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The Biopsychosocial Usage of Draw your Family Test in Children in Family Medicine

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ABSTRACT

Objectives: In family medicine practices, children are generally evaluated biologically, but their psychosocial evaluation is lacking. This study aimed to evaluate the family pictures drawn by children between the ages of 4 and 12, in a biopsychosocial approach within the framework of family medicine.

Methods: Parents and their children who applied to the family physician between the ages of 4 and 12 between February 1, 2019, and April 30, 2019, were included in the study. In the outpatient setting, a one-time Draw your family test (DYFT) was applied to the children and the drawn pictures were evaluated using the Koppitz's Emotional Indicators Scale (EIS). Parents of the same children were asked to complete the Conners' Parental Rating Scale (PRS).

Results: A total of 212 children were included in the study. As a result of the DYFT, 85 (40.1%) children may have developmental delay, lack of self-confidence, communication disorder, impulse control disorder, shyness, introversion, and socialization problems were obtained. In the Conners' PRS applied to parents, data indicated that 147 (69.3%) children may have hyperactivity disorder, behavioral disorder, attention deficit disorder, anxiety disorder, and psychosomatic disorder. At the end of the study, it was observed that 41 (19.3%) children scored high on both the Koppitz's EIS and the Conners' PRS.

Conclusion: In conclusion, starting with drawing tests after a short training of family physicians will increase their communication with children and enable them to evaluate psychosocially.

Keywords: Biopsychosocial model, children, family practice, psychological tests



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INTRODUCTION

Primary healthcare has an essential role in recognizing growth and development problems in children early, taking necessary precautions, and directing specialists on time.^[1] In family medicine practices, children are generally evaluated biologically, and their psychosocial evaluation is incomplete because of the difficulties of obtaining direct information from the child and the need for a long time and training in cooperation with parents.^[2]

The healthy emotional development of the child provides healthy social relationships and academic success.^[3,4] If emotional and behavioral problems in children and adolescents are diagnosed and treated early, more severe problems such as school failure, truancy from school, child pregnancy, and marriages could prevent substance use.^[2]

Families mostly refer to child psychiatry for the emotional and behavioral problems of their children.^[5] However, it seems a more efficient way to apply to family medicine, where families could easily access, consult quickly, and be directed to a specialist if necessary. For family physicians to deal with the emotional and children's behavioral development, easy-to-apply, short, and fun mood assessment tools such as drawing tests are needed.^[6] Jean Piaget, the founder of the cognitive development theory, evaluates the pictures drawn by children as a symbolic reflection of mental images.^[7] For this reason, Piaget emphasized that drawing tests could be used as a method to evaluate children's development.^[8]

Drawing tests could give clues about the analysis of the personality and emotional problems of the children.^[9] While the "Draw a person test" and "Draw your family test" (DYFT) tell how the child perceives herself/himself and her/his family, each figure in the DYFT provides information about the child's mood state.^[10,11] Since the drawing tests are an entertaining non-verbal communication tool for children, the drawing test will guide the family physician in determining, precaution, and monitoring the mood state of the child at every check. Early diagnosis and intervention could be provided by evaluating the pictures, and children who are seen at risk can be directed to a specialist. Since the application of standard screening tests for monitoring or screening the children's psychological development requires long training and time, it seems more applicable to use projective drawing tests with a short-term education in primary care.^[12]

This study aimed to evaluate the family pictures drawn by children between the ages of 4 and 12, in a biopsychosocial approach within the framework of family medicine.

METHOD

This descriptive study was conducted to examine the drawings made by children between the ages of 4 and 12 who applied to the family physician. The population of the study consisted of 450 children between the ages of 4 and 12 who applied to the family physician in Yunus Emre Family Health Center in Altındağ, Ankara between February 1 and April 30, 2019. Among these children, children with physical and mental illnesses or disabilities (very high fever and weakness, mental disability, hand deformities, etc.) that could prevent them from drawing were excluded from the study. Considering all these conditions, during the research period, out of 214 children who came to the polyclinic, and 2 (0.9%) children who could not communicate properly were excluded from the study. A total of 212 (99.1%) chil-

dren meeting the study criteria were determined as the study group.

Sociodemographic information form was prepared by the researchers who planned the study. It included information on such as the age of the parents, level of education and family income, and whether the child attended a nursery or kindergarten, number of siblings, and family structure. Conners' Parental Rating Scale (PRS) was a scale developed to evaluate children with suspected attention deficit-hyperactivity disorder and other behavioral disorders by their parents.^[9] In addition to problematic behavior, there is also the possibility of detecting risk. This situation gains importance in early diagnosis. A questionnaire consisting of 48 questions is given to the parent. In each item, it is asked whether the specified behavior is seen in the child. If there is no behavior, "never" is a value of 0, "sometimes" is a value of 1, "often" is a value of 2, and "always" is a value of 3 that is recorded. Conners' PRS test applied to parents lasted between 15 and 20 min.

