Communication techniques used by pediatricians during well-child program visits: A pilot study

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ABSTRACT

Good communication between a parent and pediatrician may increase therapeutic adherence and the parent satisfaction. Therefore, a pediatrician's main goal during a consultation is obtaining and giving information.

Objective: To analyze occurrences during well-child program visits, specifically the communication techniques used by pediatricians.

Methods: We analyzed 49 visits to 5 pediatricians in Seville (Spain). To assure the visits were accurately studied, we audio-taped and transcribed them. To quantify the communication techniques used by pediatricians we developed a check list with 27 categories divided into 3 main communication categories for the visit; ''concrete data gathering,'' ''narrative support'' and ''information and counseling.''

Results: We identified 2025 instances in which pediatricians used a communication technique, 1201 (59%) instances in which the pediatrician used a communication technique to gather information, and 824 (41%) instances in which they gave information and counseling. Pediatricians used a limited range of techniques to inform, counsel and give narrative support to patients. Significant differences among pediatricians were observed in the use of most techniques.

Conclusion: A limited range of communication techniques were observed. The lack of homogeneity among pediatricians suggests different styles of communication, depending on the quantity and quality of communication techniques used.

Practice implications: This finding can be regarded as a useful hypothesis and should be confirmed with larger pediatrician samples, as it would help to better understand consultation practices that may, in time, help improve communication with parents.

1. Introduction

Pediatricians are the main formal counseling source for parents about their child's development and education [1–3]. Pediatricians' anticipatory guidance can improve outcomes of child health and development, including: infant vocal behavior, parenting skills, infant sleep patterns, parental use of discipline, language devel-opment, prevention of falls, home accidents, and auto-passenger injuries [4].

A family's knowledge and empowerment can be improved if mothers have the opportunity to express their concerns. This has been shown to have greater predictive power than most screening tests for the detection of both developmental and child behavioral disorders [5–9]. If a pediatrician acknowledges maternal concerns, it could be an important contribution toward early diagnosis.

However, several studies show that parents often do not receive all the information they need [10–15]. They do not ask the pediatrician for information about their concerns because they perceive a lack of interest or time [16–18].

Communication is an important part of a patient's experience with healthcare services and greatly affects outcomes of care [19,20]. Despite the growing awareness of the importance of good communication in healthcare, considerable problems, such as misinformation, lack of information and lack of responsiveness are among the most often reported complaints in studies regarding patient satisfaction [21–25].

However, most of the studies in this field are self-reported and do not allow any inferences to be made about the quality and quantity of the communication techniques used by pediatricians. Such information would help determine how much knowledge and training is needed to improve pediatrician counseling skills and to

remove counseling barriers or to reinforce appropriate counseling practices [10,26–31].

To study the communication flow, it is useful to divide pediatrician visits into two main parts: the exploratory portion, in which the pediatrician obtains verbal information about the parents or the child and conducts the physical examination, and the solving portion, in which the pediatrician gives and discusses information with the parent and child, as well as offers counseling. Thus, since giving and obtaining information are the main activities of the pediatrician, having a basic knowledge about the interpersonal communication process may improve essential aspects of their practice [32–34].

In order to obtain information from parents, pediatricians should combine two techniques: those aimed at obtaining concrete data (concrete data gathering) and those aimed at facilitating the parents' expression of interest and concerns (narrative support). There are a wide range of techniques for giving information and educating patients that substantially improve understanding and help patients follow recommendations [34].

Pediatric training in Spain is primarily focused on the diagnosis and treatment of diseases. Most preventative and educational activities represent a new experience for patients. In fact, topics such as child development and education or communication techniques tend to be secondary matters in the pediatricians' initial training [26,35,36].

The aim of this pilot study was to analyze communication techniques used by pediatricians during well-child program visits. The visits are used to assess overall health, development, behavior, and family functioning, as well as provide parental education through age-appropriate counseling [4,37–39].

2. Method

2.1. Participants

We analyzed 49 visits to 5 pediatricians in Seville (Spain) who were selected based on accessibility and professional experience. All pediatricians agreed to participate in the study. The sample is comprised of 1 male and 4 female pediatricians, with an average of 16.8 years of professional experience (SD = 9.2, min = 9, max = 32). The pediatricians' mean age was 45.6 years (SD = 10.6, min = 34, max = 63).

