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## Disorders Co-occurring with Autism – Developmental Conditions, Clinical Symptoms and Diagnostic Dilemmas

### SUMMARY

*Comorbidity, co-occurrence of disorders* are terms used to describe symptoms, accompanying psychopathological syndromes, or individual incorrect traits of behavior. It is the presence of one or more diseases (disorders) in addition to the basic disease (disorder) or the effect of additional disorders. In children with developmental disorders, there is a specific model of evolution and a tendency to develop not only one but several disorders. This phenomenon is particularly evident among people with autism spectrum disorders. It is even assumed that the comorbidity of diseases and disorders in this population is more frequent, and incorrect development in only one sphere is rare. The issues of the relationship between the spectrum of autistic disorders and other related disorders are extremely complex and involve many diagnostic dilemmas, both due to the uncertain results of scientific studies evaluating the prevalence of co-occurring disorders and due to the unusual heterogeneity observed within the autism spectrum. According to the latest data, 70% of people with autism spectrum may have one coexistent disorder, and 40% of this population has two or more additional disorders (DSM - 5, 2013). The content of the article is the analysis of comorbidity and co-occurrence of disorders in people with autism spectrum, their developmental conditions and diagnostic difficulties resulting from the complexity of the pathomechanism of this phenomenon.

**Key words:** co-occurrence of disorders, comorbidity, autism spectrum disorders, comorbidities with autism, differential diagnosis

### CO-OCCURRENCE OF DEVELOPMENTAL DISORDERS AND COMORBIDITY

Co-occurrence of diseases and/or disorders, comorbidity, is increasingly often becoming the subject of interest of many scholars, diagnosticians and thera-

pists. However, these categories have not been fully defined and unequivocally interpreted and are sometimes used interchangeably, which is not justified (Czapiga, 2009). In literature there are also other terms used to describe the phenomena in question: accompanying diseases and disorders, co-occurrence, co-occurrence, combined disorders, double diagnosis, and coupled disorders (Grabski, Dudek, 2007).

The phenomenon of comorbidity can be spoken of when in one person the occurrence of criterion symptoms of more than one mental disorder can be diagnosed over the defined period, also as life time comorbidity (Wittchen, 1996). It is the presence of one or more diseases (disorders) in addition to the basic disease (disorder) or the result of additional disorders. This category is used to indicate the co-occurrence of several diseases (disorders) (Czapiga, 2009). In literature there are usually two ways of using the term comorbidity. One approach stems from the descriptive assumption for a classification in which nosological entities do not overlap. A descriptive classification is by nature temporary, and the recording of co-occurrence of syndromes may result in developing the grounds for changing it, whereas the other approach arises from the hypothesis that one type of mental disorders may be a risk factor for the occurrence of another disorder, which means in practice that many different disorders can be diagnosed in one child as occurring at the same time (Bomba, 2004).

In medicine, the co-occurrence of somatic diseases is a comparatively frequent phenomenon and does not arouse as many controversies as the co-occurrence of mental disorders. It usually means two co-occurring diseases, e.g. diabetes and asthma. However, these are not the co-occurring symptoms of the same pathological problem. For example, pollakiuria and excessive thirst are symptoms of one disease, i.e. diabetes (Borkowska, 2011). The concept of *comorbidity* then describes the influence of disorders diagnosed in an individual, and not only the one diagnosed as primary. The term *spectrum comorbidity* is even used when all the symptoms of the pictures of a disease occur in different patients as the manifestation of their individual experience of a medical condition. It is also assumed that in addition to core disease symptoms there are also subclinical, positive symptoms or resulting from the specificity of personality (Masiak, Masiak, 2005).

In the case of mental disorders, controversies over co-occurrence arise inter alia from the fact that the diagnostic classifications adopt a descriptive, theoretical and non-hierarchical approach to the problems of mental health, consequently abandoning the concept of 'disease' for 'disorder' (Cierpiłowska, 2007; Lipowska, 2011). With reference to mental problems, the use of the term 'disorder' is connected with the fact that the etiological key of classification cannot be restrictively used due to the lack of sufficient knowledge of etiology, and in most cases because of polyetiological origin. The term 'disease' is reserved only for disorders with unquestionable etiology (Wciórka, 2002). It is assumed that, inter alia be-

cause of uncertain and unspecified causes of the pathogenesis of mental disorders, we cannot speak of the actual coexistence of disorders but only of the conception that enables a fuller description of mental problems affecting a child or an adult in a specific period (Caron, Rotter, 1991). Therefore, comorbidity, co-occurrence of disorders, are terms used to describe symptoms, those accompanying psychopathological syndromes, or single, irregular behavioral features (Czapiga, 2009). This approach embraces both single significant behaviors and sets of symptoms that appear as manifestations of mental diseases such as schizophrenia, and at the same time recognizing the fact that many behavioral disorders are a complex set of difficult-to-categorize symptoms (Castello, Bouras, 2006; Bobińska, Gałeczki, 2010).

