Gazi Tıp Dergisi / Gazi Medical Journal

ARAŞTIRMA - RESEARCH ARTICLE

2006: Cilt 17: Sayı 3: 152-156

ADAPTIVE AND BEHAVIORAL PROBLEMS IN CHILDREN AGED 5-12*

Seçil ÖZKAN MD., Elif DURUKAN MD., Elvan İŞERİ M.D., Sefer AYCAN MD., Remzi AYGÜN MD.

Purpose: To determine the frequency of family-reported behavioral problems in children aged 5-12 attending kindergarten or the 1st-5th grade of primary schools located in Ankara city center.

Materials and Methods: Eleven primary schools in Ankara city center were selected and a survey form distributed to 7042 students for their parents to complete. 5988 of these forms were returned by the parents. The rate of participation was 85%.

Results: 50.1% of the study subjects were male. According to the family reports, 76.5% (n=4851) showed at least one behavioral problem. When hyperactivity was excluded, it decreased to 59.4%. Hyperactivity was reported in 44.6% and excessive fear of something in 16.8%. Nail biting was reported in 14.0%. Encopresis and daytime enuresis were reported in 2.2% and 2.1%, respectively. The frequency of behavioral problems was higher in males and in the left-handed ($p<0.05$).

Conclusion: The results of this study are solely derived from the questionnaires completed by the families. The next planned stage of the study was to have a specialist evaluate and, if necessary, treat the children whose families have reported behavioral problems.

Key Words: Behavioral problems, primary school children, Turkey

5-12 YAŞ ÇOCUKLARDA UYUM VE DAVRANIŞ SORUNLARI

Amaç: Bu çalışmanın amacı Ankara il merkezinde bulunan seçilmiş ilköğretim okullarında anasınıfı ve ilköğretim 1-5. sınıflara devam eden 5-12 yaş çocuklarda aile beyanına göre, uyum ve davranış sorunları sıklığının belirlenmesidir.

Gereç ve Yöntemler: Ankara İl Merkezinden 11 ilköğretim okulu seçilerek toplam 7042 öğrenciye aileleri tarafından doldurulmak üzere anket formu dağıtılmıştır. Dağıtılan anketlerden 5988'i geri dönmüştür. Araştırmaya katılma oranı %85'dir.

Bulgular: İncelenenlerin %50,1'i erkektir. Ailelerin bildirimine göre, incelenenlerin %76,5'inde (n=4581) en az bir davranış sorunu saptanmıştır. Hiperaktivite hariç tutulduğunda ise bu sıklık %59,4'e düşmüştür. Araştırmada aşırı hareketlilik sıklığı %44,6; herhangi bir şeyden aşırı korku sıklığı %16,8 olarak saptanmıştır. Tırnak yeme sıklığı %14,0'dür. Enkoprezis ve gündüz idrar kaçırma sıklıkları sırasıyla %2,2 ve %2,1'dir. Erkeklerde kızlara göre ve sol elini baskın olarak kullananlarda, sağ elini kullananlara göre daha fazla davranış bozukluğu gözlenmiştir ($p<0,05$).

Sonuç: Bu araştırmanın sonuçları sadece aileye sorularak elde edilen verilere dayanmaktadır. Ailenin bildirimine dayanarak davranış sorunu saptanan çocukların uzman tarafından değerlendirilerek tanı ve tedavilerinin sağlanması araştırmanın bir sonraki aşaması olarak planlanmıştır.

Anahtar Kelimeler: Davaranış sorunu, Okul çocuğu, Türkiye

* Makale verilerinin bir kısmı daha önce, VIII. Halk Sağlığı Günleri'nde (Sivas, Türkiye) (23-25 Haziran 2003), poster olarak sunulmuştur

Gazi University Mediacal Faculty, Department of Public Health, Children's Mental Health and Disorders, Ankara-Turkey

INTRODUCTION

Adaptation can be defined as the individual forming and continuing a balanced relationship between his or her individuality and the environment he or she lives in. A child may develop emotional disturbances due to the natural problems associated with the developmental stages and the negative effects of the surrounding environment. These negative reactions are called "adaptive and behavioral problems" (1-2). Among the various disorders under this heading are finger sucking, nail biting, enuresis and encopresis, psychogenic stuttering, phobias, stealing, lying and hyperactivity (3). The most suitable environment for children and their personality to develop in is one where problems are solved and obstacles removed. Preparing a positive environment depends on a confidence-inspiring, understanding and loving approach. Children who fail to find such an environment become insecure, and experience complex thoughts, emotions and conflicts. They develop undesirable behavior to attract the attention of adults, which then begin to disturb the child's interaction with the environment. As the child gets older these problems prevent the child from adapting to his or her environment and the community. There may be truancy, running away from home, stealing, constant upheaval, disobeying all rules, and violence, which may lead to criminal behavior such as stealing; pickpocketing; use of alcohol, drugs or stimulants; getting involved in fights or damaging property; carrying a knife or a gun; and wounding or killing. These children may act against the police and unlawfully at one stage of their lives (1-4). The child's intelligence, social support, and family characteristics, and the family's approach to the child are other factors that influence whether or not behavioral problems are seen in a child (5). A repressive-authoritarian approach by the parents plays an important role in the development of behavioral problems in the child (6,7).

