

Received: 21.01.2013
Accepted: 28.06.2013

A – Study Design
B – Data Collection
C – Statistical Analysis
D – Data Interpretation
E – Manuscript Preparation
F – Literature Search
G – Funds Collection

EMOTIONAL TENSION IN STRESSFUL SITUATIONS AS A MEDIATOR OF THE COMORBIDITY OF CONDUCT DISORDER IN YOUTH WITH ADHD

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SUMMARY

Background:

Research has shown that ADHD often co-occurs with ODD and CD, especially the impulsive subtype of ADHD. Excessive impulsiveness involves not only disordered inhibition, but also difficulties with emotional control. Situations with increased emotional tension provoke behaviors intended to reduce the tension, such as aggressiveness, which can be interpreted as CD. Our research was intended to examine the specific characteristics of how youth with ADHD react to stressful situations and their emotional consequences.

Material/ Methods:

We examined 31 subjects, 16 to 19 years of age, diagnosed with full ADHD, using self-report questionnaires: the EAS-D and the Stress Questionnaire. This data was supplemented with the results of the Structured Diagnostic Interview for ADHD according to ICD-10 and DSM-IV-TR, which was filled out by parents or teachers.

Results:

Our subjects showed an increased level of discontent, understood as a dimension of emotionality, along with a reduced level of fear. The level of discontent significantly affects emotional tension, while impulsiveness, a diagnostic criterion for ADHD, has no direct effect on the level of emotional tension in stressful situations.

Conclusions:

Youth with ADHD experience a high level of generalized discontent, the cause of which is often difficult to determine. The declared mental discomfort, given high lability, may be the cause of socially undesirable behavior. A combination of factors mediates the comorbidity of behaviors from the ODD/CD spectrum in youth with ADHD.

Key words: Oppositional-Defiant Disorder (ODD), Conduct Disorder (CD), coping with stress, temperament, emotionality

INTRODUCTION

ADHD is one of the most common neurodevelopmental disorders occurring among school-aged children. It is also a disorder that is diagnosed relatively early, between the ages of six and nine years, though the symptoms persist throughout life (Barkley, 2006; Lipowska, 2011). In spite of the frequency of comorbidity of ADHD, the diagnostic problems resulting from the broad spectrum of diagnostic criteria have been much discussed (Dittmann, Schacht, Helsberg, Schneider-Fresenius, Lehmann, Lehmkuhl & Wehmeier, 2011). The full picture of ADHD is a compilation of difficulties with concentration, hyperactivity, and impulsiveness to a degree that impairs the child's functioning or is disproportionate to their development (APA, 2000). Depending on the intensity of comorbidity of particular behaviors, ADHD can be diagnosed as either full-symptom or one of two subtypes: inattentive and impulsive-hyperactive.

Another problem confronted by clinicians is posed by the fact that ADHD very seldom occurs in its "pure form," that is, without co-occurring disorders. The most frequent co-occurring disorders are:

- oppositional defiant disorder (ODD), which is diagnosed in 30-76% of cases (Drabick, Gadow, Loney, 2008);
- dyslexia, found in 25-40% of cases (Borkowska, 2006; Lipowska, 2011);
- conduct disorder (CD), which affects 14-46% of ADHD children (Kotakowski, 2005; Petty, Monuteaux, Mick, Hughes, Small, Faraone & Biederman, 2009).

The comorbidity of developmental disorders is presently the subject of a very intensive research, since it causes many difficulties in both diagnosis and therapy. Although most of the research deals with problems that co-exist in a given period of time, or even throughout life, attention is also being drawn more and more often to situations in which two or several disorders are noted in a given person in the course of life, but not necessarily at the same time (Wittchen, 1996). Moreover, a combined diagnosis raises questions as to which problem is primary and which are secondary. If the primary disorder is found to be something occurring in a person who has not previously had any mental problems (First, 2005), are the problems that appear later properly regarded as co-occurring, or are they rather complications? In psychiatry and psychopathology there is very little data clearly indicating that one disorder can be caused by another (Angold, Costello & Erkanli, 1999). One example of this is the attempt to explain the co-occurrence of ADHD and CD by assuming that CD is a complication of ADHD; however, the thesis that CD is secondary is contradicted by data indicating that there is a genetic factor which plays an essential role in the etiology of CD (Borkowska, 2004; Becker, Luebbe & Langberg, 2012).

