



Prevalence rate of behavioral disorders among 10-12 year old school children in Rafsanjan, Iran, in 2016; the viewpoint of parents

Abbas Fatehi¹, Parvin Agha Mohammad Hasani^{2*}, Parisa Sadat Fakhimpour³, Mohammadreza Mokhtaree⁴

1- Assistant Prof., Dept. of Pediatrics, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.

2- Assistant Prof., Dept. of Psychiatry, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.

3- Medical Student, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.

4- Msc of Educational Psychology, Social Determinants of Health Research Center, Rafsanjan University of Medical Sciences, Rafsanjan, Iran.



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* Corresponding authors:

Parvin Agha Mohammad Hasani,

E-mail: dr.hasani@rums.ac.ir

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Abstract

Background: Behavioral disorders in childhood are very important due to the possibility of behavioral-mental disorders in adulthood. The aim of this study was to determine the rate of behavioral disorders factors among children in the 4th and 5th grade of primary school in Rafsanjan City, Iran, in 2016.

Materials and Methods: In this descriptive, cross-sectional study, 500 students were selected from among the 4th and 5th grade of primary school based on the sample size formula and randomized cluster sampling method. Parents of the selected children filled out the demographic characteristics checklist and the Rutter Children's Behavior Questionnaire. Data were analyzed using the chi-square test in SPSS software.

Results: From the parents' points of view, 110 (22%), 45 (9%), and 5 (1%) children had behavioral disorder, symptoms of aggression, and symptoms of antisocial behavior, respectively. The association between prevalence of behavioral disorder and student's age, father's occupation ($P < 0.001$), parental divorce ($P < 0.012$), birth rank ($P = 0.034$), parental addiction ($P < 0.001$), and parental education ($P = 0.048$) was statistically significance.

Conclusions: The prevalence of behavioral disorders among children in the 4th and 5th grade of primary school in Rafsanjan was high. Due to the negative effects of these disorders on different educational and social aspects of the students, the greater attention of authorities, teachers, and parents seems necessary to identify conducive factors and find appropriate strategies to prevent the emergence of such disorders.

Keywords: Behavior Disorders, Students, Primary School, Iran

Introduction

Individuals' way of behaving in adulthood is rooted in their childhood. Accordingly, since each society requires physically and mentally healthy individuals for its development in various social, economic, and cultural areas (1), the physical and mental health of children and adolescents is of particular importance due to their significant effects on the individual's personality and behavior in adulthood (2). Behavioral problems or disorders among

children are defined as deviation from the general level of mental and behavioral balance among individuals with natural intelligence within the community. Behavioral disorders have varying severity, rate, and persistence in various times and places, so that it causes reduced or lack of efficiency in educational-behavioral performance (3). These children are repeatedly rejected directly or indirectly by those around them (4).

These abnormal, repetitive, and annoying behaviors include nail biting, hair plucking, thumb

sucking, ticking, aggression, anxiety disorders, mood disorders, substance abuse, lack of attention, hyperactivity, and etc. (5, 6). Aggression is a childhood behavioral disorder that is defined as an act of intentional harm to others (3). Similarly, depression among children is believed to occur as physical complaints and aggressive behaviors (7).

The results of studies in different parts of the world show that the level of behavioral disorders varies in different regions and depends on numerous factors (8-10). The incidence of behavioral disorders in Karachi, Pakistan, Leipzig, Germany, Malaysia, and China has been reported as 34.4% (11), 16.0% (12), 15.0% (13), and 10.5% (14), respectively. In addition, this rate was reported as 20.6% and 34.7% in Egypt from the viewpoint of parents and teachers, respectively (15), 3.5% among the Ethiopian children (16), 18.6% and 15.2%, respectively, in urban and rural areas in the United States (10), and 23.5% in Salvador, Brazil (17). The incidence of behavioral disorders in a study in Iran in the whole country was reported as 42.1% among children and adolescents (6). Moreover, this rate was obtained as 32.0% (4), 10.2% (18), 41.2% (19), 20.3% (20), 31.1% (21), and 22.4% (22) in Birjand, Ilam, Shahr-e Kord, Tehran, and Fars Province, Iran, respectively (23). The rate of behavioral disorders in most cases has been higher among boys in comparison to girls (2, 22, 23).