The aim of this study was to determine the frequency of family-reported behavioral problems in children aged 5-12, attending primary schools in Ankara city center.

MATERIALS AND METHODS

The study was carried out between January 22 and February 7, 2003 at 11 primary schools in central Ankara.

Ankara city has 8 central districts, and 3 (Çankaya, Keçiören and Yeniamahalle) of those were chosen by cluster sampling; weighting with regard to students, 5 primary schools from Çankaya, 3 from Keçiören and 3 from Yenimahalle were chosen. A total of 7042 questionnaires were distributed to children aged 5-12 years in kindergartens or in the 1st-5th grades to be filled in by their families, and 5988 forms were collected back (85%). Data collection was completed within two weeks in total; each child's questionnaire was collected three days after being sent to the families. In in-

Table 1: Distribution of the basic defining characteristics of the subjects.

Grade (n=5988)	Number	Percent
Kindergarten	86	1.4
Grade 1	1152	19.2
Grade 2	1122	18.7
Grade 3	1192	19.9
Grade 4	1218	20.3
Grade 5	1228	20.5
Age group (n=5988)		
5-6	102	1.7
7-8	2139	35.7
9-10	2378	39.7
11-12	1369	22.9
Sex (n=5988)		
Female	2988	49.9
Male	3000	50.1
Whether parents are alive (n=5988)		
Both alive	5857	97.8
Mother alive- father dead	89	1.5
Mother dead - father alive	22	0.4
Both dead	20	0.3
Number of brothers or sisters (n=5988)		
Single child	1131	18.9
1	2916	48.7
2	1352	22.6
3	426	7.1
≥4	163	2.7
Family structure (n=5988)		
Small family	5133	85.7
Large family	855	14.3
Number of residents in the house (n=5988)		
2	74	1.2
3	681	11.4
4	2809	46.9
≥5	2424	40.5

terviews with school directors and teachers, brief information about the subject was given to them before the study started. The questionnaire forms were distributed to the children's families with help from the teachers. A short letter written to the family revealing the importance of the subject and the aim of the study was attached to the questionnaire and written informed consent to participate to the study was obtained.

The variables in the questionnaire form were as follows: demographic variables of the child's parents; the child's descriptive characteristics (age, sex), birth weight, birth week, and number of siblings; number of people living in the same house; the family structure (small, large); family's approach to the child; and the presence of each behavioral problem. The questionnaire to be used as a data source asked the parents to answer yes or no to questions on whether their child exhibited "hyperactivity", "excessive fear of something", "nail-biting", "stool incontinence", "day-time urinary incontinence", "tics", "stealing", "finger sucking", "lying", "stuttering", "acting in a more childish manner than the child's age would merit", and "crying frequently and easily".

The family structure was determined according to who the child was living with: families composed of parents and children were considered small families; large families were families composed of other relatives as grandparents, uncles, aunts, and cousins additional to the preceding. If the child was living with a family other than his or her own family, the structure of that family was taken into consideration.

The family's approach to the child was evaluated subjectively, with an open-ended question: "how is your approach to your child in general?" The answers were grouped in four categories: "oppressive", "protective", "libertarian", and "democratic".

Chi-squared analysis was used to evaluate the relationship between the presence of behavioral problem and age, sex, the parents being alive, number of brothers or sisters, and the family structure. A logistic regression model was developed to analyze the factors influencing a state of at least one behavioral problem with the variables found to be significant ($p<0.05$) following two-sided comparisons. The sex (male or female), dominant hand (left-handed or right-handed), being a single child (or not), the family's approach to the child (oppressive, protective or libertarian-democratic) variables were added to the model and a backward conditional logistic regression analysis carried out.

RESULTS

The questionnaire was completed by the mother in 80.1%, the father in 16.5% and someone else looking after the child in 3.4% of those studied. Table 1 presents the descriptive characteristics of those studied. According to the family reports 76.5% of the children (n=4851) suffered from at least one

Table 2: Frequency distribution of behavioral problems.