Since the pictures drawn by the children are interpreted differently according to their developmental stages, primarily, the pictures drawn were divided into three groups as 4–6 age group, 7–9 age group, and 10–12 age group. While evaluating, the best figure in the child's picture was taken into account. Each picture was also scored with Koppitz's Emotional Indicators Scale (EIS).^[13] In Koppitz's EIS, there were 30 items seen in the pictures of the children and considered as present or absent by the evaluators. Besides, the evaluators also interpreted the pictures with characteristics such as aggression, sibling jealousy, communication disorder, and lack of self-confidence. Koppitz's EIS scores above 2 are normal, while below 2 indicate emotional difficulties.

In front of the children included in the study, an A4 size white paper, pencil, eraser, and 12 dry crayons in different colors were placed. Then, "*Can you paint us a picture of your family?*" and "*Please don't draw tick man commands.*" The time for each child to complete their pictures was recorded. Children who were timid about drawing were called for an interview later to evaluate them separately. While the children were drawing, the parents were asked to fill in the information form and the Conners' PRS. If both parents came with the child, only one of them completed the scale. Code numbers were given to each child according to the developmental stage of the age group. The pictures of the children were evaluated independently by two evaluators, one of whom was a family physician and the other a child development specialist.

All data were analyzed with IBM SPSS Version 21 package program. Categorical variables were presented with frequency and percentage for descriptive statistic.

RESULTS

A total of 212 children were included in the study. The sociodemographic features according to age groups are summarized in Table 1.

It was found that 85 (40.1%) of the children may have developmental delay, lack of self-confidence, communication disorder, impulse control disorder, shyness, introversion, and socialization problems. As a result of Conners' PRS, 147 (69.3%) children may have hyperactivity disorder, behavioral disorder, attention deficit disorder, anxiety disorder, and psychosomatic disorder. When the data above the cutoff point for all age groups were evaluated, 32 (15.1%) children had attention deficit disorder, 40 (18.9%) children had hyperactivity disorder, 9 (4.2%) children had anxiety disorder, 14 (6.6%) children had oppositional defiant disorder and presence disorder, 12 (5.7%)

children had conduct disorder, and 40 (18.9%) children had psychosomatic disorder. When the subgroups were evaluated according to the scores of 4–6 year old children in Conners' PRS, symptoms of conduct disorder were detected in 40 (58.0%) children in total. This frequency is 55 (70.0%) in the 7–9 age group and 52 (80.0%) in the 10–12 age group. Conners' PRS scores according to age groups are summarized in Table 2.

While 187 (88.0%) children were normal in Koppitz EIS, 25 (12.0%) children were found to had emotional difficulties. It was found that 41 (19.3%) children got high scores on both the Koppitz's EIS and the Conners' PRS. Koppitz's EIS of children according to age groups is shown in Figure 1. In addition, pictures and characteristic findings of children whose families are considered at risk are shown in Appendix 1.

DISCUSSION

It is known that the markers and scoring methods that reflect the feelings and thoughts in children's pictures from

Table 1. The sociodemographic features according to age groups

	Age Groups		
	4–6 years (n=69)	7–9 years (n=78)	10–12 years (n=65)
Gender			
Girl	38 (55.1)	43 (55.1)	34 (52.3)
Male	31 (44.9)	35 (44.9)	31 (47.7)
Number of children			
1 child	12 (17.4)	16 (20.5)	10 (15.4)
2 children	30 (43.5)	34 (43.6)	25 (38.5)
>2 children	27 (39.1)	28 (35.9)	30 (46.1)
Pre-school education			
Yes	50 (72.5)	62 (79.4)	46 (70.7)
No	19 (27.5)	16 (20.6)	19 (29.3)
Family structure			
Nuclear family	55 (79.7)	64 (82.1)	56 (86.1)
Extended family	14 (20.3)	14 (17.9)	9 (13.9)
Parental education			
Primary school	25 (36.2)	15 (19.2)	20 (30.8)
Secondary school	26 (37.7)	35 (44.9)	34 (52.3)
High school	18 (26.1)	28 (35.9)	11 (16.9)
Family income			
Low	11 (15.9)	23 (29.5)	17 (26.1)
Middle	40 (58.0)	38 (48.7)	38 (58.5)
High	18 (26.1)	17 (21.8)	10 (15.4)

Data are presented as n (%).

