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Pediatrician–parent–child communication: problem-related or not?

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ABSTRACT

Pediatricians are generally confronted with a variety of health problems. Each of these problems may benefit from another pattern of healthcare communication. It is unknown whether the communication process during pediatric visits actually differs by the nature of the child's problem. This study first examined whether three formerly identified communication patterns could be distinguished within real-life pediatric outpatient encounters ($N = 846$). Then, communication patterns during encounters with children with respiratory ($n = 269$) or behavioral problems ($n = 77$) were compared. Videotaped visits were observed using the Roter Interaction Analysis System. Two-level multivariate logistic regression analysis examined what factors contributed to the communication patterns. A biopsychosocial communication pattern was observed in 45%, a psychosocial in 15% and a biomedical pattern in 40% of the visits. Child's age and pediatrician's experience were related to the communication pattern. Different patterns did indeed prevail in respiratory and behavioral problems. As less experienced pediatricians attend to psychosocial issues less, they may have to be specifically encouraged to do so.

1. INTRODUCTION

The steady increase in the number of guidelines for handling pediatric problems suggests that, at least in medical–technical respect, it is generally acknowledged that every health problem requires its own specific treatment [1]. Randomized controlled trials produce evidence-based knowledge which in turn stimulate the development of protocols for handling all kinds of diseases and symptoms. A comparable process can be discerned with respect to the content and process of the interaction between physicians and patients. In case of children with asthma, for instance, education protocols are being developed which contain guidelines on who is supposed to provide what kind of information in what way [2]. To what extent such guidelines actually affect the communication during pediatric visits is, however, unknown. Physicians often experience barriers that prevent implementation of guidelines, such as a lack of agreement or negative outcome expectancy [3]. In pediatrics, the implementation of practice guidelines poses specific problems, because pediatricians are dealing with children as well as parents and only a limited number of randomized controlled trials have been conducted with respect to specific and diagnostic pediatric options [4]. In addition, many pediatricians consider adherence to guidelines too timeconsuming and believe that they leave no room for personal experience [5]. Pediatricians are therefore expected to favor their own specific way of communicating with children. Yet, contrary to other medical specialists, pediatricians are confronted with a large variety of health problems. Whether or not the nature of the presented health problem influences the way they actually communicate with children is unknown. In case of contrasting health problems, several differences are likely to be observed. In respiratory problems, for instance, pediatricians may foremost want to informthe patient and the parent about the nature of the condition or to convince them of the necessity of using medication. This requires an instrumental, biomedical approach. In behavioral problems, at the other hand, pediatricians may aim at child and parent disclosure of emotional or behavioral symptoms for which psychosocially oriented interviewing techniques may be more appropriate [6]. Such a psychosocial communication style seems also warranted given the fact that maternal psychological distress and marital adjustment appear to be related to mothers' ratings of her child's behavioral conduct [7]. Besides, a paradigm shift has taken place in clinical practice towards a broadening of the discussion within the consulting room of a medical doctor; whereas the discussion used to focus primarily on biomedical issues, attention to psychosocial factors is nowadays warranted as well [8], advocating a biopsychosocial communication pattern. Whether pediatricians are already engaged in a biopsychosocial communication pattern and whether patients benefit from this is, however, unknown. It might be expected that parents turn out to be more satisfied and adherent when psychosocial issues are discussed as well. Besides, children may feel more inclined to contribute to a conversation about psychosocial issues. Their contribution has, by now, shown to be rather limited. Doctors appear to talk more often with the parent than with the child [9,10]. Apart from verbal communication, nonverbal behavior, such as patient-directed gaze, is important as well, as it appears to contribute to disclosing psychosocial issues [11]. Patient-directed gaze could therefore also facilitate a discussion about psychosocial issues.

