

THE POSSIBILITIES OF RECOGNIZING FEAR BY THE ANALYSIS OF CHILDREN'S DRAWINGS

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Summary

The analysis of the contents of 690 children's drawings of the dentist's office was carried out with the aim of determining the presence of »fear-inducing« and »encouraging« elements in these drawings. The results showed that only 9% of children drew encouraging elements like flowers, pictures, decorations, etc. The presence of fear-inducing elements appeared to depend on: 1) children's previous experience; 2) children's age; 3) how the topic had been presented to children; and 4) what elements did actually exist in the dentist's office.

Key words: Children's drawings, fear, dentist

INTRODUCTION

Children's reactions to the environment of a dental's office can be studied in several ways.

A direct observation and registration of patient's behavior during a dental treatment has proved to be the most reliable and methodologically best method. However, the use of this method requires collection of information over prolonged periods of time, since it has to be carried out individually. Apart from that, it also requires certain organizational adjustments as well as training of the staff in the recording procedure.

Such studies usually include some physiological tests (such as blood pressure measurement) as well as observation and recording of various physiological manifestations of fear (such as sweating, redness of the face, alternations in the iris) and of certain behavioral components (such as crying, refusing to open the mouth, etc) (Ilesić 1).

There are also some other, indirect ways of studying a little patient's emotional reaction to the stomatological experience such as objective observation and recording of changes in children's behavior during several visits (Vranić Stavljenić (2). Children can also be asked to describe in writing everything that happened during their visit to the dentist. By means of the contents analysis, we can then classify them into various groups according to their reactions, i. e. those who have remembered and described the situation as horrifying; those who have remembered it as quite pleasant and safe; and those who have remembered it as neutral (Anić and Rajić (3). Similar results can also be obtained by the analysis of children's drawings of a given and, of course, relevant subjects, e. g. »My visit to the stomatologist« (Rajić 4).

We decided to employ the latter in this study.

The analysis of contents of children's drawings is a relatively simple and economical procedure, while drawing is a natural and familiar way of expression for children in general.

Drawing a picture is one of the ways how children can express themselves and their inner feelings about the surrounding world (Babić 5), Bodulić 6, Arnhajm 7). Their ability of drawing depends on their age, i. e. on their developmental stage. At first, it will be mere »doodling«.

In the pre-scheme (age, 6—7 years) and scheme (age, 7—9 years) phases, the appearance of a basic line representing the space can be observed. The child will place all the objects along the basic line, relating them to each other within the space (notional drawing). If the child wants to stress something in his drawing, a deflection in the regular scheme in the form of exaggerated or left out details may appear, which could be quite significant for our evaluation of the elements as an indication of the presence or absence of fear.

The realistic phase (age, 9—11 years) is characterized by the appearance of a new element, i. e. the third dimension or a perspective. The drawing will retain its meaning even when looked at separately (physioplasic drawings).

G. H. Luquet distinguishes several phases in the development of a child's ability of drawing: a phase of accidental realism (which corresponds to the phase of »doodling«); a phase of unsuccessful realism (narrative phase); and a phase of visual realism (when the child depicts the world in accordance with its own experience).

Children show much interest, sense and feeling for colors. The colors they use in their drawings are not direct imitation of the real colors, and their composition is richer and more imaginative as compared to the drawings of adults, so that children's drawings appear similar to the naive painting in many ways. Later on, however, this creative aspect will usually disappear, probably as a consequence of the process of development and maturation. No doubt, standardized education with its rigid norms also plays an important role in quenching their creativity and imagination.

These drawings also have a projective value: analyzing them, we can observe and recognize the children's inner, psychological dynamics. All persons beloved by or well known to the child, or those important or significant in some social context, will be drawn larger than the others, considered by the child less important or even indifferent (Goodenough 8, Rumequere 9). Topographically, these larger figures will be placed closer to each other, in the so-called »hierarchical proportion«. In our study, particular attention was paid to this element of the projective value of children's drawings. As has already been mentioned above, the analysis of children's drawings is a simple and economical procedure. Over a relatively short period of time, quite a large number of drawings can be collected and, even more important, this can be done in children organizationally and territorially belonging to the same outpatient clinic and the same dental team. In this way, the essential requirement of ensuring equal conditions of previous experiences can easily be fulfilled. In all the children under study, the frequency of systematic examinations will be identical as well as their inclusion in preventive actions, etc. Thus, the groups of children who have had several such experiences can be compared to those who have not had any such experiences.