The relationship between ADHD as a neurodevelopmental disorder and psychopathological problems in later life is very often emphasized. Particular attention should be drawn to research conducted with adults, pointing to a significant association of ADHD and ODD/CD with personality disorders (Pastwa-Wojciechowska, 2008; Becker, Luebbe & Langberg, 2012).

When concentrating on the relationship between ADHD and psychopathological problems, it is necessary to be particularly attentive to the subtype that includes impulsiveness. Excessive impulsiveness involves not only disturbed inhibition, but also difficulties with emotional control (Pačalska et al., 2012a, 2012b). It is also characteristic of this group that the sphere of interest changes dramatically, which in combination with a high level of impulsiveness can result in such decisions as dropping out of school, changing the direction of education, or dropping extra curricular activities (Ohan & Johnston, 2005). In addition, adolescents must cope with the discomfort caused by inexplicable restlessness and the consequences of disorders of self-regulation (Mulligan et al., 2013). Young people diagnosed with ADHD have problems with such aspects of self-regulation as inhibition, deferred gratification, separating thoughts from feelings, analyzing the perspective of another person, alternative reactions, or taking examples from the behavior of other people (Stepp, Burke, Hipwell & Loeber, 2012). Adolescents with ADHD also have less ability to choose a way of reacting that is adequate to the goal they have chosen (Fujisawa, Yamagata, Ozaki & Ando, 2012) or to change their reactions when confronted with new information. Impulsiveness provokes a very particular way of reacting in daily situations.

The lack of ability to foresee the consequences of their behavior or to draw from previous experience causes a teenager with ADHD, in a situation of increased emotional tension (and thus mental and physical discomfort) to act in such a way as to reduce this discomfort without analyzing the available solutions or their consequences (Rea, Braccini, Laviola & Ferri, 2006). At this point there can appear the problem of aggressiveness (Becker, Luebbe & Langberg, 2012; Lipowska & Rasmus, 2013), which can also be characteristic for both conduct disorder and personality disorders (Pastwa-Wojciechowska, 2008). The manner in which youth with ADHD react to difficult situations thus often becomes the cause of an escalation of problems. It is necessary, then, to develop a strategy to cope with stressful situations.

Coping with stress can be described in categories that are individual for every person. Initially, in research on stress, a great deal of emphasis was given to the factors that produce stress (Compas, Connor-Smith & Jaser, 2004); however, along with global and cultural transformations, when any given phenomenon can prove to be stressful for someone, researchers have changed their focus to the actions undertaken by the individual when confronted with stress. The most popular understanding of this phenomenon is now the thesis presented by Lazarus and Folkman (1984), which includes constantly changing cognitive and behavioral efforts to manage certain external and internal requirements, which the individual evaluates as burdensome or beyond their resources. Coping, then, is a series of intentional actions undertaken in order to minimize the discomfort caused by the situation. Youth with ADHD have a limited capacity in stressful situations to make an objective evaluation of the stressor, and so their reaction to a disturbing stimulus is markedly less adaptive than those which are normally observed. Researchers from Brown University found that there is a certain path-

way of high-risk behaviors displayed by young persons with ADHD (Brown University, 2007). They pointed out primarily the tendency to use alcohol as a means of coping with stressful situations, such as peer conflicts, problems at home, pressure from the environment, or a feeling of loneliness. Other research has indicated a greater tendency to use psychoactive substances in a situation that is highly laden emotionally (Roy, 2008).

The purpose of our research was to look for the specific nature of how stress is experienced by youth with ADHD. We were especially interested in examining the specific nature of emotional reactions to stressful situations as a possible underlying cause of non-adaptive reactions in social situations.

MATERIAL AND METHODS

We collected the data for our research on the basis of tests. The research group included 31 persons: 13 girls and 18 boys, ranging in age from 16 to 19. The primary inclusion criterion was a full psychiatric or psychological diagnosis of ADHD. The subjects were students of junior high schools and high schools in Gdynia, Sopot, Gdansk and Reda, Poland. The participants filled out two questionnaires, while their parents, caregivers, teachers, or psychologists filled out one control questionnaire.

Before administration of the test the subjects gave their consent to participate in the research, having been informed that the results would be used as empirical material for a scientific study. The subjects were also assured that the results would be completely anonymous. The time needed to fill out one set of questionnaires came to about 30 minutes. The testing sessions took place in the offices of psychologists or teachers in the educational institutions which the subjects were attending. The testing took place during the child's school day.