The mean age of the children seen was 16.5 months (SD = 18.3, min = 0.3, max = 60). All the visits were made with mothers present. The mean age of mothers was 32.0 years (SD = 4.1, min = 22, max = 41), and the average maternal education level was 9.7 years (SD = 2.7, min = 8, max = 15).

2.2. Procedure

This study was approved by the University of Seville and authorized by the Health District Authority. After obtaining informed consent from each pediatrician and mother, we recorded the audio from the visits and accurately transcribed them.

In order to quantify communication techniques used by pediatricians, we developed a check list based on interpersonal relationships, cognitive theories and the biopsychosocial model of health [40–46] synthesized by Borrell [34].

This check list classifies the communication techniques in three major groups: ''concrete data gathering,'' ''narrative support,'' and ''inform and counsel,'' which define 27 verbal communication techniques:

1. Concrete data gathering includes the following communication techniques: ''open-ended questions,'' ''closed questions'' and ''several option questions.''
2. Narrative support includes: ''facilitation,'' ''empathy,'' ''repeti-tion,'' ''clarifying,'' ''pointing out,'' ''interpretation,'' and ''antag-onism.''
3. Inform and counsel includes: ''statement,'' ''exemplifying,'' ''visual–tactile complement,'' ''to detail behavior,'' ''reasoning,'' ''written instructions,'' ''to identify knowledge,'' ''to transform beliefs,'' ''motivating and rewarding,'' ''checking out'' and ''prescription information without explanation,'' ''pact,'' ''to take precautions,'' ''double pact,'' ''to re-conduct,'' ''to cede,'' and ''bi-directional.''

There is a general agreement that communication techniques that do not promote the comprehension of a health problem, such as ''prescription information without explanation'' and ''antagon-ism,'' are of limited/no value because they do not promote adhesion to physician recommendations. For the same reason, ''closed questions'' and ''interpretation'' should be used moder-ately [34,40,41].

In order to maximize concrete data gathering, a well-balanced proportion of closed and open-ended questions is required [6,8,33,34]. We considered a ratio of closed/open questions 1.5 as good, between 1.6 and 3.0 as acceptable and >3 as poor.

We also considered the use of all ''narrative support'' techniques above described, with exception of ''antagonism,'' as adequate. Furthermore, regarding ''inform and counsel'' techni-ques, we classified ''to prescribe or inform without explanation'' as inadequate with the remaining techniques considered as adequate [33,34].

The check list content validity was satisfactory since every segment of transcribed text fit into these 27 categories. The face validity of the check list can be estimated from its description (Table 1).

The primary investigator (CN) and a trained research assistant coded data from the audio-tape transcriptions. Disagreements were infrequent (<2% of the observations) and were easily resolved by a simple consensus. The inter-rater reliability was calculated for all techniques that had more than five observations (19 of 27). All Intraclass Correlation Coefficients (ICC) were 0.9 or higher, suggesting good reliability (Open-ended Question = 0.998, Several Option Question = 0.996, Closed Question = 0.997, Facilitation = 0.971, Empathy = 0.933, Repetition = 0.970, Clarifying = 0.941, Pointing Out = 0.979, Interpretation = 0.994, Antagonism = 1.000, Prescription Infor-mation Without Explanation = 0.987, Statement = 0.984, To Detail Behavior = 0.996, Reasoning = 0.988, Written Instruc-tions = 1,000, To Take Precautions = 0.935, Motivating and Rewarding = 0.995, Checking Out = 0.972, Pact = 0.943) [47].

Analyses were conducted using SPSS (version 15). ANOVA was used to test for significant differences in average visit length between pediatricians. According to the Levene test, some communication technique distributions were not homoscedastic, so the Kruskal–Wallis test was used to test for significant differences between communication techniques utilized by the pediatricians. Multiple regression analysis was used to analyze factors related to the amount and adequacy of communication techniques used by the pediatricians.

3. Results

The average length of each pediatric visit was 16.1 min (SD = 5.6, CV = 35%, min = 6, max = 30). Significant differences among pediatricians were observed ($F(4, 44) = 4.548$, $p = 0.004$).

During the 49 visits studied, we identified 2025 communication techniques, which corresponds to 41.3 techniques per visit. In total, 59% (1201/2025) of these techniques were used to obtain information and 41% (824/2025) to inform and counsel patients.

Table 1
Definition and examples of some communication techniques.