Children and adolescents are highly vulnerable to the increased risk of problems like depression and anxiety, suicide, and deviations such as delinquency and substance abuse (24). In addition, consideration of the health needs, especially mental health, is a priority of the health promotion of Iran (25). Moreover, the incidence of behavioral disorders among children of primary school ages has not been studied in Rafsanjan City, Iran. Therefore, the present study was conducted to determine the rate of behavioral disorders and some related demographic factors among 4th and 5th grade primary school children in Rafsanjan to explore the causes of these disorders and effective ways to reduce them.

Materials and Methods

The statistical population in this cross-sectional study consisted of all students in the 4th and 5th grade of primary school in Rafsanjan in the school year of 2015-2016. The sample size was obtained as 385 considering $P = 0.20$, $d = 0.04$, and $z = 1.96$, and using the relation $n = z^2p(1-p)/d^2$. Taking into account a 20% cluster correction coefficient and 10% probability of sample loss, the sample

size was determined as 500 individuals. Randomized cluster sampling method was used. First, the primary schools of Rafsanjan were listed and 5 boys' primary schools and 5 girls' primary schools were randomly selected from each region of the Department of Education of Rafsanjan (3 regions). Then, by referring to the selected schools and after coordination with the schools' principals, explanations were given to the principals and teachers on the objectives of the study. One 4th grade class and one 5th grade class were randomly selected from each school and the names of students in the selected classes were listed, then, the number of subjects needed from each class was randomly selected from among these students. Students with chronic physical illness, death of a close relative in the last 3 months, and major economic problems of parents in the last 6 months were excluded.

Subsequently, the Rutter Children's Behavior Questionnaire along with a demographic characteristics form, including student's age and gender, mother's age and education, father's occupation, birth rank, number of children, parents' addiction status, parents' divorce, and educational achievement status, and also a text including the study objectives and its importance, and the informed consent form were placed in closed envelopes and delivered to the parents of the selected students. In this regard, the required explanations were given to them, and they were asked to complete the forms within 24 hours and return them to the school office in the same envelopes. It should be noted that the Rutter Children's Behavior Questionnaire was completed by the parents. If one of them was illiterate, another person would read each question or item of the questionnaire and insert the corresponding response after summarizing the parent's comments. In addition, in the case of divorce children, the person who was in charge of the student's custody and the child was living with him/her, completed the questionnaire. The average score of all courses of the student from the beginning of the school year to the time of the study was considered as the educational achievement status.

The Rutter Children's Behavior Questionnaire was developed by Rutter in 1964 to evaluate behavior and differentiate between healthy children and children with behavioral disorders in two forms, one for parents and the other for teachers, for children aged 7 to 13 years. This questionnaire was revised in 1967. The parents version has 30 questions which are scored based on a Likert scale of 0, 1, and 2 corresponding to "does not

apply to the child's behavior at all", "applies to the child's behavior to some extent", and "applies to the individual", respectively. According to this scoring, the total score of the questionnaire will range from 0 to 60. The dimensions of this questionnaire include aggression and hyperactivity, anxiety and depression, social incompatibility, antisocial behaviors, and attention deficit disorders (ADD). In this questionnaire, questions 1, 2, 3, 4, 8, 19, and 23, questions 6,7, 9, 21, 24, and 26, questions 30, 5, 13, 14, 15, and 29, questions 12, 15, 16, 20, 25, 27, and 28, and questions 1, 2, 14, 23, and 30 were related to aggression and hyperactivity, anxiety and depression, social incompatibility, antisocial behavior, and ADD, respectively.

The retest and internal reliability of this questionnaire were very high and the questionnaire is scientifically reliable; the retest reliability and the correlation coefficient of the questionnaire, were, respectively, reported as about 89% and 0.85 by Rutter et al. (26). In the standardization of the Persian version, Yusefi calculated the questionnaire's retest coefficient as 0.90 (27).

The data of the questionnaires were analyzed in SPSS software (version 16.0, SPSS Inc., Chicago, IL, USA). Quantitative and qualitative data were reported as mean \pm standard deviation (SD) and rate (%), respectively. The chi-square test was used to analyze the data and the significance level of the tests was considered as $P < 0.050$.

Results

Of the 500 students in the 4th and 5th grades of elementary school, 267 (53.4%) and 233 (46.6%) were girls and boys, respectively. In addition, 280 (56.0%) and 220 (44.0%) of these students were studying in the 4th and 5th grades, respectively. Regarding the father's occupation, 119 (23.8%), 350 (70.0%), and 31 (6.6%) were employees, self-employed, and were unemployed, respectively. Father, mother, and both father and mother of, respectively, 43 (10.7%), 23 (4.7%), and 33 (6.6%) of the students were addicts.

