

Mothers' personality traits and psychological and social functioning of children with autism spectrum disorder

Cechy osobowości matek a funkcjonowanie psychologiczne i społeczne dzieci z zaburzeniami ze spektrum autyzmu

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Introduction

Proper and comprehensive development of the child and its functioning are influenced by: the parents' personality traits, parenting styles, child rearing methods, the degree of meeting the child's needs, communication in the family, family relationships, the amount of time devoted to the child, parents' views and beliefs (Cegiełkowska-Bednarczyk and Turowski 2003; Greenberg et al. 2006; Pisula 2008). Among other things, parents' personality traits determine whether they will use effective or ineffective parenting strategies and what parental attitudes they will adopt (Latzman et al. 2009). Many authors (Belsky and Barends 2002; Puff and Renk 2016, Kochanska 1995, 1997) emphasize that parents' personality traits are an important predictor of children's functioning. Parents can support the child in the process of individualization and socialization or limit its developmental opportunities, which may result in both the emergence of disorders in its psychosocial functioning and the increase in already existing problems (Olson et al. 2017; Serbin et al. 2015; Verhoeven et al. 2012; Woźniak-Prus and Matusiak 2018; Greenberg et al. 2006).

Jan Strelau (1985) defines personality as an integrated, dynamic and complex system whose function is to regulate human activities. Robert Sternberg (1999) indicates that personality consists of relatively constant traits, dispositions or properties of an individual which give relative coherence to his/her behavior. These relatively constant and unchanging traits influence behavior and emotional response. Paul Costa and Robert McCrae (1992) described the Five-Factor Model of Personality (the so-called

Big Five), distinguishing five personality traits: neuroticism, extraversion, conscientiousness, agreeableness and openness to experience (Hall and Lindzey 2001). According to Lawrence A. Pervin (2002), personality is defined as a complex whole of thoughts, emotions and behaviors that gives direction and pattern to a person's life. Personality is made up of structures and processes and it reflects the working of genes and the environment. The concept of personality encompasses temporal aspect of human functioning, as it includes memories of the past, cognitive representations of the present, and ideas and expectations about the future (Pervin 2002). Personality traits, mainly patterns of emotional reaction, self-esteem determine to a large extent the learning of necessary skills, affect the perception of opportunities available to achieve life goals, tasks, needs, as well as belief in one's own abilities, attitudes towards obstacles and coping with stress, new or crisis situations (Czabała 1997).

The birth of a child with pervasive developmental disorder is a critical moment in the family's life (Buchholz 2022). Autism spectrum disorder (ASD) is characterized by abnormalities in communication and social interaction, limited, repetitive patterns of behavior, interests and activities. Parents of children with ASD are exposed to stress, a sense of burnout, and they often show symptoms of anxiety, depression, shame, guilt, and anger. Their reaction to the diagnosis of ASD in the child and the difficulties the child presents in terms of psychosocial functioning, the quality of the relationship with the child, and parenting attitudes adopted towards the child are influenced by the parents' personality traits (Buchholz 2022).

Yael Hirschler-Guttenberg et al. (2015) and David Evans and Mary K. Rothbart (2009) emphasize that parental factors may play a pivotal role in shaping emotional responses in children with ASD. Mother's personality traits and parenting style are predictors of regulatory behavior in children, especially in relation to the regulation of anger and fear. Mother's negative emotionality is related to children's behavioral problems (Cumberland-Li et al. 2003). A higher level of emotional control in the mother is associated with better emotional control and more adapted behavior in the child (Cumberland-Li et al. 2003). Jayme Puff and Kimberly Renk (2016) indicate the relationship between difficulties with mothers' mood control and their inconsistent parental attitudes and difficulties with emotional regulation in children. Depressed mother's mood is associated with the child's emotional withdrawal and the use of less effective regulatory behaviors.

The significance of emotional expression in mothers of children with ASD and its implications for the child's development were of interest to Gemma M. Griffith et al. (2015). The authors showed that mothers were much more criti-

cal and less affectionate towards a child with ASD, compared to its siblings. At the same time, they did not observe significant differences in terms of excessive emotional involvement of the mother towards the child with ASD, compared to the siblings. Anna H. Rutgers et al. (2007) and Hirschler-Guttenberg et al. (2015) found that parents of children with ASD are less likely to encourage their child to be independent and to express their emotions openly than parents of children with other developmental disorders.