Another and equally important reason for a widely spread and common use of the analysis of children's drawings as a study method is the fact that, as a procedure, it is familiar and easily understood by children. Children are familiar with expressing their experiences in drawing. This method, of course, also has some shortcomings. One of them is the fact that it is impossible to achieve an absolute objectivity in the evaluation. In any case, the shortcomings of this method should be taken into account during the interpretation of the results.

There are numerous suggestions about the importance of decorative elements as fear-reducing and encouraging ones.

The aim of this study was to determine the presence of elements indicating fear as well as to identify and determine the frequency of encouraging, decorative elements noticed by the children in the dental office.

SUBJECTS AND METHODS

Drawings on the topic of a »dentist's office« were collected with the assistance of teachers and other staff in kindergartens and schools. The drawings were not done in the same technique but were adjusted to the technique used by the children at that time. Thus, some of the drawings were made with crayons, some with pencils, felt-tip pens or watercolors.

Drawings were collected from children belonging to the middle- and older age groups in kindergartens ($n = 181$) and those enrolled in the first four grades of elementary school. This means that the examinees were children with various stomatological experiences. Prior to the analysis, the drawings had to be selected, because they were not all acceptable

for evaluation. For example, quite a number of drawings from kindergartens were either incomprehensible doodles or inadequate to children's age, or were not related to the given topic at all. One group of drawings had to be excluded, because the children had depicted dental care in kindergartens (collective tooth brushing, etc).

The drawings of school children were also reduced, because the drawings obtained from the fourth grade children were overly schematic and simplified. This was especially apparent in the crayon drawings. Another group of drawings by the fourth grade children had to be excluded, because the quality of drawings and the number of details included made them by far superior to those made by younger children. Therefore, we decided on these drawings to be processed separately (Table 1).

Table 1. Examinees

	AGE (years)	N
children from the middle and older groups in kindergarten	6 — 7	191
School children		
1 st and 2 nd grade	7 — 9	255
3 nd and 4 th grade	9 — 11	267
Total:		690

In total, 690 drawings were analyzed. The analysis included observation and recording of information on the following 6 elements of a drawing: office, dentist, patient, interaction, instruments and decorative elements (Table 2).

Table 2. A survey of the elements studied

	Elements inducing fear	Encouraging elements
Office	empty patient alone stomatologist alone	stomatologist and patient together several persons in the office
Stomatologist	dominant unpleasant expression undefined	much shorter pleasant expression
Patient	scared crying running away	not scared cheerful smiling
Interaction	no interaction evident distance between persons	discernible clearly indicated
Instruments	dominant numerous	present
Decorative elements	not present	flowers, pictures, etc.

RESULTS AND DISCUSSION

The analysis of the collected drawings showed the drawings by the third grade school children to be most suitable for processing as regards children's age and the above listed criteria. Because of the developmental characteristics specific for this age group and phase children's drawing, their drawings contained the elements which allowed the information to be processed in the anticipated manner. In this group of drawings, there was the least number of exaggerated or schematic drawings. (as was often the case with the drawings by fourth grade children) as well as the least number of drawings which did not satisfy the evaluation criteria (as was the case with drawings by younger kindergarten and first grade school children).

Depicting the dental office as the place of action, most children, i. e. 74% of them (both younger and older ones), put both a stomatologist and a patient (38%) or several persons (36%) in the setting, while one third of the children showed their distinct fear from this place depicting it as an empty room, indicating thus that they did not even want to enter it. Other drawings indicating fear had a stomatologist alone in the room, waiting for children, or a little patient standing in there alone (Fig. 1).