In order to identify the type of stress experienced by the subjects, we used the Stress Questionnaire by M. Plopa and R. Makarowski (2010). In addition, in order to measure the intensity of the diagnostic criteria for ADHD, we used the Structured Diagnostic Interview for ADHD according to ICD-10 and DSM-IV-TR (Wolańczyk & Kołakowski, 2005). An additional variable that could have a relationship with the way of experiencing stress was temperament, which was measured by using the EAS-D Temperament Questionnaire by Buss and Plomin, in Polish translation (Oniszczenko, 1997).

The Stress Questionnaire by Plopa & Makarowski (2010) is an instrument that can be used to measure three dimensions of the experience of stress:

- emotional tension;
- external stress;
- intrapsychic stress.

There is also a global stress score, which is the sum of all three dimensions. The available norms make it possible to study women and men from 16 to 70 years old. For our research we used the norms for the 16-20 age bracket.

The level of stress in the various dimensions was measured with 27 statements, which the subject was asked to relate to themselves and their social and emotional functioning. The responses were then transferred to a five-point scale, which identified the extent to which the statement agreed with the subject's subjective feelings about themselves. In addition to the four diagnostic scores, the test identified the tendency to present oneself in a favorable light. Those subjects who displayed such a tendency, answer questions that comprise a scale of lying, attributing to themselves a number of behaviors which are regarded as socially desirable, but are relatively rare in the general population. The questionnaire has no time limitations, and its administration does not require any special testing conditions.

The EAS-D Temperament Questionnaire by Buss & Plomin (Oniszczenko, 1997) is self-descriptive in nature. It consists of 20 statements which are evaluated by the subject on a five-point scale. The version for adults used in our research includes five scales: Emotionality, Fear, Anger, Activity, and Sociability.

The Structured Diagnostic Interview for ADHD according to ICD-10 and DSM-IV-TR (Wolanczyk & Kolakowski, 2005) is an instrument that can be used to identify the behaviors that are diagnostic for ADHD. During testing with this questionnaire, in addition to confirming the occurrence of the symptoms characteristic of ADHD, it is also possible to identify their intensity.

RESULTS

We began by analyzing the intensity of the diagnostic criteria for ADHD in all the research groups, in order to specify the subtypes (see Figure 1).

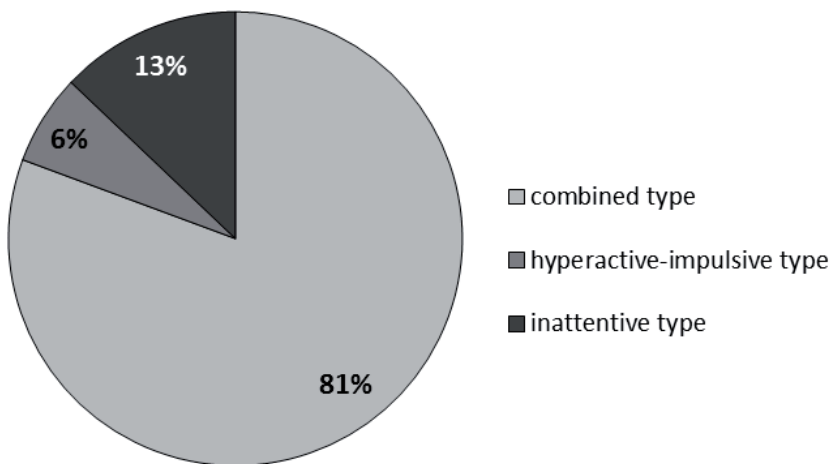


Figure 1. Sub-types of ADHD occurring in the research population

The most common subtype of ADHD found among our subjects (81%) was the mixed subtype, i.e. full-symptom ADHD; the inattentive subtype constituted a distinctly smaller group (13%), while youth displaying the subtype dominated by hyperactivity and impulsiveness made up the smallest group (6%).

The next step was to analyze the distribution of the intensity of the subjects' emotional reaction to potentially stressful situations (see Figure 2).

The results we obtained indicated that these youth with ADHD displayed a rather low level of emotional tension.