Amanda Cumberland-Li et al. (2003) and Grazyna Kochanska (1997) point out that the mothers' ability to control her emotions is related to the abilities of regulation and self-control in the child. This means that mother's emotional lability is associated with higher rates of abnormal emotions regulation and behavioral problems in situations that cause anger or frustration in their children. Kochanska (1997) emphasize that mothers with a high level of negative emotionality were less involved in interactions with children, less sensitive to them. Empathetic care, sensitivity to the child's needs and messages facilitate adaptation, control of negative emotions, positive perception of the child, cooperation in mother-child relationship. Parents can reduce difficulties in social communication, help shape self-regulation in children with ASD, and strengthen the child in regulating its behavior in frustrating situations (Kochanska 1997; Rutgers et al. 2007; Hirschler-Guttenberg et al. 2015).

Research results (Buchholz 2022; Benson and Karlof 2009; Bishop et al. 2007; Leone et al. 2016) on the characteristics of parents raising children with autism indicate a relationship between their mental resilience in the face of adversity, confrontation with trauma, tragedy, threat, stress and adaptability, positive adaptation, ability to deal with problems constructively (Kapp and Brown 2011; Leone et al. 2016; Walsh 2006). It is the parents' personality traits that will decide whether they will focus on positive aspects of everyday life, developing greater sensitivity, patience, care, optimism, a sense of competence, whether they will accept the child (Bayat 2007; Levine 2009; Sekulowicz and Kaczmarek 2014), what stress coping strategies they will use (de Schipper et al. 2008; Kayfitz et al. 2010; Peer and Hillman 2014), whether they will use social support offered to them (Horton and Wallander 2001). Openness to accepting social support by parents raising a child with autism helps to reduce the level of experienced stress, anxiety, sadness (Bishop et al. 2007; Buchholz 2022; Bromley et al. 2004; Pottie et al. 2009; Benson and Karlof 2009; Ekas et al. 2010), minimizes the sense of social stigma due to the child's difficult behavior causing embarrassment, shame, social withdrawal (Cantwell et al. 2015; Werner and Shulman 2015).

In her research, Aleksandra A. Buchholz (2022) formulated the hypothesis that mothers whose personality trait is resilience will treat raising a child with autism as a challenge. Resilience, good adaptability will be conducive to the use of a task-oriented style of coping with stress, building confidence in oneself and one's abilities as well as emotional stability. Developing a sense of one's own competence, self-confidence, resilience allows of an optimistic look at the sense of one's actions and mobilizes to make effort, prevents resignation, making one resistant to failure. Openness to experience in parents of children with autism is associated with a high level of resilience and seeking support (Buchholz 2022). Less satisfaction with life can generate passive attitudes. Tomáš Hrdlička et al. (2016) point out that openness to experience and an optimistic attitude to life are associated with readiness to accept support. Emotional support is an important factor in increasing self-esteem and, together with high self-esteem, it is an important buffer reducing the level of social stigma experienced by families with a disabled child (Cantwell et al. 2015).

Marc H. Bornstein et al. (2011), referring to the Five-Factor Model of Personality, studied the relationship between openness to experience, neuroticism, extraversion, agreeableness and conscientiousness, and parenting methods used by parents. They showed that openness to experience was related to mothers' knowledge, competence, and involvement in the child rearing process. On the other hand, neuroticism is associated with a greater intensity of stress, experiencing various life difficulties, and it negatively affected the mothers' involvement in the process of raising a child. A higher level of neuroticism in the mother is associated with a lower level of warmth and sensitivity as well as a higher level of control and dominance shown in relations with the child. Showing a higher level of neuroticism, mothers felt less competent and less satisfied with parenting. Lee Anna Clark et al. (2000); Jay Belsky et al. (1995) point out that a high level of parental neuroticism is associated with a low level of competent parenting understood as assertive discipline, and low emotional reactivity. Conversely, high extraversion and high agreeableness are associated with more optimal childcare, warmth, and parents' sensitivity. It was also shown that parents with a high level of extraversion are characterized by a high level of openness to experience.