	Hyperactivity	Excessive fear of something	Nail biting	Encopresis	Daytime enuresis	Tics	Stealing	Finger sucking	Lying	Stuttering	Acting in a more childish manner than age would merit	Crying frequently and easily
Age group												
5-6	57.8	15.7	6.9	2.0	2.9	–	–	1.0	3.9	2.0	8.8	41.2
7-8	46.8	15.6	11.4	2.2	2.7	2.3	0.4	3.5	5.3	2.0	11.2	38.9
9-10	43.8	17.3	15.2	2.1	2.2	3.7	0.5	3.5	6.6	1.9	14.5	34.4
11-12	41.9	17.8	16.7	1.8	1.5	5.1	0.9	3.1	7.0	2.0	15.0	34.0
	p<0.05	p>0.05	p<0.05	p>0.05	p>0.05	p<0.05	p>0.05	p>0.05	p>0.05	p>0.05	p<0.05	p<0.05
Sex												
Female	33.1	18.7	15.2	1.6	2.1	2.7	0.3	4.0	4.6	1.4	14.3	41.7
Male	56.2	14.9	13.0	2.5	2.3	4.2	0.8	2.8	7.8	2.4	12.4	30.5
	p<0.05	p<0.05	p<0.05	p<0.05	p>0.05	p<0.05	p<0.05	p<0.05	p<0.05	p<0.05	p<0.05	p<0.05
Whether parents are alive												
Both alive	44.7	16.7	14.0	2.0	4.2	3.5	0.6	3.3	6.2	1.9	13.3	36.0
One of them alive	42.3	19.8	18.0	1.8	4.5	4.5	–	4.5	5.4	2.7	16.2	39.6
Both dead	35.0	20.0	15.0	5.0	10.0	–	–	5.0	5.0	5.0	10.0	25.0
	p>0.05	p>0.05	p>0.05	p>0.05	p<0.05	p>0.05	p>0.05	p>0.05	p>0.05	p>0.05	p>0.05	p>0.05
Number of brother or sisters												
Only child	46.2	16.9	15.4	2.5	2.5	4.5	0.4	4.2	6.4	1.9	12.8	32.7
1	44.1	14.5	14.0	2.0	2.2	2.5	0.5	3.0	5.7	1.4	12.2	35.5
2	43.4	20.9	13.7	1.8	1.8	3.9	0.6	3.6	6.3	3.0	16.1	39.3
3	47.9	18.1	12.2	2.8	3.1	4.9	1.2	3.5	8.5	3.3	13.8	36.6
≥4	47.9	19.6	13.5	1.2	1.8	5.5	0.6	3.1	6.7	1.2	13.5	39.3
	p>0.05	p<0.05	p>0.05	p>0.05	p>0.05	p>0.05	p>0.05	p>0.05	p>0.05	p<0.05	p<0.05	P<0.05
Family structure												
Small family	44.4	16.6	13.9	2.0	2.0	3.4	0.5	3.4	5.8	1.9	13.2	35.7
Large family	46.0	17.8	14.6	2.3	3.4	4.0	0.6	3.3	8.3	2.2	13.8	38.4
	p>0.05	p>0.05	p>0.05	p>0.05	p<0.05	p>0.05	p>0.05	p>0.05	p>0.05	p>0.05	p>0.05	p>0.05

behavioral problem. When hyperactivity was excluded, the percentage of children suffering from at least one behavioral problem decreased to 59.4%. Hyperactivity was reported in 44.6% and excessive fear of something in 16.8%. The prevalence of nail biting was 14.0%, 2.1% stool incontinence 2.2%, and daytime urinary incontinence. The families reported that 3.5% of the children had tics. Stealing, finger sucking, lying, stuttering, acting in a more childish manner than the age would merit, and crying frequently and easily were reported in 0.6%, 3.4%, 6.2%, 2.0%, 13.3% and 36.0% of the children respectively.

Hyperactivity, stool incontinence, tics, stealing, lying and stuttering were more common in boys than in girls ($p<0.05$), while the behavioral problems of excessive fear of something, nail biting, finger sucking, acting in a more childish manner than the age would merit, and crying frequently and easily were more frequent in girls ($p<0.05$) (Table 2). There was no association between having been breastfed during the first six months of life and the presence of a behavioral problem ($p>0.05$). The prevalence of behavioral problems was higher in males and in those who were left-handed ($p<0.05$). As the number of people sharing the same house increased the incidence of behavioral problems in the child also increased ($\chi 2$in trend =12.194, $p<0.05$). However, there was no statistically significant relation between any behavioral problem in the child and a small or large family ($p>0.05$). The prevalence of behavioral problem in children of repressive-protective families was 1.16 times the rate in children whose families granted them more freedom (OR=1.16; 95% CI=1.02-1.33).

