

# ASSESSMENT OF THE RISK FACTORS INVOLVED IN THE ONSET OF ANXIETY DISORDERS IN CHILDREN AND ADOLESCENTS

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**Abstract:** Anxiety disorders represent one of the most prevalent types of psychopathology in children and adolescents and often produce substantial impairments in the academic, social, and family functioning. It is assumed that anxiety emerges from a complex interaction between the specific characteristics of the child and his environment. The purpose of the study is to identify the risk factors involved in the etiopathogenesis of anxiety disorders in children aged 12 to 17 years old. The study is analytical, case - control, observational, retrospective and included 80 children diagnosed with an anxiety disorder and 66 children diagnosed with conduct disorder. The results revealed a statistically significant correlation between negative life events (death of a parent, divorce of parents, school stress, emotional and physical abuse), female gender and the presence of anxiety disorders. Besides identifying the risk factors that may increase the odds of developing an anxiety disorder, it is important to clarify the interaction between these factors and their role in the onset of anxious type psychopathology.

## INTRODUCTION

Anxiety disorders are complex conditions resulting from the interaction of multiple risk factors and the pre-existing predisposition. The likelihood of developing anxiety disorders is influenced by familial, genetic, neurobiological, cognitive predisposing factors, susceptible temperament traits (e.g. inhibited, shy child), and environmental factors.

Beesdo et al.,(1,2) classified the risk factors associated with the presence of anxiety disorders in adolescents into several groups, namely: a) demographic variables, such as gender, socioeconomic status and educational level; b) parental and family variables, such as parenting style; c) personal variables, such as personality; and d) life events, such as childhood abuse or trauma.

Van Oort et al.(3) reported the risk indicators for anxiety grouped into three main categories: factors related to the child, family, and relationships with peers. As regards the personal factors, it has been consistently demonstrated that girls have a higher risk of developing anxiety disorders than boys (4) and that low self-esteem is a significant risk factor for anxiety.(5)

With reference to family and parenting factors, it has been demonstrated that parental rejection and the hyperprotective parenting style are factors significantly associated with anxiety disorders in children, while (6) parental stress, anxiety and depression increase the risk of their onset.(7) The factors regarding the relationship with peers were focused primarily on the relationship between the individual and his colleagues, particularly on bullying and victimization and the results were similar to those reported by Beesdo et al. regarding the relationship with stressful life events.(1) Other studies found that victimization is an important risk factor for the onset of anxiety disorders in young people.(8)

Environmental factors like psychotraumatic events

(parents' divorce, death of a family member, emotional abuse, separation experiences, violence in the family) are also involved in the onset of anxiety disorders in children and adolescents.(9)

The therapeutic intervention for anxiety disorders in children and adolescents should aim also at the assessment of the risk factors, in order to decrease vulnerability.(2) Starting from these premises, we aim at identifying the possible risk factors involved in the etiopathogenesis of anxiety disorders in paediatric population.

## PURPOSE

This study aims at identifying the possible risk factors involved in the etiopathogenesis of anxiety disorders in children and adolescents aged 12 to 17 years old. The correlation (and size of statistical significance) between the potential risk factors studied and the emergence of anxiety disorders in children and adolescents was considered through a comparative analysis of the study group (children and adolescents with anxiety disorders) and control group (children and adolescents with conduct disorder).

## MATERIALS AND METHODS

An clinical, analytical, case-control, observational, retrospective trial has been performed, directed to a well defined category of patients - children and adolescents with anxiety disorders (social phobia, specific phobia or generalized anxiety disorder) aged between 12 and 17 years old.

**Participants.** There were studied two groups of children. The study group included 80 patients diagnosed with anxiety disorder (social phobia, specific phobia or generalized anxiety disorder) and the control group included 66 patients diagnosed with conduct disorder.

**Inclusion criteria** for the study were: boy or girl aged 12 to 17 years old; diagnosis of anxiety disorder (social

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phobia, specific phobia or generalized anxiety disorder) or conduct disorder, according to ICD-10 and DSM IV-TR international diagnosis criteria.

**Exclusion criteria** were: children and adolescents diagnosed with mental retardation (IQ <70), Pervasive Developmental Disorder, psychotic disorder or major affective disorder, children with chronic somatic illnesses, children below the age of 12 or over 18 years old, children with incomplete medical records.

**Instruments:** The diagnosis of anxiety disorder (social phobia, specific phobia or generalized anxiety disorder) or conduct disorder was established according to ICD-10 and DSM IV-TR international diagnostic criteria. A risk factors inventory was used to collect data. The inventory included questions regarding personal physiological and pathological history, family history of mental illness, environment, gender, living conditions, family environment, school results, and negative life events.

**Procedure:** Data were collected from the charts of the patients registered in the Pediatric Psychiatry Clinic, part of the Children' Emergency Clinical Hospital Cluj-Napoca, between January 2011 and September 2012, using a data collection sheet.