With the adaptation and adequate use of the term *comorbidity* to apply to mental disorders, the problem arises of how to precisely distinguish between the symptoms of two or even more disorders. For example, anxiety and sadness may suggest either one problem – dysthymia, or two different ones – social phobia and depression disorders. In the case of children exhibiting symptoms characteristic of ADHD and a developmental coordination disorder, the question remains open whether these are two different disorders or diverse manifestations of one basic disorder (Borkowska, 2011).

It should be also stressed that not all disorders can be diagnosed cumulatively. The diagnostic ICD and DSM classifications contain exclusive criteria. They exactly specify the case in which dual diagnosis cannot be applied. Exclusive power is granted to disorders treated as more serious. An example can be the attention deficit hyperactivity disorder and anxiety disorders, in which hyperactivity symptoms are recognized as accompanying symptoms or as resulting from anxiety disorders. According to the ICD-10 (1992) classifications, these disorders cannot be diagnosed concomitantly (Lipowska, 2011). Analyzing the phenomenon of co-occurrence, A. Angold et al. (1999) raised the issue of the distinctness of dual diagnosis when disorders are constituents of one or different diagnostic groups. Separation anxiety and generalized anxiety often occurring at the same time are a case of homotopic co-occurrence because both are manifestations of anxiety disorders, whereas a cumulative diagnosis of ADHD and dyslexia is an example of heterotopic co-occurrence, when disorder entities come from different classes. Clinical observations and research have identified cases of children with dual diagnosis (Attwood, 2006).

A temporal coincidence of the occurrence of problems is connected with another controversial issue, which is the division of disorders into primary and secondary. The use of these terms is not entirely unambiguous. They have been borrowed from medical branches other than psychiatry, in which it is assumed that a secondary disorder has been caused by a primary one and the period of establishing a diagnosis is not a distinctive criterion here (Angold et al., 1999). Despite

few data in psychiatry and psychopathology clearly showing that one disorder has been caused by another, the occurrence of secondary disorders is pointed out as they may be a primary complication. An example can be one of the attempts to explain the co-occurrence of ADHD and behavioral disorders, in which it is repeatedly emphasized that behavioral disorders are a complication, a secondary symptom of psychomotor hyperactivity (Lipowska, 2011; Przepióra, 2012).

Human development is a dynamic phenomenon, continuing over time and subject to many external and internal determinants. Different aspects of development, their functions and structures have mutual impacts and interact with the biophysical and social environment, which corrects or intensifies them (Kościńska, 1995). With age, the primary symptoms in a child with developmental disorders may be accompanied by other symptoms of developmental disturbances and abnormalities, and even additionally by the symptoms of related disorders, not only in one of the spheres of mental development but even in all spheres. Both primary and secondary symptoms may imitate one another, overlap, cause one another, and occur at the same time in different configurations and intensity, or they may change influenced by one or several different pathogenic factors. Structural connections between these symptoms largely depend on the kind of disorder or disease, the associated specificity of a child's development, as well as on environmental factors (Winczura, 2012a).

A preliminary analysis of data shows that almost one third of persons ever diagnosed with mental problems have suffered from two or even several disease entities in their life (according to WHO data of 2000). The co-occurrence of developmental disorders in children is almost a rule today rather than an exception. The child whose development is non-typical in one sphere only is an unusual case (Borkowska, 2011; Lipowska, 2011). The most frequent kinds of childhood disorders are autism, Asperger's syndrome, semantic-pragmatic disorders, disorders of auditory processing, hyperlexia, non-verbal learning difficulties, ADHD, anxiety disorders, obsessive-compulsive disorders, behavioral and emotional disorders, oppositional disorders, psychotic disorders, schizophrenia, depression, bipolar disorders and others. If any of the foregoing disorders is diagnosed in a child, there is also a risk that it is accompanied by other co-occurring disorders with a different degree of intensity and at a different period of an individual's life (Kutscher et al., 2007).

The co-occurrence at the same time of several disorders, diseases, intensifies problems caused by each of them individually. It decidedly makes the functioning of a child difficult and impacts on all his/her psychosocial development. It not so much burdens and delays a child's development over time as it distorts the course of his/her development (Czapiga, 2009). It makes it highly non-harmonious and diagnostically difficult to determine. Establishing which of the deficits in

a child's development should be recognized as basic (primary) and which ones as additional, comorbid (secondary), is mainly significant for differential diagnosis, especially for the determination of the proportion of dual diagnosis and for an early intervention and planned therapy (Angold et al., 1999). There is no denying that the issue of multiple developmental disorders in children or the question of children with many disorders co-occurring in their development at the same time or successively is of high clinical significance. Paradoxically, co-occurring disorders are one of the most important aspects of diagnosis. The basic (main) diagnosis of a child does not present a complete picture of his/her development and functioning. Furthermore, it is only a comprehensive diagnosis that determines the choice of appropriate medicinal-therapeutic measures and activities.