Concrete data gathering
Open-ended question: a question the patient has to answer with a sentence and that does not contain any suggestions. ‘‘What does the child eat?’’ Several-option question: a question that contains at least two suggestions. ‘‘Do you breast-feed him or do you give him adapted milk?’’
Closed question: a question that may be answered with yes or no. ‘‘Do you make him eat vegetables?’’
Narrative support
Facilitation: a verbal behavior that helps to start or to continue the conversation without indicating or suggesting contents. ‘‘What else?’’ Empathy: a verbal behavior that expresses emotional solidarity without an ethical or ideological prejudgment. ‘‘I understand how you feel.’’
Repetition: the repetition of a word or a sentence that directs the attention toward certain content. I.e.: answering the mother, who says ‘‘He’s been like this for a month’’, the pediatrician repeats ‘‘a month?’’ leading to the explanation of the development of the circumstances by the mother.
Clarifying: verbal behavior that leads to the explanation of a word or idea. ‘‘What do you mean by saying. . .?’’
Pointing out: points out or shows the patient’s emotions or behaviors in order to get him to talk about a subject. ‘‘Lately you seem very nervous to me.’’
Interpretation: to explain the causes of a certain behavior or feeling. ‘‘I think your child is behaving like that because he’s jealous of his sister.’’
Antagonism: a verbal behavior that opposes, criticizes, blames or condemns the patient’s conduct or emotions. ‘‘Why didn’t you do what I told you to do?’’
Inform and counsel
Statement: to announce the health problems found or the contents about to be explained. ‘‘I’m going to talk about. . .’’ ‘‘He has a common cold.’’
Exemplifying: to explain a concept with a simple example. ‘‘Blood pressure is like the pressure that exists in a pipe.’’
Visual–tactile complement: to show photos, or diagrams.
To detail behavior: to detail the behavioral changes proposed. ‘‘When does he eat? Well, that’s when he should take his medicine’’
Reasoning: to explain the reason or the effects of the therapeutic or diagnosed behavior proposed. ‘‘This syrup will help to open up his bronchial tubes and to stop the secretions.’’
Written instructions: to give written instructions about a recommendation.
To identify knowledge: to find out prior knowledge and beliefs. ‘‘What do you know about. . .’’
To change beliefs: to confront the patient’s idea with the one that is considered correct in order to modify his beliefs. ‘‘You think that. . .but actually what happens is. . .’’ Motivating and rewarding: to praise positive behaviors. ‘‘You are doing fine.’’
Checking out: making sure the parent has understood the messages. ‘‘Did you understand. . .?’’
Bi-directionality: statements that that allow a situation in which the parent can participate at any moment. ‘‘Are you following?’’ ‘‘(. . .) Let me make this clearer. . . when you finish the breast-feeding, right? (. . .) and you let it to dry out in the sun, correct?’’
To cede: to accept a request or suggestion for the present or for the future. ‘‘I think it’s right to do. . .’’, ‘‘I agree to think about a radiography, although at this moment. . .’’
Pact: to establish an agreement with the parent, in which he/she follows a recommendation from the physician and will accept his/her request in the future. ‘‘Make sure his nose is clean. . . If he doesn’t get better I’ll give you the medication, ok?’’
Double pact: to cede in a subject under the condition that the mother also cedes in another subject. ‘‘I’ll consider your point of view, but you should also consider the possibility that there is an emotional aspect’’.
To take precautions: the pediatrician warns the mother of a possible negative development and asks her to return if that situation occurs. ‘‘If you see that the symptoms persist, please don’t hesitate to come back’’.
To re-conduct: to avoid unnecessary discussions and focus the interview on what is essential: how to improve the health state. ‘‘Let’s not argue anymore about if you were right or wrong, the most important thing right now is to get him better.’’
Prescription information without an explanation: to give non-elaborated, non-reasoned information. To indicate in an imperative manner what the mother should do, whether it is behavioral patterns or the treatment of a disease. ‘‘Give him an egg every week’’

Pediatricians obtained the majority of information through concrete data gathering techniques (972/1201 = 81%), chiefly closed questions. Narrative support techniques, aimed at promot-ing mothers’ free verbalization, were less utilized (229/1201 = 19%) (Fig. 1).

We found that pediatricians used a limited range of techniques to inform and counsel patients. Useful techniques, such as identifying prior knowledge, exemplifying and checking out were rarely used. On the other hand, pediatricians often gave informa-tion without proper explanations or rationale (170/824 = 21%) (Fig. 2).