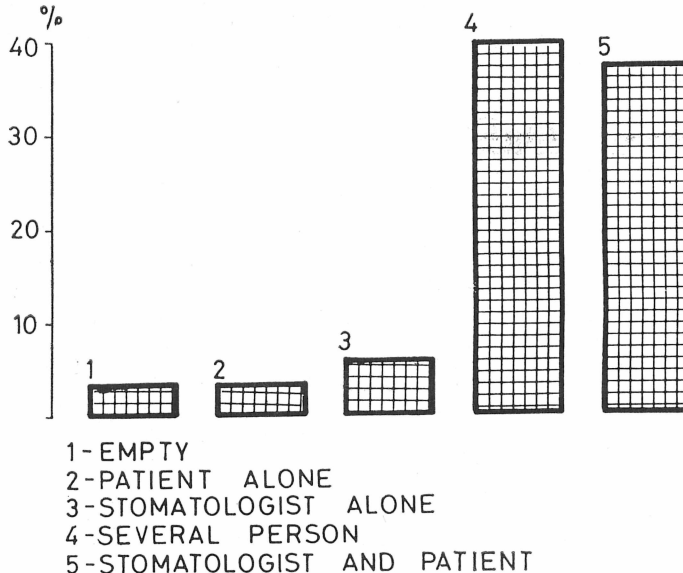


Figure 1. Stomatologist's office

Younger children (age, 5—8 years) choose only a drilling device as an outstanding part of the office, while older children noticed, remembe-

red and drew also some other essential elements. Another difference between the younger and older children (age, 8—11 years) can be observed in the way how they drew the figure of a stomatologist.

In the drawings by younger children, the dentist was often presented as an exaggeratedly large figure either as a whole figure or — as was the case in the majority of drawings — just his hand, holding an injection or a drilling device (Fig. 2). In the drawings made by children

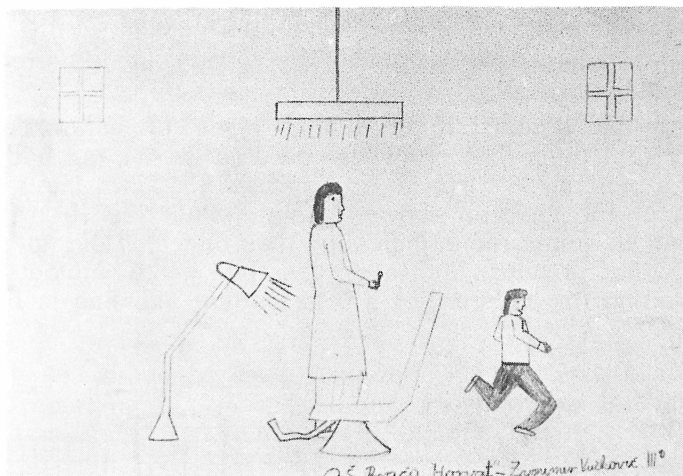


Figure 2. Stomatologist was exaggeratedly large presented

from the two higher school grades, the figure and position of a dentist were less dominant and less exaggerated. However, in this group of drawings, the dominant part of the picture was a multitude of shelves with bottles and medicines (Fig. 3).

As many as 12% of children from the two higher school grades filled out more than a third of their drawings with cabinets or shelves containing medicines. It might be interesting to mention that the interpretations of this particular detail, issued by children's psychologists and psychiatrists, differ from the stomatologists' interpretations. The former consider it an expression of a perceived potential danger, i. e. a fear-inducing element. In other words, this is a replacement for an exaggerated figure of a stomatologist in the drawings by younger children. The stomatologists, on the contrary, tend to interpret this detail as a faithful description of the real situation or even as one of decorative elements. Of course, the only correct way of solving this dilemma would be to ask a large number of children directly whether they feel these shelves as a fear-inducing element or simply as a decoration. Such a study was conducted by Anić and Rajić 3.

Presentation of interaction between persons in drawings becomes significantly more frequent as the children grow older (Fig. 4). The incidence of »evident« interaction grows with children's age. The difference between younger (st1 and nd2 school grades) and older (3rd and 4 th