### DIFFERENTIATION OF AUTISM FROM OTHER DEVELOPMENTAL DISORDERS. DIAGNOSTIC DILEMMAS

Diagnosis of mental disorders, including autism, which takes developmental differences into account, has a comparatively short history. As late as 1980 (DSM-III), all serious mental disorders in children and adolescents were treated as schizophrenia, and autistic disorders as very early manifestations of schizophrenia. Child and adolescent psychiatry is still coping with the problem of diagnosing mental disorders in young people in the period of intense physical and emotional development, i.e. in the context of special developmental dynamics. With the present very broad descriptive definition of mental disorders, it is clear that when highlighting them, we are speaking of a large group of disorders with different etiologies, pathomechanisms, and clinical pictures (Bronowska, 2005).

In particular, the issues of early childhood disorders still comprise many hypotheses and interpretation difficulties. Disorder symptoms typical of autism in very young children are so little developed, having little intensity, that clinical diagnostics, especially differential diagnosis, poses many difficulties to diagnosticians (Czapiga, 2009; Pisula, 2010). Autism spectrum disorders (ASD)<sup>1</sup> are defined and diagnosed mainly based on external symptoms. Knowledge about a child's disorder is gained through observation of his/her behavior. Although many children with ASD have similar features characteristic of this disorder, they

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<sup>1</sup> The recent classification of mental diseases and disorders of the American Psychiatric Association DSM-V (APA, 2013) introduced a number of changes concerning the terminology and diagnostic criteria for autism. The classification established the official term *Autism Spectrum Disorders (ASD)* and included ASD in the group of neurodevelopmental disorders. Autism spectrum disorders comprise disorders classified earlier in the category of pervasive developmental disorders as: *Autistic Disorder*, *Asperger's Syndrome*, and *Pervasive Developmental Disorders – Not Otherwise Specified* (DSM-5, 2013).

are, as a result, characterized by great divergence of revealed abilities and dynamics of changes. Development changes influence the expression of symptoms (Pisula, 2010). The categorization and nosological diagnosis of a child as autistic is quite complicated, especially because of differences in specific symptoms, which may differ by their intensity and degree in individual children (Cotugno, 2011). Both core symptoms and secondary ones can be manifested in different ways and occur in various combinations (Piszczek, 2010). A significant impediment is also the varied time of occurrence of first symptoms (from birth to 36 months of life), their number and intensity in time, the circumstances in which they appear most often (including environmental factors), as well as a child's general psychophysical development, often determined by comorbid disorders (comorbidity) and mental disability (Błęszyński, 2011). Despite the neurobiological background of autism spectrum disorders, biological markers have not yet been determined which could be used in everyday clinical diagnosis. Diagnosing is carried out based on the clinical picture characteristic of ASD, on the structured history in order to confirm or exclude potential coexistent diseases, and on biochemical and genetic testing and imaging, although none of these examinations can individually determine the final diagnosis of an autism spectrum disorder (Rynkiewicz, Kulig, 2013).

Despite certain possibilities offered to clinicians by the contemporary manuals of diagnostic criteria (ICD-10, 1992; DSM-IV-TR, 2000; DSM-V, 2013), it is still difficult to make an unequivocal and reliable clinical diagnosis of autism (Kutscher et al., 2007). Numerous studies are made meant to explain doubts concerning the possibilities of accurately diagnosing the risk of autism spectrum disorders in the early stage of a child's development. Regardless of the fact that ASD symptoms emerge during the first two years of a child's age, the evidence concerning the time of occurrence of initial symptoms and their character still remains limited. Studies based on parental observations show that some children may manifest atypical behaviors and developmental disorders as early as during the first months after birth, while others – sometimes in the second or third year of life, after the period of the typical course of early development. On average, parents begin to notice developmental problems when a child is about 19 months old, some of them see various abnormalities before a child is one year old, and a vast majority as late as at the age of 2 years (Skórczyńska, 2009). Although parents have a vast knowledge about the functioning of their child, the profile of characteristics that they present is not always accurate and objective. Doubts then arise whether a given diagnostic criterion has been satisfied or not. The more so that at the initial stage of the diagnostic process the picture of disorders of a child's functioning is very similar in different clinical entities, sometimes even much the same, which additionally makes initial diagnosis difficult, and may even

cause diagnostic errors (Kruk-Lasocka, 1999; Markiewicz, Ciećkiewicz, 2000). This is particularly the case with co-occurring disorders, when the symptoms of one disorder overlap with those of another (Kendall, 2004). They may occur in the development at the same time or successively in varying combinations and intensity or may change with age (Kutscher et al., 2007; Winczura, 2012a). Symptoms characteristic of autism (ASD) may also occur in cases of other disorders. The most frequent disorders that present diagnostic problems for differentiation from autism include:

- other disorders within the category of pervasive developmental disorders, especially Asperger’s syndrome and atypical autism,
- retardation of development/mental disability,
- anxiety disorder,
- attention deficit hyperactivity disorder (ADHD),
- speech and language development disorders,
- hyperlexia,
- non-verbal learning disorders,
- selective mutism,
- obsessive-compulsive disorders,
- schizophrenia
- personality disintegration,
- behavioral disorders,
- emotional deprivation,
- deafness,
- orphan disorder (anaclitic depression) and others (Pisula, 2005, 2010).

