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Aggression during Early Childhood: Associated Factors in a Clinical Sample

Erken Çocukluk Döneminde Agresyon: Klinik Bir Örneklemde İlişkili Faktörler

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Abstract

Objective: Early onset aggression is a public health problem. We aimed to investigate the associated factors of aggressive behaviours in preschool children.

Patients and Methods: Seventy two children (aged between 1 and 6) with primary complaints of severe aggressive behaviours by their parents and 72 healthy controls were included in the study. A semi-structured inquiry-form on demographic features, personal and psychiatric characteristics of parents and mother-child relationship patterns were given to the mothers. The Aberrant Behaviour Checklist (ABC) and Beck Depression Inventory (BDI) were given to the mothers.

Results: Parental education levels were lower in the patient group. Parents' problematic experiences with anger, mothers' feelings of insufficiency in parenting and marital quarreling were found to be higher in the patient group. The frequency of depressive and/or anxiety symptoms during pregnancy and the postnatal period as well as mothers' current BDI scores were higher in the patient group. According to a logistic regression analysis, the ABC hyperactivity score, mothers' feelings of insufficiency in parenting and fathers' problematic experiences with anger were found to be associated with aggressive behaviours in the patients.

Conclusion: Aggression in preschool children is associated with multiple factors. The examination of parental characteristics appears to be especially important in the evaluation of affected children. *(Marmara Medical Journal 2011;24:174-80)*

Key Words: Aggression, Children, Preschool age

Özet

Amaç: Erken başlangıçlı agresif davranışlar bir halk sağlığı sorunu olarak görülebilir. Bu araştırma okul öncesi dönem çocuklardan oluşan klinik bir örneklemde agresif davranışlarla ilişkili faktörleri incelemeyi amaçlamıştır.

Hastalar ve Yöntem: Temel başvuru şikayeti ebeveynlerin bildirdiği şiddetli agresif davranışlar olan 72 çocuk (1 ile 6 yaş arası) ve kontrol grubu olarak sağlıklı 72 çocuk araştırmaya dahil edildi. Demografik bilgiler, ebeveynlerin kişisel ve psikiyatrik özellikleri ve anne-çocuk ilişkisine odaklanan yarı-yapılandırılmış bir anket annelere uygulandı. Anneler Sorun Davranış Kontrol Listesi'ni (SDKL) ve Beck Depresyon Envanteri'ni (BDE) doldurdu.

Bulgular: Ebeveynlerin eğitim düzeyi hasta grubunda daha düşüktü. Ebeveynlerin öfke kontrolü ile ilgili olumsuz deneyimleri, annenin ebeveynlik ile ilgili yetersizlik hisleri ve ebeveynler arası tartışmalar hasta grubunda daha yüksek sıklıkta bulundu. Annenin hamilelik ve post-natal dönemde depresif ve/veya anksiyete semptomları yaşama sıklığı ve BDE puanları hasta grubunda daha yüksek olarak bulundu. Lojistik regresyon analizine göre, ABC hiperaktivite puanı, annenin ebeveynlik ile ilgili yetersizlik hisleri ve babanın öfke kontrolü ile ilgili olumsuz deneyimleri agresif davranışlarla ilişkili olarak bulundu.

Sonuç: Okul öncesi çocuklarda agresyon birçok faktörle ilişkilidir. Ebeveynlerin özelliklerinin de incelenmesi olguların değerlendirilmesinde önemli yer tutuyor gibi görünmektedir. *(Marmara Üniversitesi Tıp Fakültesi Dergisi 2011;24:174-80)*

Anahtar Kelimeler: Agresyon, Çocuklar, Okul öncesi dönem

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Introduction

Aggression during infancy and toddlerhood is a public health problem[1]. Aggressive young children are at risk of harming themselves, family members and peers[2,3]. Aggression in early childhood may also predict antisocial behaviours during pre-adolescence, adolescence and even in adulthood[4-6].