In general, there is a paucity of data regarding the influence of specific health problems on provider–patient communication. Although some physicians do seem to spend more time on talking about psychosocial issues than others [12], insight is lacking into the extent to which communication patterns are related to the nature of the health problem. Previous research shows that within doctor–patient conversations, three main communication patterns can be distinguished [12]: a biopsychosocial, a psychosocial and a biomedical communication pattern. In a biopsychosocial visit, the conversation between doctor and patient focuses as much on biomedical as on psychosocial issues, whereas the other types of patterns are more restrictively defined as either psychosocial or biomedical conversation. Presumably, these same patterns can be discerned in pediatric visits as well, depending on the nature of the presented health problem. More insight into this matter would facilitate the communication process in case of specific health problems.

This paper focuses on the following research questions:
1. Are biopsychosocial, psychosocial and biomedical communication patterns recognizable in pediatric outpatient visits?
2. To what extent are child, pediatrician and visit characteristics related to the nature of these communication patterns?

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3. Is the nature of the communication pattern related to the process and outcome of pediatric visits in terms of the child's and parent's conversational contribution, patient-directed gaze, parent satisfaction, adherence and understanding and visit length?
4. Are the communication patterns related to the nature of the presented health problem?

As differences in communication patterns were expected to be reflected especially in handling divergent problems, this study first of all explored the prevalence of the distinct communication patterns during a representative sample of pediatric visits and, second, during visits in which either behavioral problems (e.g. ADHD, depression or retardation) or respiratory problems (e.g. pneumonia, asthma or bronchitis) were presented. Behavioral and respiratory problems were chosen for their high prevalence in pediatrics and for their presumed divergent etiology. It was expected that in case of behavioral problems the communication between pediatricians, children and parents would more often focus on psychosocial issues, whereas in respiratory problems a biomedical communication pattern was expected to prevail.

2. METHODS

2.1. Procedure

In 1996, NIVEL (The Netherlands Institute of Health Services Research) initiated a study into the communication between consulting pediatricians, children and parents in general hospitals [9,13]. For the purpose of that study, 21 pediatricians gave permission for a series of consecutive outpatient encounters to be videotaped by an unmanned camera. These pediatricians were recruited by means of an announcement of the training and accompanying research in the newsletter of the Pediatric Association of The Netherlands. In The Netherlands, patients can only visit a pediatrician after being referred by their family physician. Before attending the pediatrician, the parents were asked to give written consent to allow their visits to be videotaped.

2.2. Study sample

A total of 846 pediatric visits were recorded, 498 visits (59%) were with boys, 348 (41%) with girls. Their mean age was 5.4 (S.D. = 4.4) and 5.9 (S.D. = 4.7) years, respectively (ns). In 108 visits (13%), the pediatrician met the child and the parent(s) for the first time. Fig. 1 depicts the diagnosis made by the pediatricians. One in every three children (31.5%) consulted the pediatrician for respiratory problems, one-tenth of the visits (9.1%) concerned behavioral problems. Most children (88.5%) attended the pediatrician with their mother. Two hundred and sixty-nine visits concerned respiratory problems and 77 visits behavioral problems. There were 9 female pediatricians and 12 male pediatricians with a mean age of 45.6 (S.D. = 6.8) years and an average of 12.6 (S.D. = 6.5) years of pediatric experience.

[FIGURE 1]

2.3. Measures

2.3.1. Post-visit questionnaire

Upon conclusion of the visit, the pediatricians and the parents were asked to complete a short questionnaire.

- *Diagnosis*. The pediatrician registered the diagnosis of the child's main complaint. This diagnosis was classified into various diagnostic categories, according to the classification of diseases in pediatrics, derived from the ICD-10 [14].
- *Understanding and adherence through pediatricians' eyes*. The pediatricians also indicated whether they thought the parent and the child had understood the information provided and whether they thought they would adhere to their advice. These questions could be answered on a four-point Lifetree scale (1 = no, probably not; 4 = yes, certainly).