Behaviors that should be regarded as meeting the criteria of mental disorders other than autism are often attributed to autism. For example, hyperlectic children and children with Nonverbal Learning Disorders (NLD) are often diagnosed as suffering from autism, Asperger’s syndrome, behavioral disorders, ADHD, attention deficit disorders, phobias, emotional disorders, etc. (Piszczek, 2010). This is especially associated with the occurrence of symptoms resulting from autism itself, without necessarily proving the co-occurrence of other mental disorders. Difficulties with language use, communication and emotional-social functioning are elements of many disorders. This does not mean, however, that differences between such disorders are negligible. There are persons who have two or three related diagnoses in different periods of their lives. First, they are diagnosed with a different, easy-to-identify disorder, which is recognized as the cause of all symptoms typical of autism (Attwood, 2006). It is highly probable that in several different disorders the partly overlapping brain areas become injured, which in turn causes shared clinical disorders (Frith, 2008). For example, a factor that makes it difficult to make a diagnosis of Asperger’s syndrome is the fact that in 35% of

patients with Asperger's syndrome other criteria of mental disorders were also met. The identified disease entities were probably a risk factor causing behavioral disorders and a profile of abilities typical of Asperger's syndrome (Attwood, 2006; Piszczek, 2010).

Diagnostic doubts also concern children who are in the so-called 'intermediate', 'borderline' sphere. Dilemmas then arise about whether their disorder profile actually satisfies the main core diagnostic criteria for autism. These are children who have only slight traits of autism, subtle symptoms. They are often referred to as 'those with autistic traits', 'autistic tendencies', 'with partial autism', 'developmental delay resembling autism', 'with autistic behaviors' and others (Attwood, 2006; Skórczyńska, 2009). The most frequent reason for making such a diagnosis by specialists is the situation when a child's evident disability can be observed in one of the spheres of functioning typical of autism. However, this is not an entirely justifiable procedure because there are no children in whom a given disability will be clearly the same in all core spheres of disorders characteristic of autism. Moreover, the tools for clinical diagnosis that we have do not allow us to compare the degree of intensity of key symptoms. The underestimation of these facts often leads to diminishing the significance of diagnosis and to suggestions that a disorder occurring in a given child is somehow incomplete, partial, lacking characteristic symptoms. Many children with co-occurring disorders are diagnosed in this way. To define them as children 'with autistic tendencies' is certainly not accurate and does not render the complicated nature of their developmental problems. Scholars repeatedly say that autism should be investigated as a continuum, a certain continuous dimension, which enables diagnosing autism in children with a different intensity of symptoms of autistic disorders (Randall, Parker, 2010). Both in those who have a severe form of the disorder and different diseases and co-occurring abnormalities, and in those who present a milder form of the disorder that disturbs their development and functioning to a lesser extent (Szatmari, 2007).

When making a differential diagnosis of a child, specialists often ask themselves about the existence of a cause-and-effect relationship between autism and other disorders. They are interested in how one disorder causes or creates conditions for another disorder to develop. What also remains a mystery is the moment of when this combined pathomechanism arises at each stage of a child's development (Czapiga, 2009). It is also interesting that some symptoms may change influenced by specific factors. Some of them disappear but new ones may also emerge. Their intensity in time may also be variable. In addition, the core symptoms begin to be accompanied by additional (secondary) symptoms resulting from disturbances of the normal course of development. Under these circumstances not all symptoms occurring in a child are of the same diagnostic value when establishing a diagnosis. The diagnostic importance of each symptom depends on its structural



connections with other symptoms, on the kind of disorder as well as on a child's age and the related specificity of development. Of significance are also additional environmental factors a child grows in, and the accompanying experiences, as well as the educational-therapeutic measures taken (Piszczek, 2010).

The diagnostic process must therefore answer the question whether the disorders observable in a child are actually psychopathological symptoms or only special developmental features, and if so, then what the nature of these symptoms is and whether they are core characteristics of autism. In order that a diagnostician could settle these diagnostic doubts, it is necessary for him/her to take a thorough developmental and family history, to analyze developmental processes at the individual level, as well as to examine the conditions of a child's health, particularly from the neurological, biochemical and genetic angles. Of crucial importance are also the study of a child's physical development and the observation of him/her from the angle of functioning in different developmental spheres as compared with the family background and peer group. The assessment of the character of the symptoms observed requires an additional analysis of the circumstances of their emergence, intensification, stability of persistence, and the degree to which they disturb a child's functioning (Bronowska, 2005).