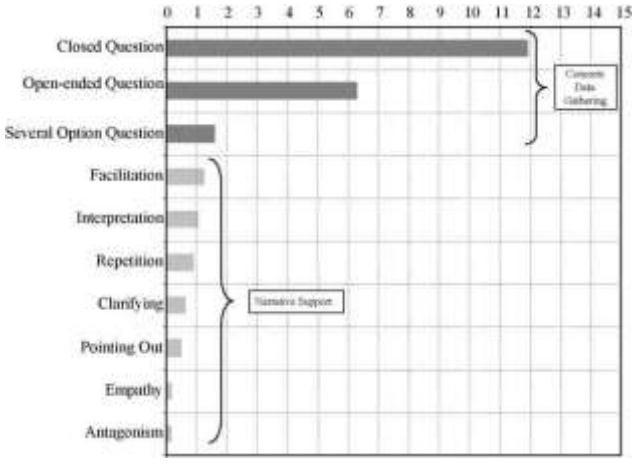

Fig. 1. Average number of techniques per visit to data gathering.

As seen in Table 2 and Fig. 3, there was a significant lack of homogeneity among pediatricians in communication techniques utilized. The Kruskal–Wallis test clearly rejects the null hypothesis (that the average number of communication techniques used by the pediatricians is approximately the same) for most of the

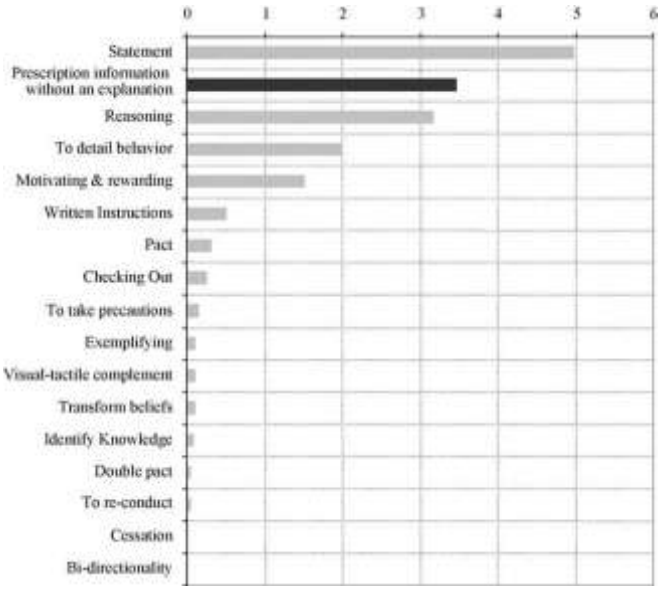

Fig. 2. Average number of techniques per visit to inform and counsel.

Table 2
Average number of communication techniques used by pediatrician per visit.

	Pediatrician					
	No. 1	No. 2	No. 3	No. 4	No. 5	p*
Concrete data gathering						
Open question	2.9	2.3	13.2	7.0	5.8	0.000
Closed question	5.4	15.9	13.8	15.0	8.8	0.001
Several option question	0.2	0.2	3.5	1.7	2.3	0.000
Total	8.6	18.4	30.5	23.7	16.9	0.000
Narrative support						
Facilitation	0.3	0.1	2.7	0.5	2.6	0.000
Empathy	0.2	0.0	0.3	0.0	0.3	ns
Repetition	0.0	0.5	1.9	0.5	1.5	0.001
Clarifying	0.4	0.2	1.6	0.2	0.7	0.002
Pointing out	0.3	0.3	0.6	0.0	1.3	0.001
Interpretation	0.2	0.0	1.9	1.3	1.7	0.001
Antagonism	0.1	0.0	0.3	0.1	0.3	ns
Total	1.7	1.1	9.3	2.6	8.4	0.000
To inform and counsel						
Prescription information without an explanation	3.8	5.3	1.9	5.4	1.0	0.001
Statement	2.6	4.7	7.8	5.0	4.6	0.006
To detail behavior	1.9	1.2	3.1	1.1	2.6	0.033
Reasoning	2.1	0.8	5.3	2.0	5.5	0.000
Exemplifying	0.2	0.0	0.0	0.0	0.3	ns
Visual–tactile complement	0.2	0.1	0.0	0.0	0.2	ns
Written instructions	0.3	0.4	0.4	0.7	0.7	ns
To identify knowledge	0.1	0.0	0.2	0.0	0.1	ns
To change beliefs	0.0	0.0	0.2	0.0	0.3	ns
To cede	0.0	0.0	0.0	0.0	0.1	ns
Double pact	0.0	0.0	0.2	0.0	0.0	ns
To take precautions	0.3	0.0	0.3	0.1	0.0	ns
Motivating and rewarding	1.1	0.8	1.3	1.3	3.0	0.014
Checking out	0.1	0.0	1.0	0.0	0.1	0.001
Bi-directionality	0.0	0.0	0.0	0.0	0.1	ns
To re-conduct	0.0	0.0	0.0	0.0	0.2	ns
Pact	0.2	0.1	1.0	0.1	0.1	0.017
Total	13.0	13.4	18.7	15.7	18.9	0.024

