-report their pain. Most of the studies about the development of children's understanding of illnesses concluded that the cognitive developmental level had not only a significant effect (16-19) but it had a more decisive role on the child's understanding of illness and its treatment compared to gender, socio-economic or nurses' explanations (20). These data, widely reported in the medical literature, have established a theoretical background to the research on pain assessment, including self-assessment in children. Children give helpful information about their pain when special attention is given to the questions that are made, when the psychological climate is free from coercion, and particularly when the child is considered as a full partner. Ross and Ross (21) have shown that 70% of children aged 5 to 12 years ( $n = 994$ ) use many adjectives to describe a single pain (stabbing, burning, crushing, puncture, pressure, dull pain, excruciating pain). In addition, a significant number of children ( $n = 286$ ) produce specific sentences to describe their pain. Similarly, a majority of children respond spontaneously with a wide variety of adjectives, words and sentences describing the pain (22). The verbal communication quality of the child about the intensity of pain increases with age. Children older than 7 years are those for which data are the most consistent (23). The descriptions of pain, the causes of it, and the assessment of its intensity

gradually evolve with the cognitive development of the child (19).

In the context of chronic pain in children, the diagnose process is often describe by children and families as a negative experience (24,25). This is due to the increasing number of consultations requiring the child to repeat its symptoms. In addition, it is difficult for him to identify useful information to the clinician. In the healthcare provider-patient encounter, the dialogue does not involve only the patient's ability to self-report his problem. It is even more true when the patient is a child, because children do not always speak spontaneously and do not give answers easily to questions asked in a clinical setting. Clemente and colleagues (26) have shown that non-focused questioning presents opportunities for children to format a pain account of their symptoms and concerns in their own words. The assessment of child's pain is a patient-adult interaction which involves more than the adult's medical knowledge and the child's verbal level. More recently, the Craig's social communication of pain model describes the adults decoding of the child's verbally and nonverbally encoded communication about pain, and influences back from the adult to the child (27).

In the case of a child's self-report, the dialogue involves an adult's interpretation. The aim of the interaction is to share a set of representations for a common purpose: understanding the pain. Consequently, this requires an interpretation from the adult of what the child is saying about this subjective phenomenon. The child too, must interpret the perspectives and expertise of adults. From the perspective of patient-centred care, the child's role in the consultation should be as important as the parent's (28). In this study, our interest is to highlight the pragmatic aspect of the adult-child dialogue comparing chronic versus acute pain and to understand the stages of construction of a "common ground" (29). Literature has provided a comprehensive review of the role of common ground in language processing (30). First, we expected that healthcare providers would use multiple dialogue control utterances and would favour paraphrases to ensure their understanding of child's pain. The psycholinguistic literature has shown that is the good way to integrate knowing and meaning (31). Second, we expected that dialogue control utterances would

vary depending on the types of pain. Understanding chronic pain would require more summaries than understanding acute pain.

## Methods

Twenty-three children aged 6 to 15 years (12 girls and 13 boys,  $m=9,8$  years old) were recorded during a pain assessment interview. Fifteen children aged 7 to 15 years consulted for acute pain (7 girls, 8 boys,  $m=10$  years old) and eight children aged 6 to 15 years were seen in a chronic pain consultation (4 girls and 4 boys,  $m=9,6$  years old).

The eight chronic pain interviews were conducted by pediatricians, eleven of the acute pain interviews were conducted by physicians, one by a pediatrician and one by a pain team nurse. In each case, one parent was present. All participants gave full informed consent. Approval was obtained by ethical boards of hospitals and scientific committee of funding source. The interviews were recorded with a pocket digital recorder Edirol R09® from March 2008 to June 2010 in Paris, Lisieux and Caen, France.