Emotional tension is defined by Plopa and Makarowski as a feeling of unease or excessive nervousness. Difficulty in relaxing in various situations of daily life is also common. Lack of energy, combined with a tendency not to complete various tasks or plans, along with a tendency to excessive sensitivity in different interpersonal relationships, is also noted. There fatigue without any obvious cause is frequent (Plopa & Makarowski, 2010, p. 63). Among the possible explanations of these state of affairs may be the fact that youth with ADHD are characterized by a reduced ability to confront themselves, low insight, and little reflectivity (Wolańczyk & Pisula, 2005). As a result, something that is regarded by their peers as unfair, stressful, or ego-threatening can be perceived by youth with ADHD as unimportant, or, even if the stimulus is classified as unpleasant, it is processed on too shallow a level to cause stress. This situation is often a source of conflict, since the information sent by peers or caregivers is typically not noticed, regarded as unimportant, and so the sender feels ignored (Czaplewska & Lipowska, 2008).

It seemed advisable, then, to look for the temperamental correlates of the intensity of emotional tension as a way of reacting to stress. For this purpose we

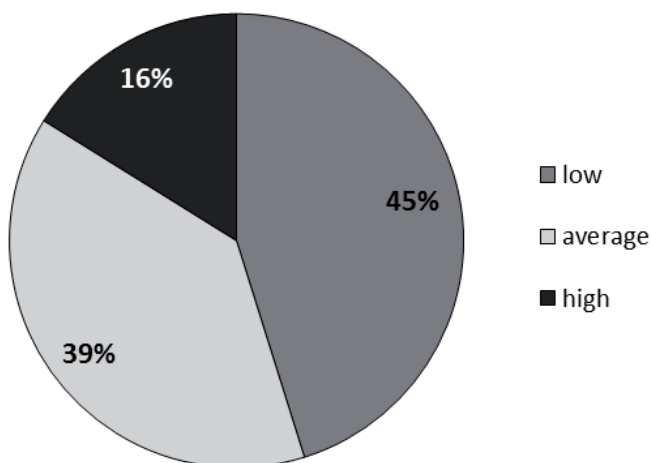


Figure 2. Results on the Emotional Tension scale from the Stress Questionnaire

analyzed the various sub-scales of the EAS-D, in order to obtain a picture of the overall emotional functioning, defined by the emotionality score, among youth with ADHD (see Figure 3). We paid particular attention to the temperamental characteristic of emotionality, understood as discontent and an inclination to easily become extremely distressed. It is composed of three primary emotions: discontent, fear, and anger (Buss & Plomin, 1984)

It is especially important to point out that the highest percentage of high scores occurred in generalized discontent: as many as 33% of the subjects reported a high level of this feeling. This means that they were accompanied on a daily basis by an increased unpleasant tension, the source of which was often not identified. It is curious, however, that the percentage of high scores is the lowest (23%) in relation to fear: these subjects mostly displayed an average level of fear (48%), while 29% of them reported a low feeling of fear. In these young people the most important manifestations of fear were:

- feelings of rising tension;
- anxiety;
- the anticipation of a negative event;
- cognitive change.

The tendency to react with fear is associated with attempts to escape from threatening stimuli (Buss & Plomin, 1984). A high level of discontent with a proportionally low level of fear may produce the lack of the tendency to avoid a negative stimulus, and consequently to enter into conflictive situations (Lipowska & Dykalska-Bieck, 2010). Moreover, only 16% of the subjects reported a low level of anger, understood as a temperamental feature associated with a readiness to attack and negativism, along with a tendency to attribute negative characteristics to persons who are not accepted (Buss & Plomin, 1984). Such a combination of features – i.e. low emotional tension in a stressful situation and an increased level

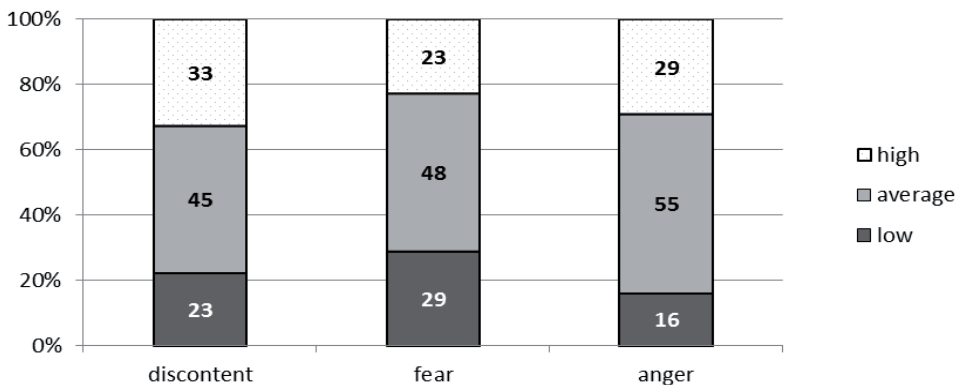


Figure 3. Results on the Emotionality scale of the EAS-D.

of discontent and anger as temperamental features – increases the probability of the appearance of conduct disorder among these young people.

