

# DEPRESSIVE SYMPTOMATOLOGY IN YOUNG PATIENTS WITH ADHD IN OUTPATIENT CARE

Anita Sumiła<sup>1</sup>, Anna Monika Cieślukowska<sup>2</sup>

<sup>1</sup> Department of Clinical Psychology, Medical University of Gdansk

<sup>2</sup> Department of Developmental, Psychotic and Geriatric Psychiatry, Medical University of Gdansk

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## SUMMARY

**Background.** Attention-Deficit Hyperactivity Disorder (ADHD) is frequently associated with other neuropsychiatric childhood disorders. Therefore, the assessment of young patients can be complicated by several factors, including the differential diagnosis of comorbid psychiatric conditions, as well as inconsistencies in the manifestation of ADHD symptomatology. The symptoms of comorbid depression presented by patients primarily diagnosed with ADHD are often unrecognized and/or untreated. For that reason, greater attention should be devoted to the complex interplay between ADHD and associated disorders. The main goal of the discussed study was to analyze the symptomatology presented by the individuals diagnosed with ADHD, in the course of the first psychiatric consultation, as well as overall psychiatric comorbidities.

**Material and methods.** 62 subjects, ages 5 to 19 (mean 12.57) participated in this retrospective study. These individuals were referred for the first psychiatric assessment at the Psychological and Pedagogical Center because of attention deficits, learning difficulties, hyperactivity, aggressive behaviours, talkativeness, interpersonal difficulties, forgetfulness or impatience. The data were gathered in 2007.

**Results.** In the presented sample, the clinical picture of depression was observed in almost 1/3 of the individuals ages 13 to 15. Irritability, persistent sadness, mood fluctuations as well as low self esteem/feelings of worthlessness were among most frequently reported symptoms. The explanations for the comorbidities, as well as their implications for clinical practice, are discussed. Overall, greater attention should be paid to interactions between ADHD and associated psychiatric comorbidities.

## INTRODUCTION

Attention-Deficit Hyperactivity Disorder (ADHD) is a prevalent, chronic and pervasive childhood disorder, occurring in from 3% to 10% of school-age children, and representing one third to one half of the psychiatric referrals to child and adolescent mental health care units. ADHD is characterized by a developmentally inappropriate level of activity, impulsivity, and the inability to sustain attention and concentration (Cumyn et al., 2007; Cormier, 2008). The core ADHD symptomatology is associated with impairments in several functional domains, including academic achievement and/or the quality of interpersonal relationships. Moreover, ADHD is frequently associated with other neuropsychiatric childhood disorders. Children diagnosed with ADHD are at higher risk for the development of coexisting psychiatric conditions, and usually continue to present problems attributable to ADHD as both adolescents and adults. Longitudinal studies have revealed that two thirds of children primarily diagnosed with ADHD will continue to demonstrate psychopathological symptomatology throughout adolescence, and that ADHD can also persist in adulthood. For that reason, accurate treatment strategies are definitely required (Cumyn et al., 2007; Cormier, 2008).

It is essential to point out that ADHD is associated with the clinical manifestation of one or more major psychiatric disorders, and for predicting the long-term outcome of the individual, these specific psychiatric conditions are at least as important as ADHD itself. In the body of the literature, it is well established that as many as two in three children with the diagnosis of ADHD in the population meet diagnostic criteria for one or more DSM-IV or ICD-10 diagnoses. The individuals diagnosed with ADHD often experience comorbid psychiatric conditions that, in consequence, increase the possibility of impairments and complications in the course of both outpatient and inpatient diagnostic procedures, as well as treatment (Pliszka, 2003; Gilberg et al., 2004; Cormier, 2008; Greszta, 2006)). Therefore, both clarification and cautious assessment of these psychiatric comorbidities should be a major focus in clinical practice.