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- *Parent satisfaction with the medical visit.* The parent completed a short satisfaction scale. The scale consisted of six questions to which the parent could respond on a three-point Lifetree scale (1 =disagree, 3 = agree). These questions were: During the outpatient visit, the pediatrician . . . 'took enough time to talk with us'; 'gave us clear and understandable information about our child's condition'; 'treated our complaints seriously'; 'gave us enough opportunity to ask anything we wanted'; 'gave us clear and understandable information about the treatment'; 'gave us attention and support'. The sum score (6–18) reflects the level of satisfaction ($\alpha = 0.87$, overall mean = 16.89, S.D. = 2.47).

2.3.2. Analysis of communication

The verbal communication between the pediatrician, the parent and the child was measured by four independent raters directly from the video recordings using the CAMERA computer system [15]. The verbal communication process was analyzed using an adjusted version of the Roter Interaction Analysis System (RIAS) [16]. This system distinguishes among nine instrumental and seven affective verbal communication behaviors on the part of the pediatrician, the child and the parent. Each verbal utterance is coded into one of these mutually exclusive categories. Measurement is in terms of frequencies of utterances in the different categories. The instrumental communication categories refer to those communication aspects which primarily focus on solving problems, i.e. giving information, giving advice and asking questions about medical or psychosocial topics. Given the purpose of this study, i.e. to find out whether communicating in a psychosocial, biopsychosocial or biomedical way depends on the nature of the health problem, only these six categories were included in the analysis (Table 1). As a measure of nonverbal behavior, patient-directed gaze, i.e. the time the pediatrician looked directly into the child's or the parent's face, was measured and adjusted for the time the pediatrician was in sight.

Interrater reliability. All four observers coded the same 16 encounters to establish interrater reliability. Interrater reliability was calculated for all communication categories with a mean frequency greater than 2%[17]. Pediatrician categories had a mean Pearson correlation of 0.83 (range 0.70–0.99) and the average correlation for parent categories was 0.71 (range 0.46–0.89). No interrater reliability could be calculated for child categories as none of these occurred more than 2%. The overall interrater reliability for nonverbal communication, i.e. the duration of patient-directed gaze, was 0.98.

2.4. Statistical analysis

A *k*-means cluster analysis was used to investigate whether the three communication patterns could be distinguished in the pediatric visits. In a cluster analysis, clusters are chosen to maximize the differences among cases in different clusters. Following the tripartite division in biomedical, psychosocial and biopsychosocial communication patterns, a three cluster solution was forced. The relationship between on the one hand the communication patterns and on the other hand child, visit and pediatrician characteristics were examined using binomial multilevel regression analysis [18,19]. Two-level multivariate (logistic) regression analysis had to be used because the pediatricians videotaped several encounters, so the similarity among encounters by one pediatrician had to be taken into account. The average intraclass correlation coefficients for pediatrician communication was 0.18 [9], which indeed warrants multilevel analysis. At first, the following independent variables were included: age and gender of the child, gender and experience of the pediatrician and the rank order of the visit (i.e. initial versus follow-up visit). Pediatricians' age was not included as this correlated highly with their experience ($r = 0.94$). Then, the diagnosis in terms of either behavioral or respiratory problems, was included. The dependent variable was the communication pattern of which dummy binomial variables were created which enabled to contrast each of the three patterns with the remaining two. For the sake of clarity, the child's age as well as the number of years of pediatric experience were centered around the mean, allowing for comparisons between children who are younger versus older than average and between pediatricians who have less versus more experience than average.

[TABLE 1]

3. RESULTS

3.1. Prevalence of the distinct communication patterns

First it was examined if clusters analysis confirmed the existence of communication patterns which could be interpreted as either biopsychosocially, psychosocially or biomedically oriented. Irrespective of the nature of the presented problem a biopsychosocial communication pattern was indeed observed in 378 visits (45%), a psychosocial pattern in 126 visits (15%) and a biomedical pattern in 342 visits (40%) (Table 2). An unexpected finding was, however, that biopsychosocially conducted visits appeared to be relatively more child-centered, i.e. the conversation during these visits took more often place between the pediatrician and the child than the conversation during the psychosocially and biomedically conducted visits. In addition, the visits which proceeded in a psychosocial way were characterized by a parent-centered discussion of psychosocial issues. In visits with a biomedical pattern, the discussion focused primarily on medical issues. These latter visits were relatively more often parent-centered as well.