Robert Coplan et al. (2009) analyzed the relationship between the mother's personality, the ability to regulate emotions, and parenting attitudes. Both the mother's personality and the child's behavior and temperament have an impact on parenting style used by them. The mother's neuroticism was also associated with the child's emotional lability. Difficulties in social relations manifested by the child may exacerbate neurotic symptoms in the mother, her tendency

to overestimate threats and dangers in the child's environment. Difficulties in the child's interpersonal relationships may lead to increased overprotectiveness in mothers with a high level of neuroticism. Neurotic mothers may also exacerbate their children's difficulties in interpersonal relationships. Coplan et al. (2009) found that a high level of neuroticism, sensitivity to threat and overprotective parental attitude will not be conducive to the development of the child's adaptive abilities, and may intensify difficulties in relationships with peers. An important socialization role in the development of emotional self-regulation in children is played by parents' reactions to the emotions revealed by the child. Anxious and overprotective mothers with a high level of neuroticism may limit their children's opportunities to acquire strategies for coping with negative emotions, establishing social relationships. The authors found that mothers with a high level of agreeableness were less authoritarian.

Riitta-Leena Metsäpelto and Lea Pulkkinen (2003) looked for relationships between personality traits and mothers' and fathers' parental attitudes. They showed that openness to experience, low level of neuroticism and extraversion were significantly associated with parental care. Low openness to experience is associated with the use of more restrictive parenting methods, while low neuroticism is associated with greater parental knowledge about children. Parents who preferred different parenting attitudes differed in personality profiles. Authoritarian parents and emotionally involved parents, who were characterized by high concern for rearing and high to moderate parental knowledge, had a high level of extraversion and a high or moderate level of openness to experience. Authoritarian parents and emotionally detached parents, who showed low level of parenting concern, high to moderate level of rigidity, principled stance, and moderate to low level of parental knowledge, had a low level of openness to experience and extraversion.

Tomasz Gosztyła and Elżbieta Trubiłowicz (2017) described the correlation between personality traits, surveyed with the TIPI-PL Questionnaire, and parenting attitudes of mothers raising children diagnosed with autism. The authors found that mothers adopting the attitude of acceptance towards their children (the most favorable for the child's development) were characterized by a high level of extraversion and agreeableness. An inconsistent parenting attitude was associated with a high level of introversion, a low level of agreeableness and openness to new experience.

The authors point out to the personality traits of mothers of children with autism: extraversion, agreeableness, openness to experience as being a very favorable set of traits. In their opinion, developing the expression of emotions,

openness in interpersonal relations create opportunities to reduce tension, get necessary support and help in raising a child with developmental disorder. Agreeableness and openness to new experience facilitate the search for new solutions and adaptation to a difficult situation, coping with it in a task-oriented, constructive way (Gosztyła and Trubilowicz 2017). The research results presented above indicate the significant impact of parents' personality traits on parental attitudes adopted by them and on psychological and social functioning of their children.

Aim

The aim of the work was to analyze the relationship between personality traits included in the Five-Factor Model of Personality (the Big Five) in mothers and psychosocial functioning of their children with a medical diagnosis of disorder belonging to autism spectrum (acc. to DSM-IV). Moreover, an attempt was made to distinguish personality types of the surveyed women.

Hypotheses

Based on the literature on the subject, research hypotheses were formulated:

H1: There are significant correlations between the mother's personality traits: low level of extraversion (high introversion), agreeableness, conscientiousness, emotional stability (high neuroticism) and openness to experience, and increased difficulties in psychosocial functioning of a child diagnosed with autism spectrum disorder (ASD).

H2: Mothers raising children with ASD differ in personality types.

Material

The study involved 58 women raising children diagnosed with autism spectrum disorder. Children with the listed disorders belonging to autism spectrum (acc. to DSM-5) are 5 to 16 years old. The average age of the surveyed mothers was 38 years. 29 (50%) mothers live both in the countryside and in the city. Vocational education was obtained by 10 (17.24%) women, secondary by 15 (25.86%), and higher education by 33 (56.89%) women. There are 26 (44.83%) professionally active women, 2 (3.45%) on disability/retirement, 18 (31.03%) do

not work by choice, 1 (1.72%) woman has the status of an unemployed person. 10 (17.24%) mothers are single parents, and 48 (82.76%) mothers raise the child together with the child's father. Sensory integration classes were provided to their children with ASD by 43 mothers (74.14%), speech therapy classes by 20 (34.48%), psychological therapy by 43 (74.14%), classes with a pedagogue by 25 (43.10%), and physical rehabilitation by 4 (6.90%).