In comparison with other children, those suffering from ADHD have been shown to be at higher risk of developing different psychopathological problems. The most common coexisting disorders in ADHD clinical manifestation are:

- developmental coordination disorder;
- oppositional defiant disorder (ODD);
- conduct disorder (CD);
- antisocial behaviours;
- substance abuse and/or substance dependence;
- depression and anxiety disorder;
- bipolar disorder;
- tic disorders;
- obsessive compulsive disorder;
- autism spectrum disorder.

Learning disabilities are also common, including central auditory processing disorder, reading disorder, disorder of written expression, dysgraphia, mathematics disorder and mental retardation (James et al., 2004; Cormier, 2008). All of these psychopathological conditions should be considered in any child diagnosed with ADHD.

Psychiatric comorbidity of ADHD and other psychopathological conditions is estimated at 35-50% of cases for oppositional defiant disorder (ODD), 25% for conduct disorder (CD), 15% for depressive disorder, 25% for anxiety disorder, and 15-40% for learning disabilities (Shachar & Tannock 2002). Pliszka (2003), using data from a clinical population, found that 6% of the analyzed sample met diagnostic criteria for depressive disorder. Moreover, findings by James et al. (2004) indicate that from 15% up to 40% of ADHD patients were currently depressed. Furthermore, James et al. (2004) underlined that comorbid depressive symptomatology was more significantly correlated with symptoms of inattention than hyperactivity or impulsivity. Additionally, adolescents diagnosed with ADHD were found to be impaired in terms of social competence, behavioral and emotional adjustment, school performance, depressive symptoms, and antisocial acts (Chang & Chuang 2000).

Over 50% of children diagnosed with Attention Deficit Hyperactivity Disorder-Hyperkinetic Disorder (ADHD-HKD) met diagnostic criteria for two comorbid conditions. In the existing literature, it has been shown that ADHD-HKD may increase the risk of a second disorder. For instance, school failure associated with hyperactivity can result in gravitation toward a delinquent peer group, or in a demoralization that subsequently might develop into depression (Shachar & Tannock, 2002). Many of the patients suffering from ADHD are comorbid with more than one psychiatric condition; most of them are likely to be considered for a diagnosis of bipolar disorder, although this still remains controversial (Pliszka, 2003).

The formal diagnostic process for depression involves the assessment of a broad range of cognitive, vegetative, and physical symptoms (Klein, Dougherty & Olino, 2005). Among depressive symptoms Lask et al. (2003) highlight sad mood or loss of interest or pleasure, irritability, loss of appetite, loss of weight, marked changes in sleep pattern, psychomotor agitation or retardation (inability to sit still, temper tantrums, and inability to get started are characteristic), reduction in energy levels, fatigue and boredom, feelings of worthlessness or guilt (in children and young people usually attributable to what others think of them), impaired thinking, concentration or decision making, with deterioration in schoolwork and school refusal (which seem to be among the most frequent problems and the most overlooked or attributed to other factors), anhedonia (an inability to enjoy pleasurable activities), social withdrawal, combativeness with parents, loss of interest in schoolwork, delinquent behaviours, and recurrent thoughts of death or suicide.

Depression in both children and adolescents with the clinical manifestation of ADHD can be challenging to diagnose, taking into consideration the fact

that several symptoms, such as restlessness or problems with concentration and attention, may well overlap between the two disorders. Steer et al. (2003) emphasize the difficulties that can be encountered in the context of the differential diagnosis of depressive symptoms from those associated with ADHD. Several diagnostic criteria for ADHD are also among the main diagnostic criteria for other psychiatric conditions. In the Diagnostic and Statistical Manual of Mental Disorders (4th ed. [DSM-IV]; American Psychiatric Association, 1994), a "diminished ability to think or concentrate, or indecisiveness, nearly every day" (p. 327) is one of the nine criteria for a major depressive episode (MDE), and a patient who "often has difficulty in sustaining attention in tasks or play activities" (p. 83) is one of the 12 criteria for ADHD. Although the specific wording of the two criteria is different, both criteria address similar problems with maintaining attention. Moreover, as shown in the data collected by Steer et al. (2003), all of the twenty-one items in the Beck Depression Inventory-II (BDI-II), as well as BDI-II total scores, were positively correlated with self-reported ADHD symptomatology.

