

State and trait anxiety level and severity of depression among mothers of children with attention deficit hyperactivity disorder and conduct disorder. Pilot study.

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Summary

Objectives: to evaluate anxiety level (as a trait and as a state) and the severity of depressive symptoms in mothers of children with hyperkinetic disorder (HD) and with and without comorbid conduct disorder (CD); to determine the relationship between the intensity of anxiety and depressive symptoms and intensity HKD symptoms.

Materials and methods: Beck Depression Inventory (BDI) and STAI questionnaire to measure state-trait anxiety were completed by 24 mothers of children with HKD and 26 mothers of children without HKD. Mothers of children with HKD also completed the Conners Questionnaire for Parents and Teachers (IOWA). Conners Questionnaire for Teachers (RCTS) was used for teachers.

Results: 75% of HKD subjects had comorbid CD, in comparison with 19,2 % in the control group. No significant differences were found between mothers of children with HKD and the control group in BDI scale and STAI questionnaire in anxiety state and anxiety trait subscales. The difference was found between mothers of children with CD and without CD in anxiety-state subscale of STAI questionnaire. No relationships were found between the number of depressive symptoms, anxiety as a state and as a trait and the results of Conners IOWA and RCTS. Conclusions: The presence of HKD in children does not correlate with the level of depression and anxiety in mothers. A relationship exists between the presence of CD in children and elevated levels of state anxiety in mothers.

Key words: ADHS, conduct disorder, quality of life, depression, anxiety

Introduction

Attention Deficit Hyperactivity Disorder (ADHD), according to DSM IV or hyperkinetic disorder (HD), according to ICD-10 is characterized by the presence

of symptoms of hyperactivity, impulsivity and inattention, which influence cognitive and psychosocial functioning. The prevalence of ADHD ranges between 3-7% in school aged children [1, 2]. ADHD and comorbid disorders, including oppositional defiant disorder (ODD) have a negative impact on functioning of a child as well as the quality of life of direct environment [3, 4]. Greater severity of stress is observed in families of children with ADHD/ODD as well as marital problems and the presence of psychopathological symptoms in parents, especially in mothers. [5]. Mothers of children who present challenging behaviors are more often diagnosed with depressive or sub-depressive conditions. [6]. Swarz and Shear [7] observed depression and anxiety symptoms (35% and 42%, accordingly) in mothers who reported to mental health centers services due to problems with their children. The severity of symptoms was significantly greater in comparison with control group. It is worth noticing that high levels of anxiety or experience of depression may be a definite factor which encourages mothers to seek help for their children. [7].

The presence of symptoms of anxiety and depression in mothers has a negative impact on child-mother relationships. Campbell et al. [8] showed that the presence of depression in mothers correlates with more aversive parenting and less child support. On the other hand, anxious mothers tend to show less positive affect towards their children. They are also more critical, controlling [9] and show more anger [10]. High intensity of negative emotions in mothers and less secure attachment results in delayed internalization of rules and norms in the child [11] and perpetuates behavioral problems.

Co-occurrence of depressive and anxiety symptoms is a common observation as well as a similarity in perception of the world in individuals affected with both conditions [12]. However, if one takes into account reactions which follow undesired behavior of the child, it appears that anxious and depressive parents slightly differ in their reactions [13]. When challenged with difficult situation, anxious individuals tend to focus more on the perception of anticipated threat. Reactions of excessive vigilance, uncertainty, timidity and less assertive attitude can also be observed [14]. These reactions may also occur while a parent is challenged with difficult behavior of a child with ADHD, especially in direct confrontation with his disobedience, or sudden anger outburst.

On the other hand, depressive parents tend to focus on the rightness of their own behavior and tend to ruminate about losing their authority and lack of competence [13]. Perhaps, diverse reactions of anxious and depressed parents can be explained by differences in functioning of families of children with ADHD. It is assumed that the presence of excessive anxiety negatively affects the level of parental warmth and involvement whilst the presence of depressive symptoms is primarily associated with high levels of psychosocial stress.