According to the findings of this study, from the parents' viewpoints, the overall incidence of behavioral disorder among the children was 22.0% (110 students) (95% CI: 18.4%-25.6%). Moreover, 45 (9.0%), 31 (6.2%), 11 (2.2%), 18 (3.6%), and 5 (0.1%) students had aggression/hyperactivity, anxiety/depression, social incompatibility, ADD, and antisocial behaviors, respectively.

Table 1 shows the rates of behavioral disorders in terms of age, gender, parental occupation, and

father's age, number of children, birth rank, parental addiction, parental divorce, educational achievement status, and parental education.

Based on the results, all behavioral disorders among children aged 11-12 years were higher than children aged 9-10 years, although this difference was not significant ($P = 0.223$). In addition, the incidence of behavioral disorders, except for anxiety/depression, among boys was significantly higher than girls ($P = 0.002$).

In terms of the father's job, the incidence of all behavioral disorders among children with unemployed fathers was higher than that of children with occupied fathers ($P < 0.001$). Regarding the mother's age, the incidence of behavioral disorders was higher among children with mothers aged 30 years and lower ($P < 0.001$). Moreover, the incidence of behavioral disorders among the first children was higher compared to other children ($P < 0.001$). Furthermore, aggression/hyperactivity and ADD were significantly higher among children with addicted parents ($P < 0.001$). Finally, all behavioral disorders among divorce children, students with educational problems, and children with illiterate parents were higher than other children ($P < 0.001$). However, the overall incidence of behavioral disorder was not significantly correlated with the number of children ($P = 0.312$).

Discussion

Based on the findings of this study, 22% of the students had a kind of behavioral emotional disorder based on their parents' viewpoints, which was similar to the results of studies in other regions of Iran. The incidence of behavioral and emotional disorders among primary school children in Shahr-e Kord, Bushehr, Birjand, and Isfahan, 5-16 year-old children and adolescents in Tabriz, and primary school children in Abhar, and Hamedan was 41.20% (20), 16.48% (28), 32.00% (4), 15.80% (29), 23.00% (30), 43.30% (31), and 16.1% (8), respectively. In addition, this rate among the primary school children in Sari, Iran, was 15.80% and 24.9% according to the viewpoints of parents and teachers, respectively (32). Matsuura, in a study using the parent's and teacher's forms of the Rutter Children's Behavior Questionnaire, estimated the incidence of behavioral disorders among primary school children based on a teacher-parent viewpoint as 3.9-12%, 7-8.3%, and 14.1-19.1% in Japan, China, and Korea, respectively (33).

Table 1: Distribution of behavioral disorders among the children in the 4th and 5th grades of primary school in Rafsanjan City, Iran, in 2016 based on demographic factors