Table 2. Conners' parental rating scale scores according to age groups

	Age Groups		
	4–6 years (n=69)	7–9 years (n=78)	10–12 years (n=65)
Attention deficit disorder score			
No disorder	8 (11.6)	19 (24.4)	12 (18.5)
1–4 points	52 (75.4)	49 (62.8)	40 (61.5)
>5 points	9 (13.0)	10 (12.8)	13 (20.0)
Hyperactivity disorder score			
No disorder	0 (0.0)	0 (0.0)	4 (6.2)
1–6 points	51 (73.9)	62 (79.5)	55 (84.6)
>7 points	18 (26.1)	16 (20.5)	6 (9.2)
Anxiety disorder score			
No disorder	0 (0.0)	0 (0.0)	0 (0.0)
1–11 points	65 (94.2)	75 (96.2)	63 (96.9)
>12 points	4 (5.8)	3 (3.8)	2 (3.1)
Oppositional defiant disorder score			
No disorder	13 (18.8)	23 (29.5)	16 (24.6)
1–6 points	54 (78.3)	51 (65.4)	41 (63.1)
>7 points	2 (2.9)	4 (5.1)	8 (12.3)
Conduct disorder score			
No disorder	4 (5.8)	14 (18.0)	6 (9.2)
1–17 points	63 (91.3)	59 (75.6)	54 (83.1)
>18 points	2 (2.9)	5 (6.4)	5 (7.7)
Psychosomatic disorder score			
No disorder	1 (1.4)	6 (7.7)	4 (4.6)
1–6 points	63 (91.3)	55 (70.5)	44 (67.7)
>7 points	5 (7.3)	17 (21.8)	18 (27.7)

Data are presented as n (%).

three different continents do not change, they are reliable and valid, as well as reflect the cultural characteristics.^[9] Therefore, it is a proven scientific knowledge that children's pictures can be used as a universal tool in recognizing and evaluating children, despite cultural differences.^[14] In this study, drawing tests were applied in family medicine and it was the first study to show that the DYFT could be used to support the psychosocial side of the biopsychosocial evaluation of children.

A total of 10–20% of children with psychological problems are diagnosed in primary health care.^[15] While developmental retardation is detected at a frequency of 30% with the information obtained from the family and observing the child, this frequency rises to 70–80% in screenings using a standard test.^[16-18] In this case, new methods aiming to obtain information directly from the child are needed. Drawing tests are used by many child psychiatrists, pediatricians, and

psychologists to guide the conversations in clinical interviews of children for screening situations such as depression and anxiety, suicidality, neglect, loneliness, attention deficit, and hyperactivity.^[19-23] Drawing pictures make children more talkative, and when children who are trying to learn about themselves are given the opportunity to paint, it has been observed that they give more information than those who do not paint.^[24] In the study, it was seen that the children were more comfortable and willing to talk during drawing, they gave information about themselves and their families, and it created awareness in parents. In the pictures examined in the study, no findings evoking violence were encountered, but pictures with plain and incomplete figures, with few objects were found to describe their loneliness. As a result of the evaluations, lack of self-confidence and communication problems were detected in most of the children, and it was thought that the drawing tests could be a helpful tool for family physicians in evaluating the child's psychoso-