* Kruskal–Wallis asymptotic significance.

techniques used for concrete data gathering, narrative support and informing and counseling.

None of the mothers' socio-demographic characteristics (age and education level) were found to be statistically significantly in the multiple regression model.

The internal distribution of the techniques used for concrete data gathering was also found to be highly heterogeneous (Table 2). For instance, pediatrician #2 asked nearly 7 closed questions for each open question, while #3 asked approximately the same number of closed and open questions. Kruskal–Wallis

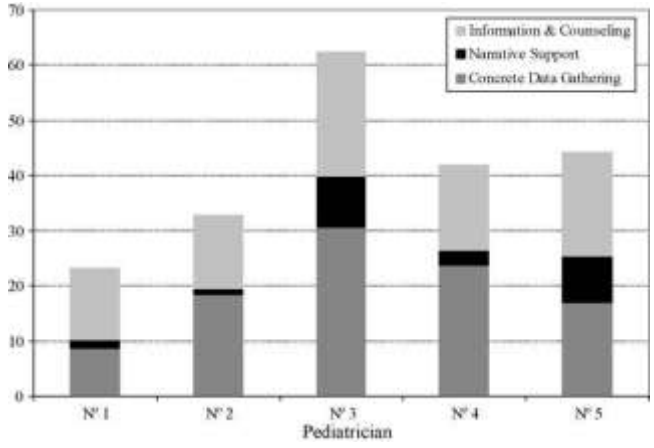

Fig. 3. Average number of techniques per visit to give and get information.

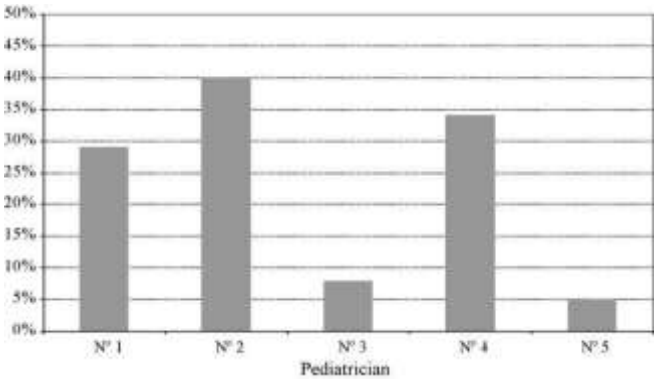

Fig. 4. Proportion of non-reasoned prescription and information.

Table 3
Summary of multiple regression analysis for variables predicting the use of adequate communication techniques.

Variables	b	S.E. (b)	t	p
Pediatrician 1[a]	19.91	5.10	3.90	0.000
Pediatrician 2[a]	19.62	4.69	4.18	0.000
Pediatrician 3	11.38	4.70	2.42	0.021
Pediatrician 4[a]	14.10	5.33	2.64	0.012
Visit's length	0.53	0.35	1.52	0.138
Child age	0.06	0.09	0.66	0.514
Mother age	0.19	0.35	0.54	0.596
Mother studies	0.04	0.61	0.07	0.945

[a] Dummy variables. Reference pediatrician 5.

test results, considering the proportion of open/closed questions as the dependent variable, showed significant differences among pediatricians (p = 0.000).

Pediatricians #3 and 5 used narrative support techniques much more often than pediatricians #1, 2 and 4, utilizing the techniques of facilitation, repetition and clarification most often (Table 2).

We observed a similar pattern in the use of techniques related to inform and counsel questions. If we exclude the ''without reasoning nor explaining'' category, pediatricians #3 and 5 used a larger number of facilitative communication techniques. These pediatricians were found to have a more effective communication style primarily because they gave little information without reasoning or explanation (Fig. 4).