Another problem which justifies the need of further research focused on the presence of symptoms of ADHD in mothers who psychopathological symptoms is a relationship between the exposure to high levels of anxiety during pregnancy, and the presence of symptoms of ADHD and other challenging behaviors

in the off-spring. Such a relationship is clear, especially when symptoms of anxiety arise between 12 and 22 Hbd, which is additionally associated with the symptoms of anxiety in 8-9 year olds [15]. It can therefore be assumed that emotions experienced by the mother affect neurobehavioural development of the fetus, modulating, and modifying the process of prenatal development and maturation of the CNS. It is likely that the monoamine neurotransmitter system in the CNS of the fetus is “reprogrammed” in the consequence of damaging effect of hormones associated with anxiety and stress reactions.

Objectives

The goal of the study was to evaluate state-trait anxiety level and severity of depression in mothers of children with HD with and without comorbid conduct disorders and to determine whether a relationship exists between the intensity of anxiety and depression and the intensity of symptoms of hyperkinetic disorder.

Materials

The study included 50 mothers of school-age children. The study group consisted of 24 mothers of children with attention-deficit hyperactivity disorder according to ICD-10 (Hyperkinetic Disorder-HKD) [16], who were patients of the outpatient Hyperactivity Clinic at the Department of Child and Adolescent Psychiatry of Warsaw Medical University.

The control group consisted of 26 mothers of healthy children, primary schools students (grades I and II) who reported at the clinic to participate in the research project on the standardization of the Polish versions of assessment tools screening for the presence and intensity of symptoms of attention deficit hyperactivity disorder.

Assessment Tools

The following tools were used in the study:

1. Beck Depression Inventory; BDI – a scale which evaluates the severity of symptoms of depression [17];
2. STAI questionnaire – The STAI measures two types of anxiety in adults – state anxiety, or anxiety about an incoming event, and trait anxiety, or anxiety level as a personal characteristic. Higher scores are positively correlated with higher levels of anxiety. State anxiety can be defined as fear, nervousness, discomfort, etc. and the arousal of the autonomic nervous system induced by different situations that are perceived as dangerous. This type of anxiety refers more to how a person is feeling at the time of a perceived threat and is considered temporary. Trait anxiety can be defined as feelings of stress, worry, discomfort, etc. that one experiences on a day to day basis. This is usually perceived as how people feel across typical situations that everyone experiences on a daily basis. The questionnaire evaluates

the presence of anxiety symptoms on four dimensions: negative emotions, worrying, tiredness and avoidance [18];

3. An Abbreviated Parent-Teacher Questionnaire; IOWA [19], a rating scale developed to evaluate the presence of ADHD and the number and symptoms intensity;
4. The Polish Version of Revised Conners Teacher Rating Scale; RCTRS) [20], used for identification of patients with ADHD as well as the number and symptoms intensity. The scale consists of three subscales: hyperactivity, conduct disorders, impulsivity, attention deficit and antisocial behaviors.

Method

A re-diagnosis for the presence of HKD and conduct disorder was made by a psychiatrist with structured interview based on ICD 10 and DSM IV diagnostic criteria. Parents were asked to complete An Abbreviated Parent-Teacher Questionnaire (IOWA) and to hand in the Conners Teacher Rating Scale-28 (RCTS) to their child's headteacher. At the end of the visit mothers completed STAI and BDI (with regard to the previous week) scales. Additionally, a detailed demographic and family interview was collected. The following statistical methods were used in data analysis: t student test, chi-square test, Pearson's correlation coefficient – r ($p < 0,05$)

Results

The mean age of mothers of children with HD was 39.5 ± 4.6 years and 36.2 ± 6.8 years in the control group. Mothers in both groups did not significantly differ in terms of age structure, employment, education, declared health status, declared alcohol consumption, the use of sedatives and sleeping pills, smoking, criminal history, frequency of alcohol dependence in the family of origin, number of smokers in the family of origin, criminal history in the family of origin, the number of suicide attempts and completed suicides and mental illnesses in the family of origin. All children in the study were confirmed to have hyperkinetic disorder according to ICD-10. Additionally, 18 children (75%) also met diagnostic criteria for conduct disorder according to ICD-10 [16]. In the control group 5 children (19.2%) met the diagnostic criteria for conduct disorder according to ICD-10.