3.2. Determinants of the communication patterns

Table 3 shows that, to some extent, the age of the child as well as the number of years of pediatric experience were related to the distinct communication patterns. The pediatric visits with older children (i.e. older than the average of 5.6 (S.D. = 4.5) years) more often appeared to proceed according to the (child-centered) biopsychosocial communication pattern. In addition, the visits with a psychosocial communication pattern were more often conducted by experienced pediatricians (i.e. more experience than the average of 12.6 (S.D. = 6.5) years). On the other hand, the communication pattern that dominated the visits with younger children and less experienced pediatricians was more often biomedical. No relationship was found between the communication pattern and the child's or the pediatrician's gender or the rank order of the pediatric visit.

3.3. Communication pattern and visit process and outcome

Table 4 shows the relationship between the communication patterns and the visit process and outcome parameters. The visits that followed a psychosocial communication pattern appeared to last significantly longer than the biopsychosocial and the biomedical visits. In addition, during the psychosocial and biomedical visits, the pediatricians looked at the patient and their parents more often. Besides, the patients and the parents contributed relatively more to the conversation during psychosocial visits than during the other types of visits. No differences were found between the three communication patterns in parent satisfaction with the pediatric encounter, nor in the pediatricians' perception of the way the parents understood the problem or were expected to adhere to their advice.

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3.4. Communication patterns in visits with behavioral or respiratory problems

Finally it was examined whether the nature of the presented problem was related to the type of communication pattern. For this purpose, a comparison was made of the communication patterns between the pediatricians, the parents and the children during the 269 visits in respiratory problems and the 77 visits in behavioral problems. Bivariate analyses showed that more experienced pediatricians more often handled children with behavioral than with respiratory problems (14.9 (S.D. = 5.8) and 12.2 (S.D. = 6.7) years of pediatric experience, respectively, $P = 0.001$) and that children with behavioral problems were somewhat older (7.3 (S.D. = 0.46) and 5.8 (S.D. = 0.25) years, respectively, $P < 0.01$). No differences were found in the male–female ratio among children nor pediatricians confronted with respiratory or behavioral problems. Almost half of the visits with a child with behavioral problems followed a psychosocial parent-centered pattern (Table 5). In addition, in onethird of these visits the communication focused on the child. In more than half of the visits with children with respiratory problems, pediatricians talked relatively more often with the child about psychosocial as well as biomedical issues. During these visits, a psychosocial parent-centered communication pattern was hardly ever observed, even though children with respiratory problems were on average significantly older than children with behavioral problems (5.8 (S.D. = 4.12) and 7.2 (S.D. = 4.03), respectively, $P = 0.009$) which was expected to increase the chance of discussing these issues with the doctor. Results of the binomialmultilevel regression analysis showed that older children with respiratory problemswere more likely to get engaged in a pediatric visit that followed a biopsychosical (child-centered) communication style (Table 6). More experienced pediatricians who are confronted with children with behavioral problems more often engaged in visits which follow a psychosocial communication pattern. Whether or not a visit followed a biomedical communication pattern did not appear to be related to the nature of the presented problem.

[TABLE 2]

[TABLE 3]

[TABLE 4]

[TABLE 5]

[TABLE 6]

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4. DISCUSSION AND CONCLUSION