The risk factors for high levels of aggression during infancy and toddlerhood have been investigated in a handful of studies. Both child and parent/family related characteristics were found to be associated with aggression in young children[7-9]. However, most of these studies were conducted in Western countries. Social and/or cultural differences may affect the associated factors of early onset aggression in children. Therefore, these factors also need to be studied in non-western countries. This study aims to identify the child related, parental and family factors of aggressive behaviours during early childhood in Hatay, a city in Southern Turkey.

Patients and Methods

Patients

Children admitted to Antakya Children's Hospital, Child Psychiatry Clinic with severe aggressive behaviours as primary complaints by their parents were included into the study. Permission for the study was obtained from the Hospital ethics board. The study period lasted from April 2010 to April 2011. The age of the study group was between 1 to 6 year olds. Among the children fulfilling these criteria, those who may have had any developmental delay were evaluated with The Denver Developmental Screening Test (DDST). According to the DDST scores, those with documented developmental delay were excluded. A total number of 102 children were included in the study and 30 of them were excluded because of documented developmental delay. The final sample consisted of 72 children. The control group of the study consisted of 72 children between the ages of 1-6 who were admitted to a paediatric clinic at the same hospital. These children were never admitted to the child psychiatry clinic. For the inclusion into the control group the following question was also asked of the parents: "Does your child frequently exhibit aggressive behaviours at a problematic level (aggressive behaviours which impair/limit your child's interaction with his/her parents, siblings, other family members, peers, and the family's social life)?" Children, whose parents answered "No" to this question were included into the study.

Instruments

A semi-structured inquiry form, developed by the authors, was administered to the mothers. The inquiry form included questions on the following domains:

Demographic variables of the children

Age and the gender of the children were evaluated.

Aggressive behaviours and their subtypes

Types of aggressive behaviours in the child were evaluated with following questions: "Aggression to self (self injurious behaviour)", "destruction of property", "aggression to mother", "aggression to siblings" and "aggression to peers". The questions on these aggressive behaviour types were rated by the following four answers "none", "rarely", "occasionally" and "frequently".

Information on mothers' characteristics, emotional symptoms during pregnancy and the relationship between mother and child

The inquiry form presented to mothers consisted of questions on their personal characteristics including their age, age at pregnancy, education level and working status. The mothers were also asked how they rated their temperament in terms of problematic experiences with anger. Questions on this subject were answered by "never", "rarely", "occasionally" and "frequently". Regarding mothers' emotional symptoms during pregnancy and postnatal period, the presence of depressive and/or anxiety symptoms were evaluated. Questions on this subject were answered either as "present", or as "non-present". Regarding the relationship between mother and child, mothers were asked to what degree they feel themselves insufficient in parenting and to what degree their child is obeying mother's rules. For the question "To what degree does the mother feel herself insufficient in parenting?", there were four possible answers: "none", "mildly", "moderately" and "highly". For the question "To what degree does the child obey the mother's rules?", there were four possible answers: "never", "rarely", "occasionally" and "frequently".

Information on fathers' characteristics

The inquiry form consisted of questions on the fathers' characteristics including their age, education level and the workings status. The fathers were also asked how they rated their temperament in terms of problematic experiences with anger. Questions on this subject were answered by "never", "rarely", "occasionally" and "frequently"

Family information

The inquiry form consisted of questions on the family including the marital and economic status and people living in the house. In addition, the presence of any problems between mother and father was evaluated with the following question: "Do you frequently have quarrels?".

Aberrant Behaviour Checklist (ABC)

The Aberrant Behaviour Checklist (ABC) was developed by Aman et al. in 1985[10]. The checklist has 58 items that are rated on a four-point scale ranging from 0 ("not at all a problem") to 3 ("the problem is severe in degree"). Beside the total score, the items of ABC are scored onto five subscales as follows: (I) Irritability, Agitation, Crying (15 items); (II) Lethargy, Social Withdrawal (16 items); (III) Stereotypic Behaviour (7 items); (IV) Hyperactivity, Noncompliance (16 items); and (V) Inappropriate Speech (4 items). The validity and the reliability of ABC were demonstrated in Turkish children[11]. ABC was completed by mothers in this study.