Table 3 presents the results of logistic regression analysis of the factors influencing whether a child develops any behavioral disorder. The frequency of behavioral problems in males is 1.3 times greater than that in girls (95% CI=1.194-1.519), 1.4 times greater in left-handed children than in right-handed ones (95% CI=1.088-1.728) and 1.3 times greater in children whose family's approach is oppressive-protective rather than the libertarian-democratic (95% CI=1.121-1.430). The effects on the model of all these variables were statistically significant.

Table 3: Logistic regression model for factors that may influence the behavioral problem.

Variable	Beta	P-value	OR	95% CI
Sex (Male - Female)	0.298	0.000	1.347	1.194-1.519
Dominant hand (left handed - right handed)	0.316	0.007	1.371	1.088-1.728
Family's approach to the child (oppressive, protective-laissez faire, democratic)	0.236	0.000	1.266	1.121-1.430
Constant	-4.950	0.000		

DISCUSSION

The study found the prevalence of children aged 5-12 with at least one behavioral problem to be 76.5%; an Ethiopian study reported a prevalence of 23.24%. In the present study the prevalence was 73.8% for girls and 79.2% for boys. Although all the given prevalences are "family reported" prevalences, we thought that hyperactivity could not be understood correctly by the families, and that they considered their children "hyperactive" if the child likes to enjoy his/herself, to run, to go out etc. For this reason we recalculated the prevalence of at least one behavioral problem, and it decreased to 59.4%: 63.2% for girls and 55.7% for boys. The Ethiopian study reported a rate of 25.17% for girls and 21.45% for boys (8). In our study the prevalences are the prevalences of "family reported" behavioral problems; this leads to a difference between communities. Other studies on the prevalence of behavioral problems have shown a higher rate in males (8,9). A study from Israel reported a higher prevalence of behavioral disorders in males (17.1% and 5.4% for males and females respectively) (9).

When the behavioral problems were evaluated individually, the hyperactivity rate was 44.6%, with a higher rate in males; this is consistent with other studies (10).

Tics are involuntary, intermittent contractions of voluntary striated muscles of the body. They are seen most often in the muscles of the face and neck, and may present as blinking, grimacing, neck movements, head shaking and shoulder movements (11). Khalifa et al. reported a tic prevalence of 6.6% in a study on primary school children in Sweden (12). Snider et al. reported a prevalence of 25.7% (13). Our study found a prevalence of 3.5%, with a higher rate in boys and with increasing age.

The taking of objects without permission, observed in the pre-school period and usually continuing until the child is 7-8 years old, cannot be considered "stealing", which is an adaptive and behavioral disorder. Children 3 to 6 years old do not see any problem with taking objects or toys from kindergarten or their friends' houses. Children do not understand ownership well in the preschool period and have difficulties accepting the idea that taking an object belonging to someone else without permission is not acceptable behavior as they just want to keep the object they like close to them. It is therefore necessary for the child to have reached primary school age for stealing behavior to be accepted as an adaptive problem (1,14). An interesting observation in our study was that no family with children younger than 7 years old reported "stealing". The prevalence was 0.6% in general and was higher in males.

Encopresis is a condition where the child cannot control his or her defecation although he or she is at the age where toilet training should have been completed. It is an important condition more commonly seen in males and the diagnosis is made after the child is 4 years of age (15). Some authors state that 3% of all the population is encopretic (1). Our study found an encopresis rate of 2.2% and this was, as common for all behavioral problems, more frequent in males.

Finger sucking, nail biting, crying frequently and excessive fear of something were observed more commonly in females. Ollendick et al. reported that most children suffer from similar problems while progressing from childhood to adolescence (16). Muris et al. reported the prevalence of excessive fear of something as 75.4% and that it was more frequents in males (76.1% and 75.5% for males and females respectively) (17).

Nail biting is not encountered frequently before 3 to 4 years of age but can infrequently be seen even in 15-month-old children. Nail biting is considered a sign of insecurity. A constantly repressive and authoritarian method of training in the family, frequent severe criticism of the child, jealousy, inadequate attention and love, and anxiety and stress are the main reasons for nail biting. Another reason for the child to develop this habit is someone else in the family with the same habit (4). We did not ask questions about these causes in our study. The rate of nail biting was 15.2% in females and 13.0% in males.

Finger sucking can be seen in children up to 3-4 years old without any underlying factors. Constant finger sucking may develop as a result of psychological problems or anxieties (4). Its frequency has been reported as 3.4%.