Additionally, the medications commonly used to treat ADHD can cause several side effects, such as insomnia, changes in appetite and sleeping pattern, tearfulness, and moodiness, which may resemble depressive symptomatology (Diler et al., 2007). Therefore, the proper identification of both ADHD and comorbid depressive symptoms and the application of appropriate treatment seem to be essential in order to reduce potentially devastating long-term consequences.

The core ADHD symptomatology, functional deficits, and comorbid psychiatric conditions, as well as the high risk for ongoing problems as adolescents and adults, underline the seriousness of the presented psychopathology as a childhood condition and, in consequence, the importance of appropriate diagnosis and effective treatment. A better understanding of both the interplay and the impact of the comorbidity with depressive symptomatology in ADHD seems to have important clinical and public health implications. Taking into consideration these challenges, further theoretical and empirical work needs to be done on this problem. Therefore, the main goal of the present study was to analyze the psychopathological symptomatology presented by individuals diagnosed with ADHD, in the course of the first psychiatric consultation, as well as psychiatric comorbidities.

## **MATERIAL AND METHODS**

A retrospective patient record analysis was conducted. The patient sample consisted of 62 subjects, ages 5 to 19 (with a mean age of 12.57), who were admitted to the Psychological and Pedagogical Center in 2007 for their first specialist psychiatric consultation. 24 of the subjects were 5 to 10 years old, 31 of them were 11 to 15 years old, and 7 of the individuals taking part in the study were 16 to 19 years old. Psychiatric assessment relied on the

ICD-10, a structured clinical interview focusing on ADHD symptomatology, as well as the psychopathological symptoms of depression found in the existing literature (Witkowska-Ulatowska & Namysłowska, 2000; Bomba, 2004; Rabe-Jabłońska, 2004; National Institute of Mental Health, 2008). ADHD subjects satisfied full ICD-10 diagnostic criteria for ADHD at the time of clinical referral. Additionally, when recruited they all presented active symptoms of the disorder. Mentally retarded individuals were excluded from the study.

## RESULTS

A retrospective analysis was performed on the psychopathological symptoms reported by the pupils and their parents/caregivers at the time of the first psychiatric referral (see Table 1).

As can be seen in Table 1, a large proportion of these individuals were referred to the Psychological and Pedagogical Center because of attention deficits, learning difficulties (difficulties experienced during homework and/or poor school grades), hyperactivity, aggressive behaviors (active and/or passive aggression towards other children and/or adolescents, family members, teachers), and talkativeness (interfering with classroom teaching). Furthermore, 1/3 of the described subjects manifested forgetfulness, interpersonal difficulties, or impatience. Finally, restlessness, headaches and stomach aches, truancies, difficulties in falling asleep, self-inflicted injuries, and/or running away from home persisted in a substantial minority of these individuals.

Table 1. Psychopathological symptoms resulting in the first psychiatric consultation

Symptoms	Number of patients reporting specific symptoms (in %)
Attention deficits	76
Learning difficulties	66
Hyperactivity	50
Aggressive behaviour	48
Talkativeness	42
Forgetfulness	34
Interpersonal difficulties	32
Impatience	27
Restlessness	16
Headaches, stomach aches	8
Truancies	8
Difficulties in falling asleep	6
Self-injuries	5
Running away from home	2

The most pertinent data concerning depressive symptomatology in the course of ADHD at the time of the first specialist consultation are shown in Table 2.

After assessment with a diagnostic interview, those with ADHD and psychiatric comorbidities were classified as shown in Table 3.

Significantly, the ADHD patients diagnosed with comorbid depressive disorder were generally adolescents (age range 13-15, cf. Fig. 1).