4.1. Discussion

  The results of the present study indicate that the expected communication patterns can indeed be distinguished within pediatric visits. Almost half of the number of the recorded pediatric outpatient visits appeared to proceed in a biopsychosocial way. Yet, in spite of the ongoing paradigm shift [8], almost the same number of visits still proceeds in a biomedical way. In conformity with the study by Roter et al. [12], psychosocial visits are most rare. The findings from this study also indicate that the nature of the communication depends on the person with whom the pediatrician communicates. When the pediatricians communicated with the children, especially the older ones, they appeared to talk as much about medical and psychosocial issues. Communication with the parents, however, appeared to be directed either at medical or psychosocial issues. This relatively more child- or parent-centredness of the different communication styles was an unexpected finding which might indicate that the pediatricians found it difficult to talk about both psychosocial and medical issues with the parent or to discuss the same issues with the child and the parent simultaneously. An alternative explanation is that the child-patient as primal sufferer and expert on the disease is more able to integrate the biomedical and the psychosocial aspects of his problem than the parent. Even with a post hoc four-cluster analysis, forced to find out whether the child-centered communication pattern would split up in the same way as the parent-centered patterns, the child-centered pattern remained intact. So, although the pediatric visits in this study could indeed be distinguished on the basis of the topic of discussion (biopsychosocial, biomedical or psychosocial), the difference in the focus of attention between these patterns on either the child or the parent was rather surprising. The child's age and the experience of the pediatrician appeared to be the strongest predictors for the way health problems were handled in the pediatric visits. With older children, the pediatric visits more often proceeded in a biopsychosocial way; with more experienced pediatricians visits were more often psychosocially oriented, whereas less experienced pediatricians and younger children had more chance to get engaged in a more restricted biomedical visit.

  The different communication patterns appeared to be partly related to the nature of the child's health problem. As expected, most behavioral problems were handled in a psychosocial way, although one out of every four visits in which behavioral problems were presented still proceeded in a biomedical way, which points to the need to develop clear psychosocially oriented communication guidelines in these cases. In addition, contrary to expectations, the pediatric visits with children with respiratory problems more often followed a biopsychosocial than a biomedical communication pattern. Such a biopsychosocial child-centered communication pattern has previously been shown to be highly effective in treating respiratory conditions in children [20]. This suggests that already developed guidelines for handling respiratory problems [2] may be fruitful. The pediatric visits in which a biomedical communication pattern dominated did not appear to take place more often with children with behavioral or respiratory problems. These types of visits could only be ascribed to younger children and less experienced pediatricians. Apparently, the health problems of younger children are generally treated in a biomedical way. Perhaps, with increasing age, the impact of the health problem for children's daily life may come more to the fore. This may automatically demand a more elaborate discussion of psychosocial issues during pediatric visits. Unfortunately, the visits which proceeded according to a more child-centered, biopsychosocial communication pattern appeared to be relatively short. In addition, during these visits, the children and their parents contributed less to the conversation and received relatively few nonverbal attention (eye-gaze). Patient-directed nonverbal attention should, however, be encouraged, especially in children with behavioral complaints, as this may contribute to the detection of psychosocial problems [11]. Since the present sample was rather young, the role of the parent was automatically much prominent than in other populations. Therefore, one should be careful to generalize these findings to other pediatric populations without considering the age distribution first.

Apart from looking at different communication patterns, we also asked pediatricians about their perception of parents' understanding and the extent in which parents were expected to adhere to their advice. This is an important question as literature shows that physicians' expectations are often unconsciously transmitted to their patients and subsequently influence patient adherence and health outcome [21]. The results of the present study did not show that the way in which problems were discussed had any influence on pediatricians' perception of adherence and understanding. Apparently, with respect to pediatricians' perception of adherence and understanding it does not matter much whether the discussion has focused either on psychosocial or medical issues. Maybe other communication behaviors, such as the number of questions parents ask, explain more of the variation in this perception. Probably as a result of the well-known skewed distribution of satisfaction-scores, no differences were found in the level of parent satisfaction following any of the three communication patterns. Although this does not stress the need to favor one communication pattern over another, further study into the outcome of different communication patterns is needed using other distinctive assessment instruments.