**Data analysis:** Data were introduced in a SPSS database (v. 17). The relationship of each category of factors with the anxiety disorder diagnosis (social phobia, specific phobia or generalized anxiety disorder) was tested using bivariate statistical analysis. The analysis procedure used to test the nonparametric factors in relation to the study group consisted in a bivariate distribution of the subjects using contingency tables, risk factor (category) X pathology (conduct disorder (control) versus anxiety disorders) type. For each distribution hi square association test ( $\chi^2$ ) and its statistical significance was calculated. As hi-square coefficient ( $\chi^2$ ) does not indicate the intensity of the association, the Pearson C contingency coefficient has been applied, whose use is indicated for large contingency tables.

## RESULTS

### Univariate descriptive analysis of groups characteristics

Variables	Study group (anxiety disorders) N=80	Control group (conduct disorder) N=66
<b>Environment (urbanisation)</b>		
- Urban	61.3 %	69.7 %
- Rural	38.8 %	30.3 %
<b>Gender</b>		
- male	48.8 %	68.2 %
- female	51.3 %	31.8 %
<b>Living conditions</b>		
- good and very good	80 %	62.1 %
- poor	20%	37.9 %
<b>Family</b>		
- organised	68.8 %	50 %
- unorganised	31.3 %	50 %
<b>Family discord</b>		
- yes	21.8 %	47.1 %
- no	78.2 %	52.9 %
<b>School results</b>		
- good and very good	42.5 %	7.6 %
- medium	21.3 %	24.2 %
- poor	35 %	68.2 %
<b>Family history of psychiatric disorders</b>		
- yes	40 %	31.8 %
- no	58.8 %	68.2 %

- don't know	1 %	-
<b>Problems at birth</b>		
- yes	23.8 %	9.1 %
- no	75 %	90.9 %
- don't know	1 %	-
<b>Personal pathological history</b>		
- Yes	50 %	68.2 %
- No	50 %	31.8 %
<b>IQ</b>		
- > 85	90 %	83.3 %
- 70-84	10 %	16.7 %
<b>Negative life events</b>		
- Yes	57.2 %	57.6 %
- No	42.5 %	42.4 %

### Risk factors comparative analysis between the two samples

Risk factors comparative analysis between the two groups did not show statistically significant associations with anxiety disorders, for the following variables: living environment (degree of urbanization) ( $\chi^2 = 1.135$ ;  $p > 0.05$ ;  $\phi = -0.088$ ;  $p > 0.05$ ); living conditions ( $\chi^2 = 5.724$ ;  $p < 0.05$ ;  $\phi = -0.198$ ;  $p < 0.05$ ) - low income is associated with conduct disorder, association effect size is modest; type of family ( $\chi^2 = 5.310$ ;  $p < 0.05$ ;  $\phi = 0.191$ ;  $p < 0.05$ ) - disorganized family is associated with conduct disorder, correlation intensity being modest; family discord ( $\chi^2 = 6.208$ ;  $p < 0.05$ ;  $\phi = -0.264$ ;  $p < 0.05$ ) - is associated with the presence of conduct disorder, the correlation intensity being modest to moderate; family history of mental illness ( $\chi^2 = 2.002$ ;  $p > 0.05$ ;  $\phi = 0.117$ ;  $p > 0.05$ ); problems at birth ( $\chi^2 = 0.296$ ;  $p > 0.05$ ;  $\phi = -0.111$ ;  $p > 0.05$ ) and IQ ( $\chi^2 = 1768$ ;  $p > 0.05$ ;  $V = 0.109$ ;  $p > 0.05$ ).

Personal pathological history (antenatal problems, abortion risk and hormonal pregnancy maintenance, asphyxia at birth) were more associated with the presence of anxiety disorders and to a much lesser extent with the conduct disorders ( $\chi^2 = 6.477$ ;  $p < 0.05$ ;  $V = 0.211$ ;  $p < 0.05$ ).

The risk factors comparative analysis between the two studied groups showed a higher prevalence of anxiety disorders in females and a higher prevalence of conduct disorders in males ( $\chi^2 = 5.589$ ;  $p < 0.05$ ;  $\phi = -0.196$ ;  $p < 0.05$ ).

Subjects with conduct disorder displayed poorer school achievements (grades <6). For those with anxiety disorders, school results were good or very good (grades  $\geq 8$ ) ( $\chi^2 = 24.585$ ;  $V = 0.381$ ;  $p = 0.001$ ).

Personal history of psychiatric disorders: tics disorder, conduct disorder, attention deficit and hyperactivity disorder are significantly more present in subjects with anxiety disorders, whereas the subjects with conduct disorder associated more frequently attention deficit and hyperactivity disorder, affective disorders, use of tobacco and other psychoactive substances ( $\chi^2 = 19.941$ ;  $p < 0.05$ ,  $V = 0.473$ ;  $p < 0.05$ ).