*Interviews context* : Clinicians have assessed several aspects of pain the interviews: types of pain and the location in the child's body, pain descriptors, pain duration. They have also used scales, questionnaires was used in the chronic pain assessment. All clinicians have used a more narrative approach rather than focused-questioning. The interviews include establishment of pain symptoms, history-taking in chronic pain, and physical exam.

*Data coding*: The dialogues were coded focusing on their pragmatic framework rather than on the linguistic meanings. For each speaker (health-provider, child and parent), we recorded eight components of the conversation: (1) the number of turn-takings, (2) the number of utterances, (3) the number of original wordings introducing a new topic, (4) the number of dialogue control utterances divided

in (5) number of paraphrases (paraphrases and self-paraphrases) (6) number of repetitions, (7) number of summaries, and finally we recorded (8) the number of phatic expressions of the social components of communication.

The 6196 utterances in 4183 turn-takings were transcribed by two independent coders. The intraclass correlation was .89.

*Statistical analyses*: Data was analysed using Statistica® 9.0 StatsSoft® software. Alpha was set at .05. A MANOVA test examined the speaker (health-provider, child and parent), the types of pain (acute, chronic) and the interaction of both independent variables effects. One-way ANOVAs test was conducted to test the effect of speaker on dependant variables. Independent samples T test was used to test the effect of types of pain on dependant variables.

## Results

The healthcare providers produced more than a half of utterances and they introduced new topics in 82.8% of cases (see table 1). The parents' role in the dialogue was less obvious. It seems that they played an active and equal part in the interaction compared to the child. But 71.8% of their utterances occurred mainly in the context of chronic pain.

Healthcare providers used more dialogue control utterances than the children and their parents ( $F(2,66)=14,77$   $p<.0001$ ). But they did not use the different components equally (see table 2). The paraphrases were significantly more used than others components in healthcare providers' utterances ( $F(6,122)=4,74$   $p=.0002$ ). In 78.52 % of cases, healthcare providers paraphrased the child or the parent's utterances. In the other cases, it was self-paraphrases. In the children and the parents too, the paraphrases were the most used dialogue control cue (see table 2).

**Table 1. Percentages of dialogue components in healthcare provider, child and parent**

	Health-provider	Child	Parent	p
Turn-taking	47,1	26,3	26,5	.01
Utterances	56,4	20,3	20,1	.0003
Original wording introducing a new topic	82,8	5,5	11,5	.0001

**Table 2. Percentages of dialogue control utterances in health-provider, child and parent**

	Health-provider	Child	Parent	p
Paraphrases	36,2	14,9	14,9	.001
Repetitions	15,1	2,6	4,3	.0001
Summaries	6,3	0,2	5,1	.2

**Table 3. Percentages of dialogue control components in healthcare providers in acute versus chronic pain interviews**

	Acute pain	Chronic pain	p
Original wording introducing a new topic	96,4	67,7	.02
Paraphrases	68,59	54	.2
Repetitions	29,01	22,15	.19
Summaries	2,39	23,92	.0001
Number of phatic expressions of social components of communication	46,45	53,54	.14

Like in any social interaction, healthcare professionals spent time to manage the verbal relationships between the different partners. They produced 57.3 % of the phatic expressions of the social components of communication, almost three times more than children and parents ( $F(2,66)= 6,25$   $p=.003$ ).

#### *Acute versus chronic pain interviews*

The mean length of the acute pain interviews was 11.6 minutes ( $\sigma= 5,19$  mn) and the chronic pain interviews lasted on average 19.18 minutes ( $\sigma= 6,4$  mn). The length of the acute versus chronic pain interviews are significantly different ( $t(19)= 2,73$   $p<.01$ ). However, the number of turn-takings and the number of utterances are not significantly different in health-providers when comparing the acute versus chronic pain interviews. As shown in table 3, healthcare providers used some dialogue control components differently in the two situations.

Children use significantly more paraphrases ( $F(3,19)= 5,25$   $p=.008$ ) as did their parent ( $F(3,19)= 9,6$   $p=.0004$ ) in the chronic pain context.