An important part of this study was directed at comparing the communication patterns of pediatricians, children and parents during visits with children with behavioral and respiratory problems. These problems were selected for their high prevalence and for the fact that they were assumed to be rather opposite conditions, which were expected to stimulate different communication strategies. However, contrary to the expectation, respiratory problems were not treated primarily in a biomedical way. Apparently, the pediatricians under study are well convinced of the necessity of discussing psychosocial issues in case of respiratory problems. This may have contributed to the fact that less differences between the selected health problems were found than was expected beforehand. In addition, the groups of behavioral and respiratory diagnosis may be less homogeneous than expected. Alternatively, the paradigm shift [8] has already influenced the way the pediatricians communicate with children and their parents, allowing more room to discuss psychosocial issues, regardless of the nature of the presented health problem. Attention to psychosocial issues appeared to be most prevalent in more experienced pediatricians. Presumably, their experience makes them feel more confident in handling psychosocial issues.

Characteristics of the parents might have influenced the communication patterns as well. In this study, parent characteristics such as gender and education were not accounted for, because almost every child was accompanied by the mother and a large number of the parents had not answered the question on their education background.

4.2. Conclusion

Overall, the present findings suggest that pediatrician– parent–child communication is indeed related to the nature of the health problem presented, but so do individual characteristics like the child's age and the pediatrician's experience. In addition, the present findings also suggest that pediatricians talk primarily with either the child or the parent. As previous studies have indicated [10], a more balanced conversation to which both the child and the parent contribute to the same extent may be difficult to accomplish.

4.3. Practice implications

Even in the medical practice of the 21st century, many child-patients are ignored by doctors. Specialized pediatricians have usually learned to talk with the parents and the children. Nevertheless, they still need to be convinced more of the necessity to accomplish a true multi-party talk instead of communicating with either the child or the parent. In addition, pediatricians have to be made aware of the fact that both the parent and the child need enough room to contribute to the conversation. Also, given the findings of this study, less experienced pediatricians should be especially encouraged to spend more time on discussing psychosocial issues. After all, a lot of behavioral problems are still handled in a restricted biomedical way.

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TABLES AND FIGURES

Table 1

Key RIAS communication categories; operationalizations and examples

	Operationalization	Examples
Medical categories		
Question	Questions that ask for information on medical condition or therapeutic regimen	"Tell me what your problem is." "Did they do a blood test last time you were here?"
Information	Statements or facts relating to medical condition, diagnosis or test results	"These pills may make you feel a bit drowsy." "I feel so tired all the time."
Advice	Statements which suggest resolution or action to be taken by the other relating to medical condition, diagnosis or test results	"Take these pills twice a day." "Come back in two weeks."
Psychosocial categories		
Question	Questions relating to lifestyle, family or home situations, stress or personal likes or dislikes	"Are you looking forward to your birthday party?" "How can I make him stop hitting his sister?"
Information	Statements or facts relating to lifestyle, family or home situations or stress	"A stressful situation may trigger that kind of behavior." "She normally hates school."
Advice	Statements which suggest resolution or action to be taken by the other relating to lifestyle, family and home situations or stress	"Go and play with your classmates more often." "You really need to realize that ignoring him won't change his misbehaviour."