Beck Depression Inventory (BDI)

The BDI is a scale developed by Beck in 1961 for assessing the depression risk and severity of depressive symptoms[12]. It can be administered to both psychiatric patients and the general population. It is a self-report scale and consists of 21 Likert type items each scored between 0-3. The total score can be obtained simply by adding the scores for all items. The validity and reliability of the Turkish version of the BDI was demonstrated by Hisli in 1989[13].

Statistical Analyses

The collected data were analyzed by using the SPSS version 11.5 (SPSS Inc., Chicago, IL). Demographic variables, scores of

the scales, and study variables that are categorical in nature were presented by using descriptive statistics. For the comparison of categorical variables like gender, education level, psychiatric profiles of parents, and marital and economical status of parents a χ^2 test was used. Parametric variables were compared between groups by using Student's t test when the distribution of the compared variable is normal. Normality of the distribution was tested by using the Kolmogorov-Smirnov test. The Mann-Whitney U test was used for the comparison of continuous variables where they were not normally distributed. The Pearson correlation analysis was used in the evaluation of the correlations between study variables. All independent variables, including gender, which showed significant difference between study and control groups have been analyzed by univariate logistic regression analysis to find out possible associated factors, in other words predictors, of agression. Then, the significant variables determined by the univariate analyses were used as covariates in a stepwise logistic regression analysis. In this study, the p value <0.05 and 95% confidence interval (CI) were accepted to be statistically significant.

Results

The mean age was 4.0±1.4 years in the patient group, and 3.9±1.2 years in the control group. Fifty nine (81.9%) of the patient group was male, while 33 (45.8%) of the controls were male. Table I shows the comparison of demographic findings between the patient and control groups and their families. The male gender was more frequent in the patient group. The parents' education levels were lower in the patient group and the mothers of patients were less frequently working (Table I).

The comparison of variables about aggressive behaviours in the patient group and control group is shown in table II. Aggression to self, destruction of property, aggression to mother, aggression to siblings and aggression to peers were more frequently reported in the patient group. The ABC total and sub-scores were higher in the patient group when compared with the control group (Table II).

Table III shows the comparison of parents' psychiatric profiles and marital status in the patient and control groups. Frequency of depressive and/or anxiety symptoms during pregnancy and the

Table I. Demographic findings in the patient and control groups and their families.

	Patient group n=72	Control group n=72	Statistics (z or χ^2)	
	Median (min-max)	Median (min-max)	(z)	*P value*
Age (years)	4 (1-7)	4 (2-6)	-0.656	0.601
Age of mother (years)	28 (18-40)	29 (22-41)	-0.495	0.512
Age of mother at pregnancy (years)	24 (16-36)	26.5 (20-35)	-1.168	0.243
Age of father (years)	34.5 (24-57)	32 (28-42)	-0.542	0.588
Age of father at pregnancy (years)	30 (22-53)	30 (25-38)	-0.353	0.724
	n (%)	n (%)	χ2	P value
Gender				
Girls	13 (18.1%)	39 (54.2%)	20.348[a]	**<0.001**
Boys	59 (81.9%)	33 (45.8%)		
Mother's education level				
Elementary	33 (45.8%)	28 (38.9%)	8.508[a]	**0.037**
Secondary	13 (18.1%)	4 (5.6%)		
High School	20 (27.8%)	28 (38.9%)		
University	6 (8.3%)	12 (16.7%)		
Mother's employment				
Employed	7 (9.7%)	18 (25.0%)	5.857[a]	**0.016**
Unemployed	65 (90.3%)	54 (75%)		
Father's education level				
Elementary	26 (36.1%)	34 (47.2%)	8.471[a]	**0.037**
Secondary	15 (20.8%)	5 (6.9%)		
High School	20 (27.8%)	15 (20.8%)		
University	11 (15.3%)	18 (25.0%)		
Father's Employment				
Employed	68 (94.4%)	72 (100%)	4.114[a]	0.120[b]
Unemployed	4 (5.6%)	0		

[a]shows the χ^2 value

[b] since two of the expected variables are below 5, the Fisher Exact test was used to calculate the p value

postnatal period, self reported problematic experiences with anger in parents and the mother's feelings of insufficiency in parenting were higher in the patient group. The degree of obeying the mother's rules were lower in the patient group. The Ratio of parents' frequent quarrels was higher in the patient group. Besides these findings, the BDI scores of mothers were higher in the patient group compared with the control group Table III.