Among negative life events, death of a parent, parents' divorce, school stress, emotional and physical abuse, correlated significantly with the anxiety disorders. Conduct disorder correlated significantly with parents' divorce, neglect, death of a parent and parents working abroad ( $\chi^2 = 22.778$ ,  $p < 0.05$ ;  $V = 0.462$ ;  $p < 0.05$ ).

## DISCUSSIONS

Female gender appears constantly in studies as a risk factor for the onset of anxiety disorders, with up to two-time greater risk than males to develop any anxiety disorder.(10) Prevalence differences between genders are lower in childhood, but increases with age.(11) The results of the current study emphasized a similar trend, anxiety disorders being more frequent in female subjects.

In terms of educational level, most epidemiological studies have reported higher rates of anxiety disorders in subjects with lower educational levels compared to those with higher educational level.(12) It remains unclear to what extent low school performance is a predictor, a correlation or a consequence of anxiety. Two studies on adult population have reported an association of the educational level with anxiety, but not with depression.(13) In our study, subjects with anxiety disorders reported good or very good school results (grades  $\geq 8$ ), when compared with the conduct disorder group. Children and adolescents enrolled in the study were still attending school (only one subject with anxiety disorders and 8 with conduct disorder abandoned school) and results could not be compared to a sample within the general population.

With few exceptions, the studies conducted until now consistently reported an association between low or poor income and anxiety disorders.(12) The results of an experimental study suggested that this association is not derived from the link risk factor – pathology, but it is due to a more complex relationship and could explain the results obtained in cross-sectional studies.(14) In our study, most subjects (80%) reported very good and good living conditions, while only 20% had poor living conditions.

The urbanization level (rural-urban) does not appear in general as a correlation of anxiety disorders.(15) Our results are similar, but may be attributed rather to the subjects' recruitment procedure.

Most epidemiological studies have reported associations between negative life events in childhood (e.g. death of a parent, parents' divorce, physical or sexual abuse) and most psychiatric disorders, including anxiety disorders. Kessler et al. (16) found associations between negative life events in childhood, reported retrospectively, including loss (e.g. parents' divorce), parents' psychiatric pathology (e.g. maternal depression), trauma (e.g. rape) and later onset of psychiatric disorders, in an adult population from the United States. These adverse events were significantly associated with the onset of the anxiety disorders, mood disorders, addictions and conduct disorders. In a study conducted in Netherlands, history of neglect or abuse was a strong predictor for psychiatric morbidity (e.g. anxiety disorders, depression, psycho-active substance abuse).(17) In the CHDS study (The Christchurch Health and Development Study) conducted in New Zealand, participants who reported a history of sexual abuse in childhood had higher rates of depression, anxiety disorders, conduct disorder, substance use and suicidal behaviour compared with those with no history of sexual abuse.(18) It is possible that the association with non-specific psychiatric disorders to be better explained by the mental disorders' high degree of comorbidity. Some studies suggested that the rate of association between psychiatric disorders and physical or sexual abuse history is higher for female gender.(19) Our results are consistent with the literature, but have also some specifics. Among negative life events, death of a parent, parents' divorce, school stress, emotional and physical abuse, correlated significantly with anxiety disorders. Conduct disorders correlated significantly with parents' divorce, neglect, death of a parent and parents working abroad.

Studies that focused on negative life events suggested that threatening events tend to predict the onset of anxiety disorders, while loss events predict depression.(20) In a study investigating the relationship between the loss of a parent before the age of 17 years and adulthood pathology in female twins, Kendler et al. reported that an increased risk for generalized anxiety disorder (GAD) is associated with parental separation, and an increased risk for phobic disorders is

associated with the death of a parent, but not with parental separation.(21)

Death of a person from the social network was more associated with depression than with GAD.(22) A moderate specificity in the association between negative life events and the type of psychopathology was registered in a study that compared three groups of patients (depressed, GAD, mixed).(23) Loss and humiliation events predicted the onset of depression and the comorbidity depression with GAD. GAD onset was associated with the loss and threat events.

Other than identifying the risk factors that may increase the probability of developing an anxiety disorder, it is important to clarify the interaction between these factors and their role in the onset of anxiety disorders. Our results are consistent with the literature and confirm once again that the ethiopathogeny of anxiety disorders is complex, requiring further studies, especially in children and adolescents.(24)

## CONCLUSIONS

1. Results of the current study are similar to those from the literature, anxiety disorders being more prevalent in female subjects.
2. Low income, disorganized family and family discord are more associated with conduct disorder, the association effect size being modest.
3. Personal history of psychiatric disorders: tics, conduct disorder, attention deficit and hyperactivity disorder are significantly more present in subjects with anxiety disorders.
4. The influence of negative life events are consistent with the literature, but have certain specificity. The death of a parent, parents' divorce, school stress, emotional and physical abuse correlated significantly with anxiety disorders.
5. The comparative risk factors analysis between the two studied samples did not show statistically significant associations with anxiety disorders, for the following variables: living environment (degree of urbanization), family history of mental illness, problems at birth and IQ.

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