## AUTISM AND CO-OCCURRING DISORDERS

The co-occurrence of autism with other disorders is a complex problem, difficult to assess, and still not very well studied (Volkmar and Klin, 2005; Czapiga, 2009). Although knowledge on the subject has expanded, there are still no unequivocal data concerning epidemiology, symptomatology, and factors conducive to their occurrence (Bobińska, Galecki, 2010, 17). On the one hand, like in the case of the other developmental disorders, there is an observable tendency for disregarding other disorders in the diagnostic process. Co-occurring disorders are often overlooked because a greater significance is attributed to basic developmental problems (Dykens, 2000). On the other hand, it seems obvious that disorders like autism are often accompanied by various additional symptoms that do not necessarily have to reach the level that qualifies for the diagnosis of a disorder. For example, in autism and in Asperger's syndrome, problems with focusing attention are frequently observed, however, it is not known whether these difficulties are sufficient to additionally diagnose a hyperkinetic disorder with attention deficit (ADHD) (Saulnier, Volkmar, 2010). Questions also arise regarding the accuracy of diagnostic recognition and the reliability of the applied tools for assessing disorders comorbid with autism. Nowadays, the majority of scholars appear to adopt the model of the coexistence of many mental disorders with certain elements of the clinical picture in common, underlying which (disorders) there may be differ-

ent etiopathogenetic processes. In the case of autism, many factors (genetic, neuroanatomical, neurofunctional, behavioral) are identified which are conducive to the development of autistic disorders. The array of these etiological factors, their kinds, proportions and mutual interactions are so different that, consequently, we are dealing with a multitude and diversity of clinical manifestations of autism spectrum disorders (ASD) (Bronowska, 2005; Gruna-Ożarowska, 2009).

What proved helpful in seeking the etiology of autism was the division of autism into idiomatic and secondary. The term 'idiomatic' refers to those patients who satisfy the criteria for autism, but in whom other related nosological entities do not occur. These persons are characterized by a diversity of behaviors and they usually do not have dysmorphic features unlike individuals with secondary autistic symptoms. The term 'secondary' applies to the persons who are diagnosed with other co-existing diseases. These include among others:

- Fragile X Syndrome,
- tuberous sclerosis,
- Fetal Alcohol Syndrome (FAS),
- Angelman Syndrome,
- Rett's Syndrome; Rett's Disorder,
- Smith-Lemli-Oiotz Syndrome.

The results of studies show that 6–7% of children with Down's syndrome and almost 50% children with CHARGE syndrome (related to the mutation of CHD7 gene) manifest autism spectrum disorders (Johnson, Myers, cited after: Skórczyńska, 2009). Other medical reports in turn specify that in about 37% of cases autism involves such specific clinical syndromes as:

- anomalies of sex chromosomes (e.g. XYY syndrome),
- partial tetrasomy of chromosome 15,
- phenylketonuria,
- lactic acidosis,
- neurofibromatosis,
- purine metabolism disorders,
- rubella embryopathy,
- Herpes Simplex Encephalitis,
- Congenital cytomegalovirus infection,
- Duchenne muscular dystrophy
- hydrocephalus,
- Moebius syndrome,
- infantile cerebral palsy,
- Cornelia de Lange syndrome (Bryńska, 2009; Chrościńska-Krawczyk, 2017).
- Prader-Willi syndrome,
- Landau-Kleffner syndrome (so-called acquired epileptic aphasia),

- Williams syndrome,
- West syndrome,
- Dravet syndrome (myoclonus epilepsy),
- Lennox-Gastaut syndrome (L-GS) (Błeszyński, 2010; Wendorff, 2010).

According to the latest data, 70% of persons with autism spectrum disorders may have one comorbid disorder, and 40% of this population – two or more additional disorders (DSM – 5, 2013). In the studies conducted by M. L. Mattila et al. (2010), 75% of adults with ASD were diagnosed with additional mental disorders (from one to several co-occurrent ones), which significantly decrease the level of functioning. The most frequent were conduct disorders (44%), anxiety disorders (42%) and tics (26%). In contrast, oppositional-defiant disorders, severe depression, nutrition and sleep disorders occur less frequently. Many clinical observations and studies show that autism can be simultaneously accompanied by such disorders as attention deficit hyperactivity disorder (ADHD), compulsive-obsessive and anxiety disorders, sensory integration (SI) disorders, central auditory processing disorders (CAPD), hyperlexia, nonverbal learning disabilities (NLD) (Kutscher et al., 2007), post-traumatic stress disorder (PTSD), motor coordination disorders, language disorders, specific learning difficulties (dyslexia) (Frith, 2008), semantic-pragmatic language disorders (SPLD) (Markiewicz, 2012), behavioral disorders, tic disorders, aggressive behaviors (Bryńska, 2009; Jagielska, 2009; Śpila, 2017), as well as the developing psychotic disorders, which can account for the similarity between symptoms observed in the clinical picture of different disorders. A significant difficulty is also posed by the fact that in many autistic children there are comorbid problems related to hearing and eyesight disorders (deafness and blindness in extreme cases) or motor development disorders (Pisula, 2005).