The ABC total score was negatively correlated with the fathers' education (r=-0.29, p<0.05). The ABC irritability score was also negatively correlated with the children's age, mothers' age

Table II. The comparison of ABC scores in the patient group and control group

	Patient group n=72 median (min-max)	Control group n=72 median (min-max)	Statistics (z)	*P value*
ABC-total	63 (9-130)	14 (0-29)	-9.934	<0.001
ABC-irritability	20.9±7.9[a]	5.0±3.1[a]	15.92[b]	<0.001
ABC-lethargy-social withdrawal	8 (0-31)	1 (0-8)	-8.138	<0.001
ABC-stereotypical behaviours	3 (0-17)	0 (0-2)	-6.611	<0.001
ABC-hyperactivity	24.5 (4-46)	3 (0-14)	-9.955	<0.001
ABC-language problems	5 (0-12)	1 (0-6)	-7.172	<0.001

ABC: Aberrant Behaviour Checklist
a shows mean±standard deviation.
b shows t value calculated with Student's t test.

Table III. The comparison of parents' psychiatric profiles and marital states of the patient group and control group.

	Patient group n=72	Control group n=72	Statistics (χ^2 or t)	p
Depressive and/or anxiety symptoms during pregnancy				
Not present	23(32.4%)	35 (48.6%)	3.899	**0.048**
Present	48 (67.6%)	37 (51.4%)		
Depressive and/or anxiety symptoms during postnatal period				
Not present	18 (25.0%)	46 (63.9%)	22.050	**<0.001**
Present	54 (75.0%)	26 (36.1%)		
Problematic experiences with anger in mother				
Never	6 (8.3%)	22 (30.6%)	11.993	**0.002**
Rarely-occasionally	50 (69.4%)	41 (56.9%)		
Frequently	16 (22.2%)	9 (12.5%)		
Does the mother have feelings of insufficiency in parenting?				
No	34 (47.2%)	44 (61.1%)	13.760	**0.001**
Mildly-moderately	3 (4.2%)	12 (16.7%)		
Highly	35 (48.6%)	16 (22.2%)		
To which degree does the child obey mothers' rules?				
Frequently	2 (2.8%)	28 (38.9%)	52.867	**<0.001**
Occasionally	22 (30.6%)	26 (36.1%)		
Rarely	18 (25.0%)	18 (25.0%)		
Never	30 (41.7%)	0		
Mothers' BDI score	15.5±6.4	8.9±4.6	7.19[a]	**<0.001**
Problematic experiences with anger in father				
Never	17 (23.6%)	46 (63.9%)	32.272	**<0.001**
Rarely-occasionally	4 (5.6%)	9 (12.5%)		
Frequently	**51 (70.8%)**	**17 (23.6%)**		
Do parents frequently have quarrels?				
No	33 (45.8%)	55 (76.4%)	14.143	**<0.001**
Yes	39 (54.2%)	17 (23.6%)		

a shows the t value.

Table IV. Odd's ratios for different variables determined by binary logistic regression analysis (A). The variables which have statistical significance lower than 0.05 in univariate logistic regression analysis are included in stepwise logistic regression analysis as adjusted by other variables (B). "R" is reference for the calculation of Odd's ratio.