We observed an increased rate of behavioral problems as school performance deteriorated but could not determine which one was secondary and the questionnaire did not contain any questions relevant to this association.

CONCLUSION

Many developing children may show unacceptable social behavior as children learn gradually what is socially acceptable. Children should not always be evaluated according to

their age. There are children who have not yet learned and have not been able to fully accept social rules although they are of school age. The fact that a child steals, lies or indulges in other similar behavior does not mean that he or she will continue to do these as an adult but it is best to treat these disorders as they may lead to deteriorating school performance, gradual withdrawal, depressive disorders and other secondary behavioral problems.

The results of this study are solely derived from the questionnaires completed by the families. The next planned stage of the study was to have a specialist evaluate and, if necessary, treat the children whose families have reported behavioral problems and, to this end, the children have already been seen by a specialist. The current article only includes information obtained from the families.

Corresponding Address
Seçil ÖZKAN
Address: Gazi University Medical Faculty
Department of Public Health Beşevler-06450, Ankara-TURKEY
Telephone: 312 202 46 41 - 312 202 46 42
fax number: 312 213 76 31
E-Mail: ozkans@gazi.edu.tr

REFERENCES

1. Yavuzer H: Cocuk Psikolojisi. (Childhood Psychology) 18th ed., Remzi Kitabevi, Istanbul 1999, pp 242-271.
2. Koknel O: Çocukta uyumsuzluk (Adaptive Childhood Problems). Aile ve Cocuk, Ak yayınları, Istanbul, 1982.
3. Kartal Ş. Uyum ve Davranış Bozuklukları (Adaptive and Behavioral Problems) http://www.geocities.com/cetinyilmaz_2000/uyum.html (connection time: 01.04.2004).
4. Çocukta Davranış Bozuklukları (Behavioral problems in children) http://www.dunyaonline.com/100394.asp (connection time: 24.5.2004).
5. Jackson Y, Frick P, Dravage-Bush J. Perceptions of control in children with externalizing and mixed behavior disorders. Child Psychiatry and Human Development: 2000; 31: 43-56.
6. Richards D. Authoritarian parenting attitudes as a risk for conduct problems: Results from a British national cohort study. European Child & Adolescent Psychiatry. 2003; 12: 84-91.
7. Stansbury K, Zimmermann LK. Relations among child language skills, maternal socialization of emotion regulation, and child behavior problems. Child Psychiatry and Human Development. 1999; 30: 121-142.
8. Mulatu MS. Prevalence and risk factors of psychopathology in Ethiopian Children. J Am Acad Child Adolesc Psychiatry. 1995; 34: 100-9.
9. Auerbach JG, Yirmia N, Kamel FN. Behavior problems in Israeli Jewish and Palestinian Preschool Children. Journal of Clinical Child Psychology 1996; 25: 398-405.
10. Dikkat Eksikliği ve Yıkıcı Davranış Bozuklukları (Attention Deficit and Destructive Behavioral Problems). Anadolu Ruh Sağlığı Merkezi (Anadolu Mental Health Centre). http://www.psikoterapi 19.sitemynet.com/dikkat.htm (connection time: 20.08.2003).
11. Czaplinski A, Steck AJ, Fuhr P. Tic Syndrome. Neurol Neurochr Pol. 2002; 36: 493-504.
12. Kahlifa N, von Knorring Al. Prevalence of tic disorders and Tourette syndrome in a Swedish school population. Dev Med Child Neurol. 2003; 45: 315-319.
13. Snider LA, Seligman LD, Ketchen BR, Levitt SJ, Bates LR, Garvey MA, Swedo SE. Tics and problem behaviors in schoolchildren: prevalence, characterization, and associations. Pediatrics, 2002; 110: 331-336.
14. Kartal Ş. Bir Uyum ve Davranış Bozukluğu: Çalma (Stealing: An adaptive and behavioral problem). http://www.annecocuk.com/eski/cocuk/psikoloji/calma.htm (Connection time: 20.08.2003).
15. Psikolojik Sorunlar. Korkular (Psychological Problems. Fears). Göksel A. http://www.kadinhastaliklarivedogum.com/bebek_cocuk/psikolojik.asp (Connection time: 03.02.2004).
16. Ollendick TH, Hagopian LP, King NJ. Specific phobias in children. In GCL Davey (ed), Phobias. A Handbook of Theory, Research and Treatment. Chichester, England: Wiley; 1997. pp 201-205.
17. Muris P, Merckelbach H, Gadet B, Moulaerrt V. Fears, worries and scary dreams in 4- to 12-year-old children: their content, developmental pattern, and origins. Journal of Clinical Child Psychology 2000; 29: 43-52.