The study, which covered 14,381 patients with ASD, aged below 35 years, found that persons with autism more often suffer from diseases like epilepsy, muscular dystrophy, schizophrenia, sleeping disorders, inflammatory bowel diseases (IBD) and food allergies, type I diabetes (DMI) and autoimmune diseases. As compared with children, however, the frequency of sleeping disorders declines in adult life (Kohane et al., cited after: Śpila, 2017). As far as mental-disease-type disorders are concerned, the study of the population of 333,565 American children with ASD found that the most frequent disorders occurring in this population were self-mutilation, autoaggression, ADHD, anxiety disorders, bipolar disorders, depression, obsessive-compulsive disorders and sleeping disorders (Spencer et al., 2013).

If we adopt the approach to autism as a spectrum of disorders (ASD), then in the case of Asperger's syndrome as many as 80% of other comorbid diseases are diagnosed: ADHD, non-verbal learning disabilities, anxiety disorders, depressions and suicidal thoughts (Kim et al. 2000), behavior disorders, obsessive-com-

pulsive disorders, manic-depressive psychosis and schizophrenia. There is also an increased risk of occurrence of bipolar affective disorder (Duggal, 2003) although in the case of psychotic disorders, disease episodes are usually short-lasting and often related to some stressful event (Attwood, 2006; Piszczek, 2010). Frequent problems that accompany this group of persons can be tic disorders, aggressive behaviors, addictions, death fixation, bizarre offences connected with special interests, suicidal thoughts and attempts (Bryńska, 2009). The highest suicide risk affects mute autistic persons with learning disorders. The risk appears to be greater in the case of persons with normal IQ scores. Characteristic symptoms of Asperger's syndrome were also diagnosed in cerebral palsy, tuberous sclerosis, neurofibromatosis, and in Tourette syndrome (Pisula, 2010; Bobińska et al., 2010).

Despite the fact that autism was linked to schizophrenia from the very beginning, there is no evidence to support the frequent co-occurrence of schizophrenia and autism. Its incidence does not differ from the general population (Bobińska et al., 2010; Saulnier, Volkmar, 2010). Nevertheless, it follows from U. Frith's observations (2008) that some adults with autism resemble a certain type of schizophrenic patients, especially at the level of observable behaviors. Furthermore, the behaviors of adults with negative schizophrenic symptoms may resemble autism-related behavior. Such similarities are, however, absent in schizophrenia with positive symptoms. In rare cases, positive symptoms may occur in autism. For example, paranoid delusions have been reported. In the studies by M. M. Konstantareas and T. Hewitt (2001), which analyzed the behaviors of male patients diagnosed with autism and schizophrenia, it was observed that although many subjects in both groups spoke very little or not at all, did not use facial expressions or show interest in social contact and communication, none of the patients diagnosed with paranoid schizophrenia met the criteria for autism whereas half of the autistic subjects met the criteria for a negative form of schizophrenia (Czapiga, 2009; Winczura, 2012b). Diagnosing schizophrenia in patients with autism spectrum disorders is possible only in those with a mild and moderate degree of disability. In turn, it is even impossible to diagnose schizophrenia in people with a severe and profound degree of disability, who have serious disorders in verbal communication. In such cases, attempts are made to diagnose only psychotic disorders (Komender, 2002).

Clinical observations highlight its (schizophrenia's) more frequent occurrence in autism with anxiety, obsessive-compulsive, and adaptive disorders. Many persons with autism spectrum disorders are more susceptible to the occurrence of anxiety disorders (Saulnier, Volkmar, 2010; Kim et al., 2000). Approximately half of the functioning young people with autism clinically experience significant anxiety symptoms such as separation anxiety (9-38%), specific phobias (26-57%), social phobia (13-40%), panic attacks, (2-25%), and generalized anxiety disorder

(15–35%) (Semrud – Clikeman et al., cited after: Špila, 2017). Anxiety disorders in the form of phobias, panic, and post-stress disorders are diagnosed only in patients with autism, who are able to speak about their feelings accompanying anxiety episodes. A significant role in the occurrence of these disorders is played by stresses associated with psychosocial factors, which lead, as a result, to low self-assessment, fear of losing a close friend/relative, and to anticipation of life failures. The most frequent manifestation of fear in patients with autism can be irritability, anxiety, impulse control disorders, mood disorders, and stereotypies. Echolalia, routine phrases, obsessive questions, obsessive thinking and compulsions also appear. The presence of obsessive thinking may be difficult to detect in people with autism with communication disorders, often combined with social immaturity. The case is similar with compulsions, which are sometimes impossible to distinguish from stereotyped activities through diagnosis. Many autistic patients respond with anger or aggression when being prevented from performing a compulsive activity or stereotyped behaviors (Bobińska, Gałeczki, 2010; Bobińska et al., 2010). In the case of children and young people with autism spectrum disorders, anxiety is often a catalyst for defiant behaviors (Kutscher et al., 2007). In classical autism, problems with attention and speaking disability are observed. In people with Asperger's syndrome, attention and behavior disorders often appear with such intensity that there are grounds for making an additional diagnosing of ADHD (Saulnier, Volkmar, 2010).