Variables Characteristics	A Odd's	95% CI			B* Odd's	95% CI		
	Ratio	Lower	Upper	p	Ratio	Lower	Upper	p
Gender								
Girls	R							
Boys	5.364	2.512	11.453	0.001				
Mother's education								
Elementary	R							
Secondary	2.758	0.807	9.421	0.106				
High	0.606	0.282	1.300	0.199				
University	0.424	0.141	1.277	0.127				
Mother's employment								
Employed	R							
Unemployed	3.095	1.203	7.961	0.019				
Father's education								
Elementary	R							
Secondary	3.923	1.263	12.189	0.018				
High	1.744	0.751	4.047	0.196				
University	0.799	0.323	1.980	0.628				
Father's employment								
Employed	R							
Unemployed	NA	NA	NA	NA				
ABC-total	1.264	1.141	1.402	0.001				
ABC-irritability	1.780	1.405	2.253	0.001				
ABC-lethargy-social wthdrawal	1.596	1.365	1.866	0.001				
ABC-stereotypical behavior	2.193	1.591	3.022	0.001				
ABC-hyperactivity	1.649	1.353	2.011	0.001	2.443	1.342	4.446	0.003
ABC-language problem	1.939	1.557	2.414	0.001				
Depression/anxiety in pregnancy								
Not present	R							
Present	1.974	1.001	3.892	0.050				
Postnatal depression/anxiety								
Not present	R							
Present	5.308	2.588	10.885	0.001				
Difficulty of mother in anger control								
Never	R							
Rarely-occasionally	4.472	1.657	12.066	0.003				
Frequently	6.519	1.930	22.020	0.003				
Feelings of insufficiency in mothering								
None	R	R						
Mild-moderate	0.324	0.085	1.238	0.099	0.123	0.018	0.503	0.037
Strong	2.831	1.348	5.944	0.006	2.665	0.202	35.188	0.457
Does the child obey mother's rules?								
Frequently	R							
Occasionally	11.846	2.532	55.413	0.002				
Rarely	14.000	2.894	67.719	0.001				
Never	NA	NA	NA	NA				
Mother's BDI score	1.238	1.145	1.339	0.001				
Difficulty of father in anger control								
Never	R	R						
Rarely-occasionally	1.233	0.327	4.424	0.781	0.461	0.010	40.313	0.461
Frequently	8.118	3.716	17.735	0.001	28.259	1.984	39.582	0.026
Do parents frequently have querrals?								
No	R							
Yes	3.824	1.871	7.813	0.001				

*Nagelkerke R2 for stepwise logistic regression is 0.953, * NA: Not applicable, ABC: Abberant Behaviour Checklist

and fathers' educational level (r=-0.25, p<0.05; r=-0.40, p<0.01; r=-0.29, p<0.05, in order).

Univariate logistic regression analyses were run for each of the study variables that showed a significant difference between the patient group and the control group. In all of these analyses the dependent variable was set as "being in the patient group" or in other words having aggression during early childhood. Odd's ratio, 95% CI, and p value for these analyses are presented in Table IV. Then, the variables which had statistical significance were introduced to a stepwise logistic regression analysis. According to this model, the ABC hyperactivity score, feelings of insuffiency of the mother, and difficulty in anger control observed in the father were significantly associated with aggression during the childhood period. This model explained 95% of the variance (Table IV).

Discussion

The available research on early onset aggressive behaviours in children is mainly limited to studies based on community samples. Comprehensive clinical studies including samples from non-Western countries and cultures are lacking. In the available studies regarding early onset aggression, child related, demographic, parental and familial factors have been studied. We aimed to investigate the associated factors of aggressive behaviours during early childhood in a clinical sample. As might be expected, all of the sub-domains on aggressive behaviours and the ABC total and sub-scores were higher in the patient group when compared with the control group.

In the current study, regarding the demographic findings, there were significant differences between the patient and control groups and their families. The male gender was more frequent in the patient group. Previous studies also linked male gender with early onset aggressive behaviours[1,9,14-16]. Regarding the parental and familial variables, both mothers' and fathers' education levels were lower in the patient group and the mothers of the patient group were less frequently working. In the patient group, the ABC irritability score was negatively correlated with the childrens' age, mothers' age and fathers' education level. The mothers' lower education level was found to be associated with aggressive behaviours in children in previous studies done in the community[7,9]. Some studies found a link between mothers' younger age and high levels of aggressive behaviours in the children[1,7,17]. It was suggested that women who start having children at an earlier age than average cannot help their children to regulate their physically aggressive behaviours.