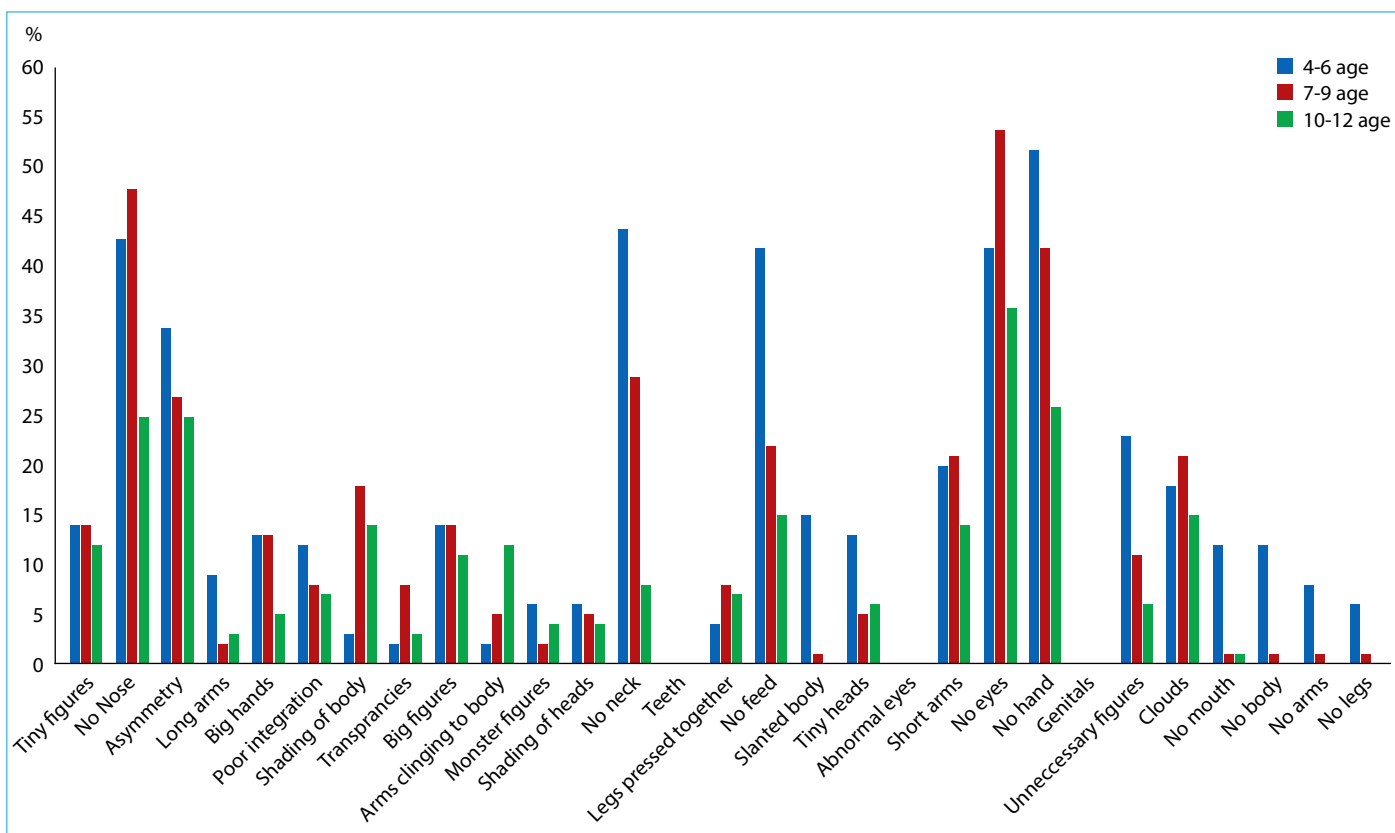


Figure 1. Koppitz's emotional indicators scale of children according to age groups.

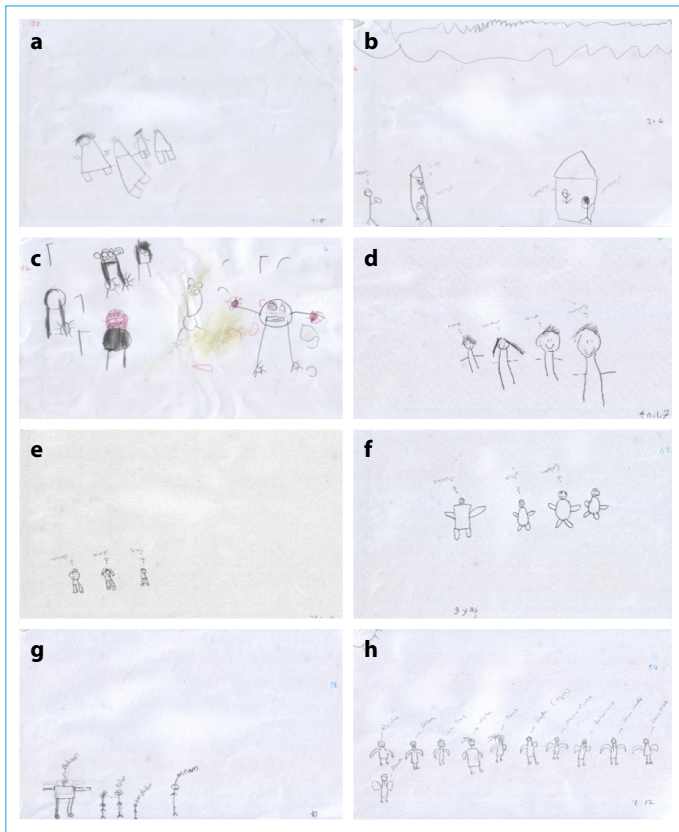
cial development by combining them with family information. Family physicians can speed up the child's support by the family and the specialist by pre-evaluating the children's psychological state with drawing tests.