Table 2

Percentage of communication categories across the three communication patterns

Communication categories	Biopsychosocial child-centered ($n = 378$)	Psychosocial parent-centered ($n = 126$)	Biomedical parent-centered ($n = 342$)	P^a
Pediatrician–parent				
Medical question	3.19 a	2.16 a,c	3.51 c	<0.001
Psychosocial question	0.36 a	1.15 a,c	0.33 c	<0.001
Medical information	8.46 b	9.57 c	21.52 b,c	<0.001
Psychosocial information	0.42 a	3.75 a,c	0.60 c	<0.001
Medical advice	2.28 b	1.94 c	2.83 b,c	<0.001
Psychosocial advice	0.11 a	0.82 a,c	0.17 c	<0.001
Parent–pediatrician				
Medical question	0.84 b	0.71 c	1.53 b,c	<0.001
Psychosocial question	0.02 a	0.10 a,c	0.02 c	<0.001
Medical information	12.93 a,b	9.98 a,c	15.65 b,c	<0.001
Psychosocial information	2.29 a	11.12 a,c	1.92 c	<0.001
Medical advice	0.06	0.07	0.08	ns
Psychosocial advice	0.01 a	0.04 a,c	0.01 c	0.001
Pediatrician–child				
Medical question	1.69 a,b	0.56 a	0.36 b	<0.001
Psychosocial question	0.58 b	0.42 c	0.09 b,c	<0.001
Medical information	3.46 a,b	1.04 a	0.75 b	<0.001
Psychosocial information	0.32 b	0.31 c	0.06 b,c	<0.001
Medical advice	0.70 a,b	0.25 a	0.10 b	<0.001
Psychosocial advice	0.08 b	0.15 c	0.01 b,c	<0.001
Child–pediatrician				
Medical question	0.14 a,b	0.06 a	0.03 b	<0.001
Psychosocial question	0.01	0.01	0.00	ns
Medical information	2.23 a,b	0.60 a	0.32 b	<0.001
Psychosocial information	0.79 b	0.51 c	0.09 b,c	<0.001
Medical advice	0.01	0.03	0.00	ns
Psychosocial advice	0.00	0.00	0.00	ns

a, b, c: between-group differences based on Scheffe test, $P < 0.05$.
[a] ANOVA.

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Table 3

Regression coefficients (S.E.) of pediatrician, child and visit characteristics for the different communication patterns in pediatric visits

	Biopsychosocial child-centered		Psychosocial parent-centered		Biomedical parent-centered	
	β	S.E.	β	S.E.	β	S.E.
Pediatrician						
Female	0.419	0.252	−0.252	0.269	−0.333	0.257
More experienced	0.018	0.019	0.045[*]	0.021	−0.043[*]	0.019
Patient						
Girl	0.149	0.150	−0.112	0.202	−0.088	0.155
Older	0.150[*]	0.018	0.005	0.022	−0.172[*]	0.020
Visit						
Follow-up visit	−0.034	0.221	−0.008	0.298	0.016	0.224

[*] $P < 0.05$.

Table 5

Number (%) of pediatric visits for behavioral and respiratory problems across the communication patterns[*]

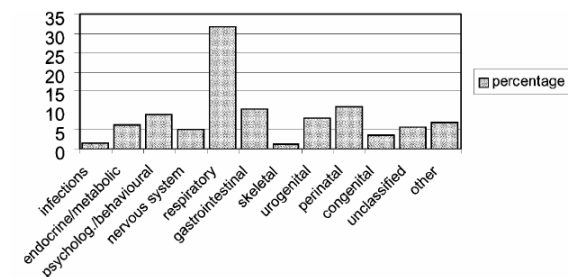|	Biopsychosocial child-centered n (%)	Psychosocial parent-centered n (%)	Biomedical parent-centered n (%)	Total n
Behavioral problems	27 (35)	31 (40)	19 (25)	77
Respiratory problems	141 (52)	21 (8)	107 (40)	269

[*] Chi-square test, $P < 0.001$.

Fig. 1. Percentage of primary diagnosis in the 846 pediatric visits in conformity with the classification of diseases in pediatrics (Dutch Organization for Applied Scientific Research, 1997).

Table 6

Regression coefficients (S.E.) of pediatrician, child and visit characteristics for the different communication patterns in pediatric visits; respiratory vs. behavioral problems

	Biopsychosocial child-centered		Psychosocial parent-centered		Biomedical parent-centered	
	β	S.E.	β	S.E.	β	S.E.
Pediatrician						
Female	0.226	0.321	−0.377	0.360	−0.075	0.292
More experienced	0.011	0.024	0.069[*]	0.029	−0.040	0.022
Patient						
Girl	0.077	0.252	−0.345	0.378	0.088	0.255
Older	0.193[*]	0.034	−0.078	0.045	−0.171[*]	0.035
Visit						
Follow-up visit	−0.166	0.377	−0.171	0.500	0.225	0.384
Diagnosis						
Respiratory problem	1.097[*]	0.306	−2.050[*]	0.342	0.437	0.317

[*] $P < 0.05$.