Table 2. Depressive symptoms experienced by subjects with ADHD at the time of the first psychiatric referral

Depressive symptomatology	Number of patients reporting specific symptoms (in %)
Irritability	32
Persistent sadness	15
Mood fluctuations	15
Low self esteem/feelings of worthlessness	11
Refusal to go to school	10
Tediousness	8
Crying	8
Loss of interest in activities	8
Outbursts of anger	6
Oversensitivity to rejection	6
Sleeping pattern changes/disturbances	6
Eating pattern changes/disturbances	6
Loss of energy	5
Headaches	5
Absence from school	3
Avoidance of effort	3
Stomach aches	2
Fear of school	2
Fear for family and friends	2
Psychomotor disturbances	2
Feelings of inappropriate guilt	2
Restlessness	2
Poor school grades	2

Table 3. Psychiatric comorbidities in individuals diagnosed with ADHD in outpatient care

Psychiatric comorbidities	Number of patients (in %)
Depressive disorders	27
Specific learning difficulties	18
Enuresis	15
Asperger Syndrome	10
Conduct disorder	9
Anxiety disorders	6
Encopresis	4
Tic disorders	4
Bipolar affective disorder	4
Specific developmental disorders of speech	4
Oppositional defiant disorder	2

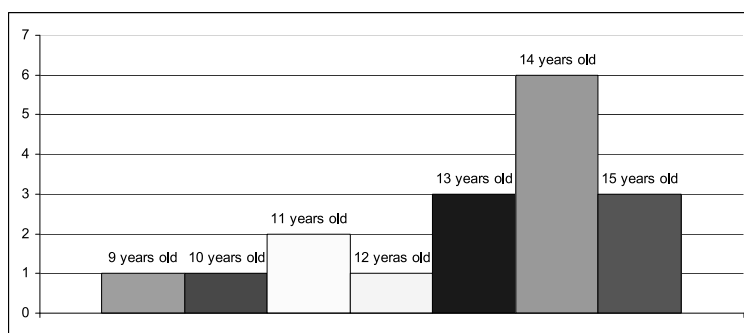


Fig. 1. The number of ADHD patients diagnosed with comorbid depressive symptoms

## DISCUSSION

The results of the present study indicate that depressive symptoms could be identified in almost 1/3 of the participants (27%) diagnosed with ADHD. Our data support a number of previous studies that have reported high depressive symptomatology co-occurrence rates with ADHD clinical presentation, ranging from 10.3% up to 40% (Pelham & Fabiano, 2001; Shachar & Tannock, 2002; Gilbert et al., 2004; James et al., 2004; LeBlanc & Morin, 2004; Souza et al., 2004). This variation in the obtained results could be explained in terms of the recruitment procedure. The pupils who took part in those studies were predominantly selected by their teachers (for example: they presented higher rates of learning difficulties in comparison with their classmates). High rates of ADHD symptoms (for instance, irritability) could have been incorrectly interpreted as symptoms of depression. Pliszka (2003) indicates that irritability/irritable mood could be used in the place of

depressed mood to make a diagnosis of affective disorders in children. However, children diagnosed with ODD/CD often present irritation as an integral part of their temper outbursts. On the other hand, children suffering from ADHD, as an essential part of their impulsiveness, may be emotionally labile (Pliszka, 2003). Notably, children suffering from ADHD were generally reported to present higher rates of irritability, hostility, excitability and general emotional hyperresponsiveness than others (Chang & Chuang, 2000).

Furthermore, consistent with the existing literature, we found that most of the subjects reporting depressive symptoms were adolescents (age range 13-15), which enabled us to confirm the hypothesis about the increasing rates of ADHD and comorbid depressive symptomatology in adolescence.