Scholars point out that a disorder that often co-occurs with autism is depression (Saulnier, Volkmar, 2010). An increased risk of bipolar affective disorders also appears (Duggal, 2003). People with autism are termed 'a high-risk group' as regards the co-occurrence of emotional disorders (Rola, 1996). J. A. Kim et al. (2000) studied the prevalence and correlations of anxiety and depression symptoms in children and adolescents with pervasive developmental disorders. Compared with a large population group, both anxiety and depression were reported more often in children with autism and Asperger's syndrome. Most studies show that people with autism present basic symptoms of depression regardless of the level of intellectual functioning. Mood disorders are often accompanied by sadness, apathy, social withdrawal, weepiness, destructive behavior, rage seizures, irritability, sleep disorders, loss of appetite, (and consequently weight loss, sleepiness), psychomotor inhibition or hyperactivity, self-mutilation, stereotypies, hysterical symptoms, loss of interests, reduction of previous activity, and presence of somatic symptoms (head or stomach ache) (Day, Dosen, Gielen, cited after: Bobińska, Gałeczki, 2010). The observed depressiveness in the population of people with autism spectrum disorders may result from a more numerous group of pathogenic factors (both biological and psychosocial), to which this portion of population is exposed. Disorders more often comorbid with autism are those in

which a biological factor plays an etiological role, these being: impulsiveness, ADHD, behavior disorders, problems with sensory integration. These disorders may in turn underlie interpersonal and intrapsychic conflicts, which, combined with the inability to cope in difficult situations, may cause behavioral decompensation (Bobińska, Gałecki, 2010).

A serious difficulty in diagnosing the presence of depression in people with autism is the occurrence of their cognitive, linguistic, sensory, and motor deficiencies, which in turn affects the communicative aspect of mental disorders. Dysfunctions in language development cause limitations in the verbal expression of experienced conditions. Vegetative and psychosomatic reactions in the course of depression are a way of releasing strong emotional tensions. In addition, they are accompanied by the use of primitive defense mechanisms. Limited adaptation possibilities, failure to satisfy specific needs, and the lack of or minimal social contacts usually result in the feeling of hopelessness, which may consequently cause feelings of frustration, apathy, states of dejection and hopelessness (Rola, 2007). Frustration may in turn transform negative emotions into behavior disorders. This most often happens in adolescence. Characteristic symptoms of behavior disorders in this group of persons include: outbreaks of anger, aggression, self-mutilations, stereotypies, and abnormal sexual behavior. For some people, these behaviors are a means to achieving the desired end, attracting attention, obtaining the desired thing, or eluding the imposed requirements (Sloman et al., cited after: Bobińska et al., 2010).

Autism and mental disability are phenomena that often co-occur, overlap and often cause difficulties in fully distinguishing the psychopathologies of both conditions (Błeszyński, 2011). By analyzing the neurobiological causes underlying the development of autism and mental disability, their common paths of pathogenesis can be outlined. In most cases, the changes observed concern both the persons with autism and those mentally disabled. Considering the clinical picture of autism and mental disability, their cognitive, linguistic, social and behavioral spectrum, it can be observed how these disorders inextricably interpenetrate (Bobińska et al., 2010). A large amount of data has been collected on the frequency of co-occurrence of these phenomena. Intellectual disability occurs in ca. 75% of people with autism spectrum disorders. A mild and moderate degree of intellectual disability is diagnosed in 24% of adults with this disorder, while severe and profound degree in 47%. In the studies conducted by the S. Baron-Cohen team on a group of 18-months-old children categorized into the group at risk of autism on the basis of many criteria, mental retardation was reported in ca. 68% of children. Distinguishing between autism and mental disability is a special problem in children with the lowest degree of intellectual disability; in some, the symptoms of autism are sometimes ignored, and explained as resulting from deficits in men-

tal development. It is the most difficult to distinguish these disorders in children whose mental age is no more than 2 years: it even appears impossible to formulate a differential diagnosis at this age (after: Pisula, 2005; 2010). Intellectual disability is the most frequent cause of learning difficulties in autism, while both autism and mental disability are disorders predisposing to the frequent occurrence of other mental disorders (Saulnier, Volkmar, 2010).