The frequency of self reported level of anger of parents and BDI scores of mothers were higher in the patient group. The association between parental aggressive attitudes and violent behaviour in children has been reported previously[18,19]. The mothers' past or present antisocial behaviours were found to be associated with physical aggression in the early childhood of the children[1,20,21]. The effect of maternal depression on child behavioural problems and psychopathology has been well established before. Our findings, in concordance with previous studies have shown an association between aggressive behaviours in children and depression in mothers[22-24]. In her review, Reebye suggested that the combination of a depressed mother's emotional unavailability and focusing negative attention on undesirable behaviour in the children are all associated with aggression[19].

Studies have shown that if a woman is anxious and/or depressed during pregnancy, her child is substantially more likely to have psychiatric problems[25]. In the present study, the frequency of depressive and/or anxiety symptoms during pregnancy and postnatal period were higher in the patient group compared with the control group. Previous studies also showed a correlation between mothers' emotional symptoms at pregnancy and their children's irritability and externalizing behaviour problems[26,27].

In this study, there were significant differences regarding the mother-child relationship between the patient and control groups. The degree of obeying the mother's rules were lower in the patient group. Besides this, mothers' feelings of insufficiency in parenting were higher in the patient group. Our data support earlier reports in the literature. Hostile and/or ineffective parenting strategies[9,28], less involved parenting[29], and harsh parenting[25,28] were found to be linked with aggressive behaviours in early childhood. The child's uncontrolled temperament was also shown to be associated with early onset aggressive behaviours[25].

The ratio of parents' frequent quarrels was higher in the patient group. Previous studies have shown an association between problematic parent relations and aggressive behaviours in the children[19]. Tremblay et al.[1] found that the children of parents who have serious problems as a couple, also have a high risk of not learning to regulate physical aggression. In a study by Barker and Maughan[25], partner cruelty to the mother was found to be a predictor of early onset persistent aggressive behaviours in the children. Feldman et al.[30] also showed marital hostility as a risk factor for children's aggressive behaviours.

In the present study, in addition to the above mentioned comparative analysis between the patient and control groups, stepwise logistic regression analysis was also performed. The ABC hyperactivity score, the mothers' feelings of insufficiency in parenting and the fathers' problematic experiences with anger were found to be significantly associated with aggressive behaviours. In a previous study, kindergarten children displaying high levels of hyperactivity were found to be at high risk of aggressive behaviors[7]. For the interpretation of the association between parental characteristics and aggression in children, the possible cause-consequence relation must be taken into account. It may be proposed that both mothers' feelings of insufficiency in parenting and fathers' problematic experiences with anger may impair their parenting practices. Negative parenting, in turn, may present a precursor for temperamental problems and aggression in children. On the other hand, negative parenting attitudes may also reflect a response to the persistent uncontrolled aggressive behaviours of the child[25]. Future research is needed to clarify the bidirectional relation between children's aggressive behaviours and parental characteristics.

The main limitations of the present study are the selection of sample and control groups. Since only the children who have a clinical suspicion of developmental delay were evaluated with Denver Developmental Screening Test some of the children with a developmental delay may have been missed and mistakenly

included in the patient group. Regarding the selection of the control group, although the parents were asked an inclusion question confirming that the children did not have frequently exhibited aggressive behavior at a problematic level, these children were from the pediatric outpatient clinic and still may have problematic behaviours to a degree. Another limitation is the lack of a structured psychiatric interview of the patients. Therefore, this study cannot give any idea about the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM IV) diagnoses of the patients. A similar limitation also must be considered for the control group. Since the medical history of these children were not reviewed in the study, the possible association of this variable is also unknown.

Conclusion

Early-onset aggression, when it causes impairment, appears to be a predictor of life time aggressive behaviours, criminality and related public health concern. In concordance with results of previous studies, our findings in Hatay, from a city of a non-western country, showed that similar factors are associated with aggressive behaviours of preschool children there. The evaluation of parental characteristics and family functioning of these children might be important for their management and treatment formulation.

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