The association between the clinical manifestation of both ADHD and comorbid depression can be interpreted in the context of several mediating factors and variables. The findings by Ostrander and Herman (2006) underline the family system functioning and the increasing cognitive influence during the childhood years. For the middle group (8-9 years of age), parent management and locus of control independently mediated the relationship between ADHD and depression. Near the end of childhood, parent management and locus of control became more closely associated, and the relationship between ADHD and depression became more complex. Accordingly, after the age of 10, locus of control not only independently mediated the relationship between ADHD and depression, but also contributed to the elevated levels of depression by partially mediating the effects of poor parenting practices (Ostrander & Herman 2006). These observations seem to be in line with the findings by Drabick et al. (2006). Harsh, inconsistent, and detached parenting behavior predicted conduct problems; social problems predicted depressive symptoms; family environment characterized by conflict, low cohesion and low marital satisfaction predicted both conduct problems and depressive symptoms in boys with ADHD. Liss et al. (2001) indicate that aggression and depression have been found to co-occur even in nonclinical samples.

Berkowitz (1990) proposed a cognitive-neoassociationist perspective on depression that would help to explain the high levels of psychiatric comorbidity. This model suggests that feelings of anger and aggression often appear when sadness or depression have been activated cognitively. In the authors' estimation, this process occurs because both sadness and anger are part of a general negative affect. Definitely the interpretation of depressive symptomatology in the clinical manifestation of ADHD requires further careful attention.

Community based specialists (psychiatrists, psychologists, medical doctors, nurses, teachers, caregivers) are often among the first providers of health care for those suffering from ADHD. Despite the fact that several guidelines, emphasizing the need to gather data not only from the individuals, but also from their parents/caregivers and teachers, have been established in order to provide best practice diagnostic procedures for primary care physicians, the assessment of individuals with ADHD and other psychiatric



comorbidities still seems problematic. This could be complicated by several factors, predominantly by the co-occurring psychopathological conditions. Symptoms such as attention deficits, learning difficulties, irritability and/or hyperactivity can be regarded as the clinical manifestation of the main disorder, but they could also be interpreted in terms of comorbid depression. As a consequence, proper symptomatology assessment, resulting in adequate treatment, remains a challenge. Therefore, the fact that depressive disorder is one of the most commonly co-occurring mental conditions with high comorbidity rates with ADHD raises the question whether such comorbidity is associated with significant differences in the clinical manifestation of psychopathological symptoms. Whether the depressive symptomatology observed in ADHD adolescent population should be explained in terms of an independent psychiatric condition or a specific ADHD clinical manifestation (taking into account predisposing factors) remains an open question.

The results reported here point to the need for further research into efficient ADHD and psychiatric comorbidities in a population who is searching for outpatient health care. Therefore, it would be important to continue research in order to eliminate some of methodological limitations of the described study. A larger sample size, as well as additional data to be included in the statistical testing (for instance, age and sex of the participants of the study), would provide important knowledge to analyze the relationship between ADHD and co-occurring psychopathology. Questions remain as to the differential diagnosis and the developmental course of ADHD and comorbid conditions. Definitely, clarification of the psychopathology of ADHD could be helpful in the exact identification, treatment and prevention of drug abuse.

## **CONCLUSIONS**

1. In almost 1/3 of the individuals from the present sample a clinical manifestation of comorbid depressive symptomatology was observed.
2. Irritability, persistent sadness, mood fluctuations, and low self esteem/feelings of worthlessness were among most frequently described symptoms at the time of the first psychiatric referral.
3. Depression was diagnosed among most of the adolescents (age range 13-15) suffering from ADHD.
4. Taking into consideration inconsistencies in the current state of our knowledge, further empirical and theoretical work should be definitely done on this problem.

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Address for correspondence:

Dr. Anita Sumiła

Department of Clinical Psychology, Medical University of Gdansk

ul. Tuwima 15, 80-210 Gdańsk, Poland. e-mail: [asumiła@amg.gda.pl](mailto:asumiła@amg.gda.pl)

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