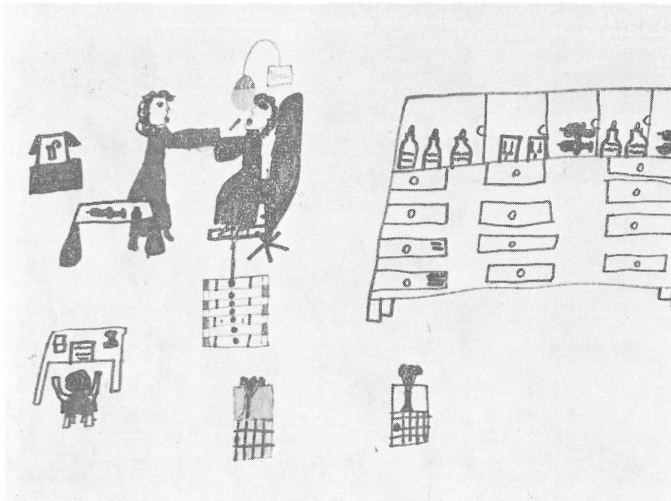


Figure 3. Shelves with bottles and medicines

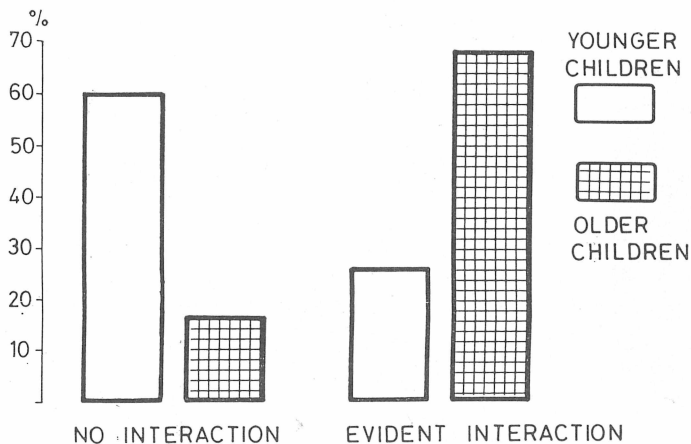


Figure 4. Interaction between persons in stomatologist's office

school grades) children is clearly visible in the number of characteristic details acutally representing the essential features of a dental office (Fig. 5). The difference in the absolute numbers is so evident

indeed, that it makes any statistical analysis (calculation of statistical significance) quite unnecessary (see: Figure 4). The older and younger groups also differ in the number of decorative details, the older group being clearly superior (Fig. 6).

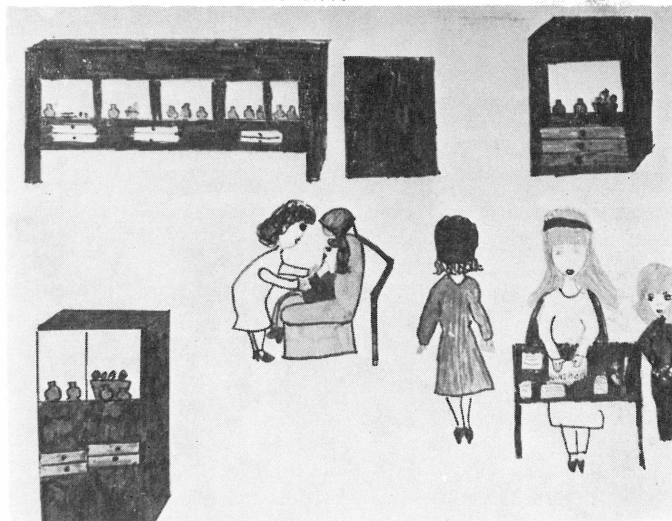


Figure 5. Interaction in the drawing of older children



Figure 6. Decorative details

The following decorative details were observed in the analyzed drawings: flowers in a vase or a pot, slogans on the walls, various signs, a clock on the wall, pictures of cartoon characters, toys, etc. (Fig. 5). Although it was observed that the older group had included a greater number of decorative elements in their drawings, it was also observed that the proportion between the decorative and fear-inducing elements decreased as the children grew older. This means that older children have perhaps a better capacity of noticing, remembering and indicating more decorative details in their drawings. At the same time, they are also more capable of noticing and registering more relevant elements of the dental office in their drawings (Fig. 6) For example, while the drawings by younger children do not always include a drilling device (Fig. 7),