Healthcare providers were not the only ones to introduce new topics during the chronic pain interviews. Parents produced original wording in 21.11% of these utterances (11.18% in the children). Paraphrases and repetitions were used equally in the two kinds of consultations, but summaries were more used in the chronic pain context. There was a

difference in the number of utterances produced by the children in the two conditions ( $t(21)= 1,51$   $p=.0003$ ). The number of wordings introducing a new topic was more higher in children presenting with chronic pain compared to children presenting with acute pain ( $t(21)= 5,55$   $p<.0001$ ), but it was only 5.75% of the utterances.

## **Discussion**

As expected in the first hypothesis, healthcare providers used different kinds of dialogue control components to lead the pain interviews. Because of the goal of pain assessment, the healthcare providers were conducting the interviews. Results show that the dialogues were directed-interviews. The psycholinguistic literature has shown that paraphrases can serve as a cohesive tie as well as a way to put ideas in our own words. Repetition was often seen as the central meaning-making strategy (32). All conversations include repetition, it occurs in all types of discourses (33). To reduce referential ambiguity, speakers continue using the same expression even it was over-informative (34).

In this study, nurses and physicians as the children and their parents used more paraphrases. The paraphrase appeared to be an important dialogue component in the acute pain context and it kept a central function in the chronic context too. In the particular condition of pain interviews, it seems to be

the more relevant dialogue component to share meaning. It could be understood as a way for healthcare providers to ensure an agreement with partners and to keep ideas in mind for the process of diagnosis. It could probably be used by the children and the parent as a way to reinforce meaning and to increase the referents of the common ground.

Summaries are also a way to ensure that partners are sharing a representation, but they were little used in the chronic pain interviews contrary to our assumptions. The question is raised to know if this dialogue control cue is too complex for children during interactions on medical themes. Even if healthcare providers used some dialogue components differently in both situations, the pragmatic of the interviews was nearly the same.

To succeed in the activities of meaning-making, healthcare providers used a system of control, called "correction loops" (35). With these reformulations, they did not simply repeat, they added, they replaced or modified the syntax order. This process of referencing is a dynamic co-referencing that can lead to a convergence of the partners towards the same meaning. This kind of language-specific adaptation promotes the meaning, and makes the speaker's behaviour predictable.

Despite a same pragmatic framework, the children took a different role in the two pain conditions. We were not surprised that the children answered many questions in the chronic pain interviews, but it was unexpected that they would introduce very little topics about their pain.

In the chronic pain context, the assessment pain interview was not only a speaker-listener dyad. Parents played an active role. As they had more knowledge about their child's pain and disease, it is possible that they could easily consider their interlocutor's informational needs.

In children with severe intellectual disabilities, parents would be able to provide relevant estimates of their child's pain intensity (36). But in typical children, the literature gives contrary data about the reliability of parents' pain ratings and pain reported by the child (37-40). Future studies need to explore the relevance of information given by the parents during chronic pain interviews.

### *Limitations*

Because the interviews was audio-recorded, it was not possible in this study to conduct triadic analyses to take into account the allocation of utterances (who the speaker is addressing), and by analysing the communication between all three interlocutors. The number of interviews does not allow us to employ a developmental perspective, when children's communication skills and their understanding of diseases may change with age.

### **Conclusion**

In the interviews for pain assessment, healthcare providers can benefit of knowing their referencing process to adapt their discourse in way to promote an understanding of the patient's pain experience. Verbal self-report of pain is an important way to understand the subjectivity of pain, it also becomes necessary to highlight the dialogue cues.

The importance of the child in decisions about their health care is now recognized (28). In a patient-centered approach, the child's role in the consultation should be as important as the parent's.

In the chronic pain context, all the speakers are taking an active part in the interaction. It is now relevant to investigate what is said and especially by who, when there are confused data about the reliability of information given by the parents.

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