Since we already knew the temperament profile and the intensity of impulsive behaviors, we looked for the association of these variables with the way of reacting to stressful situations. In order to assist multiple regression analysis, we checked whether any of the dimensions of emotionality and impulsiveness is a moderator of the level of emotional tension in a stressful situation. This analysis explained as much as 60.4% of the variability, even though only discontent had a significant impact on emotional tension ($\beta=0.48$; $p=0.017$). The intensity of impulsiveness, which is a diagnostic criterion for ADHD, did not directly affect the level of emotional tension in a stressful situation.

DISCUSSION

The period of maturation is rich in events that make up a constellation of stressful events, such as: changes in personal habits, changes in school, or changes in social activity (Makarowski & Plopa, 2010). Moreover, there are many other events, not listed among the events that produce stress, but universally regarded as stressful. These events affect persons who are functioning normally in respect to social relations or the emotional sphere (Ohan & Johnston, 2005). In the case of persons with ADHD the list of stressors is enriched by problems in functioning, both social and emotional, which cause difficulties in adapting to society (Stepp, Burke, Hipwell, Loeber, 2012).

Our research indicates that the difficulties reported during the interview by parents and teachers do not necessarily translate into a higher level of emotional tension associated with the experience of stress in youth. The period of maturation is all the more difficult for them because, in addition to the problems characteristic for their age, they must deal with many problems resulting from their impulsiveness, such as, for example, thoughtless decisions or excessive bravado. The emotional sphere is also problematic, since persons with ADHD manifest emotional lability that persists after early childhood (Ohan & Johnston, 2005). An additional problem is caused by difficulties in adapting to norms and rules, which can cause numerous conflicts, both among peers and in school (Mulligan et al., 2013).

In our research we paid particular attention to the component of emotionality in youth with ADHD. The parents who visit the offices of doctors or psychologists often report with alarm that their child displays emotional lability and impulsiveness in taking action. While emotionality can affect the way stress is felt and increase the feeling of mental and physical discomfort it entails, impulsiveness is associated with the choice of techniques to reduce stress, and also increases the probability that these techniques will be chosen without reference to previous experience, which consequently increases the risk of dangerous behaviors. At the same time, the low sensitivity to emotional information from the environment indicated in our research, problems with reading emotional indicators (Czaplewska

& Lipowska, 2008), and an increased feeling of discontent increase the probability that socially unacceptable behaviors will occur.

In discussing the ways of coping with stress, we should not forget about some very essential personality factors, such as the individual's capacity and the means they have at their disposal, such as the support of persons who are important for the individual, health and energy, and convictions about themselves and the world (Stepp, Burke, Hipwell & Loeber, 2012). Persons with disturbances can manifest reactions associated with a temperamental profile, such as aggressiveness or alcohol abuse (Pastwa-Wojciechowska, 2008). It is necessary, however to differentiate symptoms from the spectrum of aggressive behaviors caused by impulsiveness from those which are characteristic for conduct disorder (Pastwa-Wojciechowska, 2008; Roy, 2008).

Our results indicate that youth with ADHD experience a generalized discontent, the cause of which is often difficult to ascertain. As many as 33% of our subjects reported mental discomfort, which, given the high level of emotional lability, can be the cause of socially unacceptable behaviors. A low feeling of fear (29% of the subjects) along with a high level of discontent, on the other hand, can be the cause of actions that are often regarded as risky. Our analysis indicated that the youth participating in our study did not feel a high level of emotional tension. Only 16% of the subjects had scores indicating hypersensibility, excessive nervousness, or internal tension, which could be a reason for giving up daily activities. These results may indicate a low level of self-reflection and a low capacity to confront reality or evaluate a situation. In the light of our analysis, it can be assumed that it is combinations of features, and not particular scales, that are the cause of the behaviors observed in these youths.

CONCLUSION

To summarize our research, we would like to call attention to the occurrence of deficits in persons diagnosed with ADHD, which, without causing a markedly higher level of stress, definitely affect functioning in many areas. What is needed is not only early diagnosis, but also cooperation between the child's parents, teachers, and caregivers, since, once they have at their disposal a complete picture, they can initiate a program to improve the functioning of youth with these deficits. It may be possible in the future to limit the number of complications involving co-occurring disorders.

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