Variable	Group	Without behavioral disorder	With behavioral disorder					P-value
			Aggression/hyperactivity	Anxiety/depression	Social incompatibility	Antisocial behavior	Attention deficit disorder	
			Rate (%)	Rate (%)	Rate (%)	Rate (%)	Rate (%)	
Age (year)	9-10 (n = 280)	224 (80.0)	24 (8.57)	15 (5.37)	5 (1.78)	2 (0.71)	10 (3.57)	0.223
	11-12 (n = 220)	166 (75.45)	21 (9.55)	16 (7.27)	6 (2.73)	3 (1.36)	8 (3.64)	
Gender	Girl (n = 267)	216 (80.90)	18 (6.74)	20 (7.49)	4 (1.50)	2 (0.75)	7 (2.62)	0.002
	Boy (n = 233)	174 (74.7)	27 (11.59)	11 (4.71)	7 (3.0)	3 (1.29)	11 (4.71)	
Father's job	Self-employed (n = 350)	287 (82.0)	27 (7.71)	16 (4.57)	6 (1.72)	2 (0.57)	12 (3.43)	<0.001
	Unemployed (n = 31)	5 (16.13)	8 (25.81)	10 (32.26)	4 (12.90)	2 (6.45)	2 (6.45)	
	Employed (n = 119)	98 (82.35)	10 (8.41)	5 (4.20)	1 (0.84)	1 (0.84)	4 (3.36)	
Mother's age (year)	30 and lower (n = 81)	48 (59.26)	15 (18.52)	9 (11.11)	3 (3.70)	2 (2.47)	4 (4.94)	<0.001
	31-40 (n = 229)	201 (87.77)	9 (3.93)	10 (4.37)	3 (1.31)	1 (0.44)	5 (2.18)	
	Above 41 (n = 190)	141 (74.21)	21 (11.05)	12 (6.31)	5 (2.63)	2 (1.05)	9 (4.75)	
Number of children	1 (n = 56)	48 (85.71)	2 (3.57)	2 (3.57)	2 (3.57)	1 (1.79)	1 (1.79)	0.312
	2 and 3 (n = 396)	304 (76.78)	37 (9.33)	28 (7.07)	8 (2.02)	3 (0.76)	16 (4.04)	
	4 and more (n = 48)	38 (79.18)	6 (12.5)	1 (2.08)	1 (2.08)	1 (2.08)	1 (2.08)	
Birth rank	First (n = 82)	40 (48.78)	17 (20.73)	11 (13.41)	4 (4.88)	3 (3.66)	7 (8.54)	<0.001
	Second (n = 290)	255 (87.93)	14 (4.83)	10 (3.45)	4 (1.38)	1 (0.34)	6 (2.07)	
	Third and higher (n = 128)	95 (74.22)	14 (10.94)	10 (7.84)	3 (2.34)	1 (0.78)	6 (2.07)	
Addiction	Mother (n = 23)	11 (47.83)	4 (17.39)	4 (17.39)	2 (8.69)	1 (4.35)	1 (4.35)	<0.001
	Father (n = 43)	32 (74.42)	4 (9.31)	3 (6.98)	2 (4.65)	1 (2.32)	1 (2.32)	
	Both (n = 33)	15 (45.45)	9 (27.28)	3 (9.09)	2 (6.06)	1 (3.03)	3 (9.09)	
	None (n = 401)	332 (82.79)	28 (6.98)	21 (5.24)	5 (1.25)	2 (0.50)	13 (3.24)	
Parental divorce	Yes (n = 33)	15 (45.46)	6 (18.18)	5 (15.15)	4 (12.12)	1 (3.03)	2 (6.06)	<0.001
	No (n = 467)	375 (80.29)	39 (8.35)	26 (5.57)	7 (1.50)	4 (0.86)	16 (3.43)	
Educational achievement	Yes (n = 398)	331 (83.18)	23 (5.78)	19 (4.77)	9 (2.26)	4 (1.00)	12 (3.01)	<0.001
	No (n = 102)	59 (57.85)	22 (21.57)	12 (11.76)	2 (1.96)	1 (0.98)	6 (5.88)	
Mother's education	Illiterate (n = 102)	11 (34.39)	9 (28.12)	7 (21.87)	2 (6.25)	1 (3.12)	2 (6.25)	<0.001
	Up to diploma (n = 328)	271 (82.62)	20 (6.10)	17 (5.18)	6 (1.83)	3 (0.91)	11 (3.36)	
	Academic (n = 140)	108 (77.14)	16 (11.43)	7 (5.01)	3 (2.14)	1 (0.71)	5 (3.57)	

* Chi-square test, P < 0.050

It should be noted that in all of the studies mentioned, the Rutter Children's Behavior Questionnaire was used to examine children's behavioral disorders. Investigation of the rate of behavioral disorders of Iranian children at different times suggests that, with time, despite the increasing spread of psychological, sociological, and medical sciences, and novel educational methods, the rate of behavioral disorders remained high among primary school children. This issue can be due to various reasons. Increasing economic problems and changes in social status has been pointed out in studies as a reason for increase in children's behavioral disorders (34). In addition, changes in the type of nutrition also cause the incidence or progression of behavioral disorders among children (35). The use of computer games is an important and effective factor in the incidence of behavioral disorders and increased risk of disorders including behavioral disorders, restlessness, and distraction among primary school students (36). Therefore, the difference in the results of the studies can be attributed to the difference in sociocultural circumstances and statistical populations of the studies.

The results of the present study indicated that aggression had the highest rate of incidence (9%) among various disorders, which was in agreement with the findings of Narimani (37) and Khodakarami (38). Aggression is recognized as a behavior that may lead to harm to a person or object (3). Aggressive individuals, especially in childhood, experience a high rate of conflicts and fights (39). Moreover, aggression is associated with incompatible behaviors and undesirable social skills (40).