Anxiety and depression level and the presence of hyperkinetic disorder

No differences in BDI scale were found between study and control group. The mean score in the group of mothers of children with HKD was $8,0 \pm 5,1$ pts and $6,5 \pm 5,8$ pts in the control group. It is worth noticing that eight mothers scored above 11 points in BDI, which indicates the possibility of a depressive disorder: four in the study group and four in the control group. No significant differences were found between study and control groups in anxiety-trait subscale of STAI questionnaire. The average score in the study group was 31.3 ± 7.8 pts whilst the mean score for the study group

was 28.2 ± 9.2 pts. There were no statistically significant differences between study and control groups in anxiety-state subscale of STAI questionnaire. The average score in the study group was score 46.5 ± 7.5 pts whilst the mean score for the study group was 43.0 ± 7.8 pts.

Anxiety and depression level and the presence of conduct disorder

Comparisons were made between the level of depression and anxiety in mothers of children diagnosed with ($n = 23$) and without conduct disorder ($n = 27$). Mothers in both groups did not differ in the majority of family demographic characteristics (age, structure of employment, education, declared health status, alcohol consumption, use of tranquilizers and sleeping pills, smoking, criminality, the incidence of alcohol addiction and the number of smokers in the family of origin, criminality in the family of origin, the number of suicide attempts and suicide and mental illnesses in the family of origin). Mothers of children with and without children with behavioral problems did not significantly differ in the level of depression and anxiety as a trait. The only significant difference was found in STAI anxiety-state subscale in mothers of children with conduct disorder, who reported higher levels of anxiety as a state ($p = 0.046$).

Relationships between the level of depression and anxiety and the intensity hyperactivity symptoms

No positive correlation was found between the level of depression and anxiety as a state and as a trait, and intensity of attention deficit hyperactivity disorder symptoms, assessed with two Conner's questionnaires (IOWA and RCTs), as well as the results in all subscales of questionnaire for teachers (RCTs)

Discussion

The main drawback of the study is the lack of Polish norms for BDI and STAI questionnaires for healthy adult women. The structure of the control group is also the issue to be discussed. As mentioned, the control group consisted mothers of healthy children who reported to the Outpatient Hyperactivity Clinic at the Department of Child and Adolescent Psychiatry of Warsaw Medical University to participate in the research project on the standardization of the Polish versions of assessment tools screening for the presence and severity of symptoms of attention deficit hyperactivity disorder. Presumably, mothers of the children who decided to participate in the standardization study could have suspected ADHD or could have been informed by teachers about the possible presence of attention deficit hyperactivity disorder in their child. The mothers could have also been concerned about the presence of other challenging behaviors (almost 20% of children in the control group were diagnosed conduct disorder). Small group of subjects participating in the study also limits conclusive

inferences. It was also not possible to investigate the relationship between the severity of depression and anxiety in mothers, depending on the age of the children. However, it can be assumed that long experience of ADHD both by a child and his family, as measured by years of school and social failure, poor academic performance, negative educational and environmental feedback, rising sense of lack of influence on child's performance and behavior can act as potential trigger of symptoms depression and anxiety in mothers. It seems that these relationships in different age groups should be subject of further research.

Taking into account the limitations of the study, the observed lack of relationship between the presence and the intensity of HD symptoms and the level of anxiety and depression can be explained by Sales et al.'s [22] observations. The authors argue that, while the relationship between the degree of internalizing symptoms in children and maternal health is stable and clear, the relationship between the presence of externalizing symptoms and general mental state is not as strong as it may seem. The level of stress experienced by mothers of children with externalizing problems may not be necessarily significant or prolonged, as challenging behaviors presented by the child, including aggressive and destructive behaviors, frequent outbursts of anger may booster the search for specialist help. What's more, the study concentrated on mothers of children with diagnosed hyperkinetic disorder according to ICD 10 (the equivalent of ADHD – mixed subtype according to DSM-IV) who were likely to be more motivated to seek help. Higher score in STAI in anxiety-state subscale in mothers of children with conduct disorder needs to be verified by studies with greater number of participants. Presumably, experience of anxiety and tension associated with the arousal of the CNS, is probably a trait of those individuals who are often challenged by threatening situations, including mothers of children with conduct disorders.

Conclusions

1. The presence of hyperkinetic disorder does not significantly affect the level of anxiety and depression in mothers of ill children.
2. The presence of the child's conduct disorders is associated with higher levels of state anxiety in mother.

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