Various medical problems may also co-occur with autism. Their kind and intensity is different in individual people with autism spectrum disorders. In almost 40% of persons there are conditions classified as those treated by neurologists. At present, about 16 neurological entities and syndromes are reported whose connection with autism has been confirmed in many studies (Chrościńska-Krawczyk, 2017). The number of these pathological syndromes, particularly structural and genetic anomalies, has substantially increased in recent years (studies by J. Aicardi). The most frequent neurological disorder in autistic persons is epilepsy. Research results show that this problem affects 25–40% of persons with autism before they turn 30 years old. Less than half of the results indicate the occurrence of epilepsies in early childhood. In the other group of people epilepsy begins with a seizure in adolescence. Many neurological studies showed that partial, complex and generalized epileptic seizures occurred equally frequently (Wendorff, 2010). It was also found that almost one third of children with autism had suffered from temporal lobe epilepsy at one time (Ramachandran, Oberman, 2006). In about 20% of children with autism, convulsions occur before they turn three years old. In those children seizures are usually strong, frequent, and difficult to control with pharmacological agents. Moreover, abnormal EEGs are found more often in children with autism with a low intelligence quotient, which may prove that epilepsy occurs more frequently in profoundly, intellectually disabled autistic people (Pisula, 2000). In most autistic persons, discrete, so-called ‘soft’ neurological symptoms are observed at different ages, i.e. various deviations in the neurological examination, but without forming any characteristic neurological syndrome, e.g. assuming the form of weak motor coordination or balance disorders (Bryńska, 2009). In the epidemiological studies conducted in Gothenburg, the subjects with symptoms of cerebral dysfunctions constituted 46% in the group of children with autism; the subjects with other medical disorders in addition to autism accounted for a further 34% (Pisula, 2000). A frequent health problem in people with autism is disorders of the function of the alimentary tract such as intestinal inflammation, food intolerance and allergy, celiac disease and disordered digestion, as well as kidney and liver dysfunctions, dysfunctions of the immune system, metabolic disorders, and chronic bacterial infections. From the biomedical standpoint, the organism of children with autism spectrum disorders does not function normally. There are problems with cleansing from toxins, both those of external origin and

those caused by environmental exposure (Dawidiuk, 2009; Shattock et al., 2009; Špila, 2017). These conditions and autism spectrum disorders may co-occur as elements of combined disorders and this is often the case (Kutscher et al., 2007).

Many studies have shown that in people with ASD there is a specific model of evolution and a tendency for not only one but even several accompanying disorders to develop. The knowledge about this model (patterns) of the development of children with ASD is important in the process of determining a developmental profile, interpreting this profile, predicting the child's development at the subsequent stages of his/her life, and preparing the educational/therapeutic program. Therefore, the process of diagnosing the child with ASD with co-occurring disorders requires a multi-stage procedure, particularly in order to broaden the period of observation and examination of the child to describe the model of his/her development: the pattern, pace and direction of changes, taking into account the manner in which the child learns and acquires experience in the therapeutic process (Czapiga, 2009, 158).

## CONCLUSION

The issues of the relationship between autism spectrum disorders and other related disorders are extremely complex and entail many diagnostic dilemmas, both on account of the uncertain results of research assessing the prevalence of co-occurring disorders and because of unusual heterogeneity observable within the autism spectrum (Saulnier, Volkmar, 2010). The symptoms of co-occurring disorders manifested by people with ASD may assume a somewhat different form than is the case with normally developed persons. It should also be emphasized that the majority of data regarding the comorbidity of mental disorders in adolescents with autism spectrum disorders are based only on case reports about persons with Asperger's syndrome, probably for both historical and practical reasons (Kent et al., 1999). The earlier interest in this syndrome primarily stemmed from treating it as a presumably 'transitional' period between autism and schizophrenia, and, furthermore, the verbal capabilities of people with Asperger's syndrome facilitate the application of typical diagnostic methods and criteria (Saulnier, Volkmar, 2010, 237). It can be observed on the basis of clinical studies that the higher the intellectual ability of persons with autism spectrum, the more the psychopathological picture of comorbid disorders resembles the one found in the general population. With a decrease in intellectual abilities, atypical symptoms (shouting, aggression, self-mutilations) can be observed which additionally hinder diagnostic procedures towards determining the scale of comorbid disorders (Dosen, Menolascino, after: Bobińska et al., 2010). The greatest difficulty is the manifestations of disorders in autistic people who cannot speak, those with great communication



difficulties, and severely or profoundly intellectually disabled. The clinical picture in such cases may be unclear, unspecific and may differ from a disease or disorder in persons with highly functioning autism or in persons with Asperger's syndrome (Śpila, 2017).

On account of a wide range of factors that determine the difficulties in examining persons with autism in a standard way, it seems essential to seek to establish uniform diagnostic criteria for the identification of disorders in people with ASD, with different levels of intellectual functioning. This will enable more accurate and precise differential diagnoses, to thereby determine taking all medical–therapeutic measures for these patients. However, this task remains a highly clinically complex undertaking, and continues to raise many theoretical questions and methodological problems.

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