In this study, the overall incidence of behavioral disorders among boys was higher than that of girls. In the studies by Jalilian (8), khazaie (4), and Shams, behavioral disorders were higher among boys (31); however, it was higher among girls in the study by Pourhossein (41). Ghamari et al. showed that anxiety/depression and physical complaints among girls and social problems, thinking problems, attention problems, law-breaking behaviors, and aggressive behaviors among boys had significantly higher incidence rates (42). Most researchers believe that behavioral disorders are more common among boys than girls, so that behavioral disorders are more likely to be exocrine (aggression and confrontational behavior) and endocrine (anxiety and depression) among boys and girls, respectively. Evidence suggests that the higher

incidence of behavioral disorders among boys is primarily due to their gender roles.

The results of this study confirm the relationship of the overall incidence of behavioral disorders reported by parents with variables of age, birth rank, and parents' education. A study showed higher incidence of behavioral disorders among students with illiterate and low literate parents compared to that of students with literate parents (38). In the present study, the relationship between parental education and behavioral disorders was also significant. It is predictable that with increasing level of parents' education, their awareness of how to deal with their child and their attention to their child's psychosocial needs is increased, thus preventing behavioral disorders. Some studies have highlighted the preventive effect of mother's education. This is due to the fact that educated mothers respond better to their children's emotional needs, spend more time with them, and are a good model for their children (5, 32, 43).

In the present study, behavioral-emotional disorders were higher among students living with their father, mother, or one of their relatives due to the divorce of parents, which could indicate the effective role of emotional emptiness due to parental divorce in their behavioral problems. In many studies, having a single parent due to any cause (death or divorce) has been identified as a severe risk factor for the development of behavioral disorders among children (44). The results of the present study indicated that the relationship between father's job and incidence of behavioral disorders among children was significant. The family economic and income level depends on the occupation of the parents. Many studies consider low levels of household economics to be effective on behavioral disorders (8, 45, 46).

In this study, there was a significant relationship between addiction and behavioral problems among children, which coincided with many studies (47). Parents' drug abuse has a lasting and evident impact on children and is a complex situation for every family involved (48). Parental addiction is associated with negative effects on the mood and behavior of children due to many causes, including economic problems, mood disorders, violent behaviors, and mental disorders (49-51).

In this study, the incidence rate of behavioral problems was higher among the single children. In studies by Ravaghi (20), Tanila (52), and khazaie (4), it was reported that the incidence of behavioral disorder was higher in higher birth ranks. This is attributed to the crowdedness of populated families

and the inability of parents to pay adequate attention to the children, which can increase children's behavioral problems. It seems that higher interaction in families with a higher number of children is one of the reasons for the reduction of behavioral problems, since in these families, children learn the correct way of social communication to obtain equal access to existing facilities, empathy, independence, and self-confidence. This can reduce the incidence of some emotional and behavioral disorders (53).

Studies have been conducted to investigate factors related to behavioral disorders among children of different ages and show that factors like the child's gender (54, 55), child's age (20), child's educational status, parental education, parental occupation, birth rank, addiction, parental divorce, and economic situation are related to the behavioral disorders among children (32, 38).

Identification of individuals at risk is very important, and in this regard, the focus on the children themselves is not enough, as behavioral disorders are the result of the interaction of the children with their environment. Therefore, specific and targeted interventions related to the family context, peers, school, and community should be used by experts to reduce these disorders. Preventive and interventional methods including training of children in the field of functional skills and problem-solving skills, training of parenting skills to the parents, training of teachers and education staff, reduction of social damages, change and elimination of stress factors and stimuli, and provision of necessary educational and material facilities for children can be useful in this regard.

The limitations of descriptive studies carried out using self-report questionnaires include difficulty in understanding the questionnaire's questions and items and the ambiguity in the honest response. The researchers in the present study did their best to reduce these limitations; however, thorough confidence in the results of questionnaire studies and their generalization to the society should be done with caution. In addition, in this study, the teacher's form of the questionnaire was not used, which makes it difficult to access more accurate results. Therefore, it is suggested that in future studies, in addition to using the questionnaire, a clinical interview be also conducted by psychologists, and behavioral disorders be examined from the teachers' points of view and be compared with the parents' points of views.

Conclusion

According to the results of this study, the incidence of behavioral disorders among children in the 4th

and 5th grade of primary school was high in Rafsanjan City, which was associated with economic factors like occupation and social factors including parental addiction. Considering the undesirable effects of behavioral disorders on the educational status and social relationships of students, the need for more attention from authorities, teachers, and parents seems necessary to identify the conducive factors and find suitable strategies to prevent the occurrence of these disorders.

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