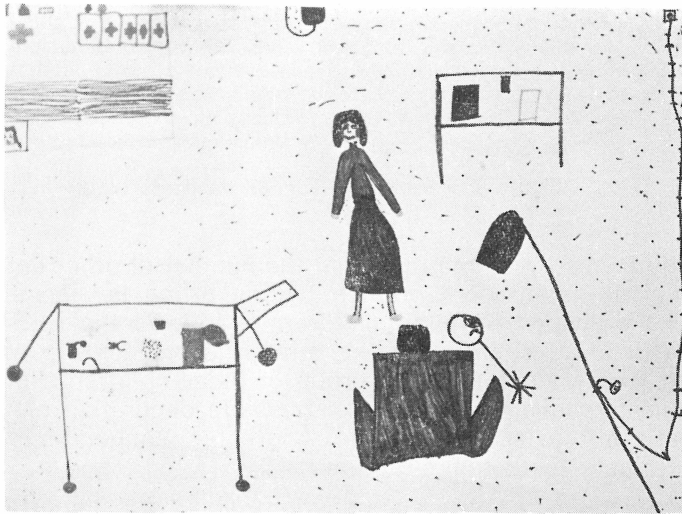


Figure 7. Drawing of younger child without drilling apparatus

the number of drawings by older children with this particular detail left out or »forgotten« is rather negligible. Thus, although the number of decorative elements increases as the children grow older, the proportion between the decorative and fear-inducing elements also shows a decrease in the significance of decorative details with the child's age. The analysis of all the collected drawings shows an absolute predominance of drawings without any decorative elements (Fig. 8). Only 9% of school children indicated some decorative elements in their drawings. The number of details relevant for the real situation in a stomatologist's office grows proportionally with children's age. More than 70% of children from older groups indicated more than two such elements (cabinets with medicines, instruments, cotton wool, table implements, nurse's desk, file cabinet, etc). The difference referring to such details between the drawings

by younger and older children is quite noticeable. Only 20% of drawings by younger children contain two or more of the essential elements of a stomatologist's office. This result is in concordance with our expectations in relation to the capacity of graphic expression of younger and older children.

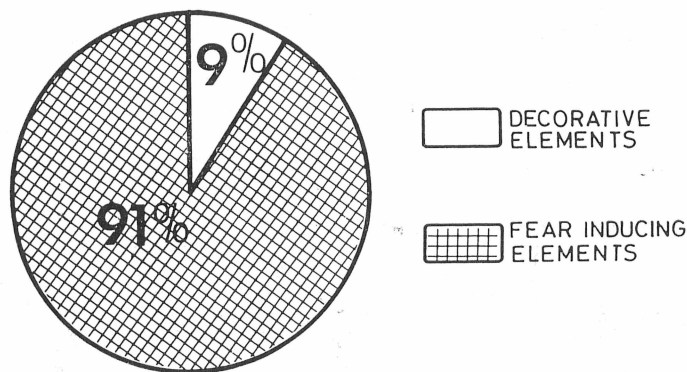


Figure 8. Presence of various elements

Still it is necessary to point out that the number of other details essential for the environment of a stomatologist's office is also significantly greater in the drawings by older children. It follows that the proportion between the decorative and other details (relevant for the office situation) is even less favorable in the group of older children. However, this is also a logical result: the number of possible decorative elements in a stomatologist's office is quite limited. A greater number of relevant elements only reflects the actual situation.

Our results do not support suggestions about the importance of decorative elements in a stomatological office. More than 90% of the children from our sample neither remembered nor drew these elements. On the contrary, in most drawings, social interactions among a stomatologist, a nurse and child were presented. It is reasonable to believe that the medical staff's behavior could be the strongest fear-reducing factor.

By the analysis of children's drawings, it is possible to identify the »fear-inducing« and »encouraging« elements in a stomatologist's office.

The presence of either of these two groups of elements depends on several factors:

- the way in which the topic was presented to children;
- what elements really exist in the office they had visited;
- what is the nature of a child's emotional experience in relation to the stomatologist's office and
- the child's age.

Our experience with the analysis of children's drawings has convinced us that it would also be necessary to use children's verbal statements in order to diminish the possibility of error during evaluation. Should such a method of evaluation be used, it would be desirable that the examinees be the children in the developmental phase corresponding to the age of 8—10 years.

MOGUĆNOSTI PREPOZNAVANJA STRAHA POMOĆU ANALIZE DJEČJIH CRTEŽA

Sažetak

Provedena je analiza sadržaja 690 dječjih crteža stomatološke ambulante s ciljem da se utvrdi zastupljenost »zastrašujućih« i »ohrabrujućih« elemenata u tim crtežima. Rezultati pokazuju kako svega 9% djece crta i ohrabrujuće elemente, kao što su cijede, slike, ukrasi itd. Zastupljenost zastrašujućih elemenata ovisi o: 1) ranijem iskustvu djece, 2) dobi djece, 3) načinu kako je zadatak zadan i 4) koji su elementi doista postojali u stomatološkoj ambulanti.

Ključne riječi: dječji crteži, strah, stomatolog

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