The Kruskal–Wallis test showed that there were significant differences among pediatricians in their use of adequate techni-ques (p = 0.000) and inadequate techniques (p = 0.002).

In order to analyze factors associated with the amount of adequate communication techniques, a multiple regression analysis was performed. The following variables were included in the analysis: pediatrician, visit length, child's age, mother's age, and mother's literacy level (Table 3). The variable pediatrician was included as dummy variable. Mother's literacy level was defined as the number of academic years completed.

The diversity observed in the use of adequate communication techniques is better explained by the variable pediatrician (the dummy variable) than by the duration of the consultation or the maternal or children's characteristics.

4. Discussion and conclusion

4.1. Discussion

The average length of visit was within the recommended value [48,49]. This information is relevant because some studies have found that longer visits were associated with greater

levels of parental satisfaction [32] and a greater likelihood of discussing preventive health topics during well-child care visits [10,11,16].

The pediatricians in our sample used rather limited resources to get and to give information. This limitation might be caused by their understanding of interpersonal communication as something simple and ''objective,'' that does not require a conscious or systematic approach.

Techniques are necessary for two main reasons. First, human communication is often polluted by noise and error; individuals do not usually express themselves in a structured and logical manner [22,40]. Second, endorsing a desired behavior is often not enough to successfully change a patient's previous beliefs and behaviors [26,27].

On the other hand, several studies suggest that the use of effective communication skills could help improve outcomes of care, namely parent satisfaction, compliance with pediatrician recommendations, and recall and understanding of information [19,20].

Although the use of techniques affected the pediatricians as a group, there were very relevant differences among them in their communication skills. Some of the pediatricians obtained infor-mation using more open-ended questions, eased the mothers' concerns through narrative support techniques, reasoning and explaining their recommendations, and used a wider range of techniques depending on the specific situation.

So, in this small sample of Spanish pediatricians, we found that there was limited use of open-ended questions and other forms of communication that are thought to be optimal during primary care visits.

The five pediatricians varied greatly in their preferred com-munication style and average visit length. It was noted that the relative amount of ''adequate'' communication behaviors, as measured and determined by our system, was independent of patient characteristics and visit length. In fact, none of these factors contributed significantly after entering the dummy variables accounting for different pediatricians.

We speculate that a limited initial and in-service training on patient–doctor communication would reduce the homogeneity of professional styles.

Despite these interesting results, the present investigation should be considered in light of some limitations:

This area of study is undoubtedly underdeveloped, though the findings are very relevant and the potential benefits of this type of study are significant. In our view, a major reason for the limited study in this area is due to the complexity in accurately measuring doctor–patient communication.

To observe, record, transcribe and code the discourse produced during a consultation is time-consuming and expensive. There-fore, in the future, it would be useful to simplify this process. As a result, it will be possible to study larger samples, which will allow the use of more sophisticated statistical analyses, better control of different sets of variables in multivariate analysis, and the development of more robust and more precise conclusions.

Although validity and inter-observer reliability appeared satisfactory, more studies using our check list should be conducted in order to validate and allow for comparison and generalization of our results.

In order to gather relevant information from parents, it may be advantageous to ask closed questions less often. Thus, there must be an adequate proportion of open and closed questions [6,8,33,34]. However, there is not enough empirical information allowing us to accurately determine an acceptable proportion. The categorization used must be understood as a specific approach, and its validity must be re-evaluated in future studies.

Finally, because we used a small, non-random sample, the generalization of our results is limited. Therefore, these results may not apply to a larger group of pediatricians.

4.2. Conclusion

A narrow range of communication techniques was observed. The lack of homogeneity among pediatricians suggests different communication styles depending on the quantity and quality of communication techniques.

Continued research in this area is needed to determine which techniques are most effective and efficient and to improve parent–pediatrician communication.

In addition, future research should explore the differences among communicational styles of pediatricians and the relation-ship between a parents' educational level and its effects on patient satisfaction and parental practices.

4.3. Practice implications

This study analyzed communication techniques used by pediatricians during well-child program visits and provided information that may help improve pediatrician counseling skills, remove barriers in counseling, and reinforce adequate counseling practices.

The existence of different communication styles that result from differences in the quantity and quality of communication techniques uses is a useful finding that should be confirmed with larger pediatrician samples, as it would aid in an overall under-standing of consultation practices and may, in time, help improve pediatrician–patient communication.

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