The DYFT has been used in the clinic for many years and provides important data about the child's perception of the family and family dynamics.^[25] There have been many studies examining the effects of family pictures drawn by children, adaptation, and personality traits on secure attachment. While positive personality determinants are abundant in pictures of children whose family relationships are good and safe; in the pictures of children with bad family relationships and insecure, findings related to adaptation problems, lack of parent-child communication, and trust were found more.^[26] In one of the pictures evaluated, it was seen that a 10-year-old girl depicted the problem, she had with her mother due to her mobile phone. The mother became aware of this situation through her family doctor. In another picture, a 10-year-old girl drew that her divorced parents were remarried. The start school time for preschool children was evaluated by pictures, and it was thought that the family could consult the family doctor to start school time.

In a study about why the American Academy of Pediatrics does not use standard psychological screening tests in pri-

mary care, some reasons such as not having enough time, cost and, a person to apply the test were suggested, not knowing the screening tests.^[27] In the present study, the time for the child to paint varied between 5 and 10 min in all age groups. Interpretation of children's drawing tests can be made short-term and cost-effective by transforming them into in service training.

Studies in which drawing tests have been compared with standard tests have shown that Koppitz's EIS is compatible with the results of the Wechsler Intelligence Scale for Children III and Stanford Binet IQ tests.^[28] It was observed that more children may have emotional and behavioral problems with the drawing test. The reason is that Koppitz emphasizes that two or more indicators may be sufficient for detailed examination of the child.^[29] In our study, more than two indicators were found in the majority of children. In some studies, children with emotional and behavioral disorders and normal children were compared with the Gooden hough-Harris scale, both expert and inexperienced researchers have concluded that chronological age, mental age assessments, Gooden hough-Harris, and Koppitz scales are compatible.^[30] When the study was evaluated according to Koppitz's EIS, it was seen that the number of children to be examined in detail increased



Appendix 1. Family pictures of children found at risk. **(a)** PSS 32: Suggestions were made on family relations, communication within the family, and the child's self-confidence; **(b)** PSS 66: Suggestions were made about consulting a child development and psychiatrist and family communication; **(c)** PSS 67: It was suggested that the family consult a child development specialist for a more comprehensive assessment in terms of growth retardation; **(d)** SS 8: It was suggested that the family consult a child development specialist for a more comprehensive assessment in terms of growth retardation; **(e)** SS 36: To strengthen family relationships, they were advised to do activities at home and to play family games, and to meet with a child psychiatrist; **(f)** SS 62: Suggestions were made about meeting with a child development specialist; **(g)** RS 18: Suggestions were made about meeting with a child development specialist; **(h)** RS 54: It was recommended that a child psychiatrist be evaluated due to the child's adjustment problems.

only based on this scoring, although even two indicators give us important information about the problems experienced by the child. The most common indicators in the pictures of all age groups are not scratching the nose, neck, feet, the pupil or drawing as a point, hand, fingers, asymmetry in the arms and legs, and short drawing of the arms, these were especially family-related symptoms such as low self-esteem.^[31] When our study results are evaluated, we think that the Koppitz EDS test is sufficient for the evaluation of drawing tests.

The originality of this present study is that drawing tests could help evaluate in evaluating the emotional state of children, their roles in the family, and their relationships with family members in family medicine in terms of both time and usage. One of the limitations of our study was the long duration of the application of parent forms. To eliminate this, parent forms can be applied at home for in the future studies. Other limitations were that school-age children were not evaluated by their teachers and the last visits of children referred to a specialist were not included in the study. Since it was observed that the Koppitz scale numerically included more children in the risk group, it was thought that this frequency would be revised according to the population evaluated and the picture features for the future studies.

CONCLUSION

Meeting with the parents and teachers of children who are at risk and referring them to the relevant specialist will significantly increase the quality of family medicine services. While interpreting the pictures drawn by children, the age group and the child's biological and psychological development should be evaluated, and it should be kept in mind that the information obtained while interpreting the pictures is not precise. With this method, the family physician could form the basis of a healthy individual and a healthy society.

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Authorship Contributions: Concept – A.U., I.D.A.; Design – A.U., I.D.A.; Supervision – I.D.A.; Materials – A.U.; Data collection – A.U.; Data processing – A.U.; Analysis and interpretation – A.U., I.D.A.; Literature search –A.U.; Writing – A.U.; Critical review –A.U., I.D.A.

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