Methods

The following research methods were used in the work:

1. *Self-designed survey* allowed of the collection of data on: the age of the studied women and their children, the study subjects' level of education of, their place of residence, marital status, professional activity, and the children's medical diagnosis.
2. TIPI-PL – Polish adaptation of the Ten Item Personality Inventory (TIPI) test by Agnieszka Sorokowska et al. (2014). It is a short, 10-item method of measuring the Big Five traits (extraversion, conscientiousness, agreeableness, emotional stability, and openness to new experience) (McCrea and Costa 2008). Each of the five dimensions of personality represents two opposite poles. The subjects respond to the statements on a seven-point scale. The characteristics of individual personality traits are presented below:
 - extraversion versus introversion refers to social interactions. High extraversion indicates cordiality, sociability, activity, optimism, seeking stimuli and stimulation. Low extraversion (introversion) indicates reserve in social contacts with other people, preference for solitude, shyness (Zawadzki et al. 2007);
 - agreeableness refers to the tendency to have a positive versus negative attitude towards other people, sensitivity versus indifference to the affairs of others. High agreeableness refers to the willingness to help, sincerity, favor towards others, whereas low agreeableness usually means egocentrism, competitive attitude, and dryness in dealing with people (Zawadzki et al. 2007);
 - conscientiousness indicates a person's attitude to action, organization, motivation and perseverance. High conscientiousness means motivation to act, perseverance in pursuing and achieving the goals set for oneself. On the other hand, low conscientiousness means low motivation for achievement, lack of defined life goals and spontaneity in action (Zawadzki et al. 2007);

- emotional stability versus neuroticism refers to susceptibility to experiencing negative emotions, such as dissatisfaction, fear, guilt, anger. High emotional stability means emotional adaptation, ability to cope with stress without tension. Conversely, a high level of neuroticism means a lower ability to cope with stress, indicates a tendency to worry and reactions characterized by anxiety and tension (Zawadzki et al. 2007);
 - openness to experience refers to the tendency to search for and positively evaluate new life experiences, cognitive curiosity. High openness to experience is connected with curiosity, creativity and unconventionality. On the other hand, low openness to experience concerns conventionality, conservativeness, upholding traditional values (Zawadzki et al. 2007).
3. *The Set of Questionnaires for the Diagnosis of Autism Spectrum Disorders* (ASRS) by Sam Goldstein and Jack A. Naglieri allows of the identification of difficulties related to: communication skills, attention deficits, difficulties in contacts with peers and adults. The set of questionnaires includes separate versions for parents and teachers, and for two age groups: 2 to 5 years and 6 to 18 years. The full version of the questionnaire includes 71 items and allows to calculate the following scores: general score, DSM scores, ASRS scores and therapeutic scales. The test can be conducted individually or in groups. The parent chooses the answer from among 5 options: 0 – never, 1 – rarely, 2 – sometimes, 3 – often, 4 – very often, which best describes the child's difficulties. Goldstein and Naglieri (2016) distinguished the following ASRS scales:
- social relations/communication – incorrectly uses verbal and/or non-verbal communication to initiate contacts, engage in relationships, maintain social contacts;
 - atypical behavior – has difficulty tolerating changes in routine activities, engages in seemingly pointless, stereotypical behavior, reacts too strongly to specific sensory experiences;
 - self-regulation – has attention deficit, motor control and impulse control deficits, is quarrelsome and confrontational;
 - DSM scales – has symptoms directly corresponding to the DSM-IV-TR diagnostic criteria for ASD.

Therapeutic scales include:

- relationships with peers – has limited abilities and interests in terms of engaging in activities that favor establishing and maintaining relationships with peers;

- relationships with adults – has limited abilities and interests in terms of engaging in activities that are conducive to establishing and maintaining relationships with adults;
- social and emotional reciprocity – has a limited ability to adequately react emotionally in a relationship with another person and in a social situation;
- atypical language – communicates verbally in an unstructured, unconventional way;
- stereotypies – engages in pointless, repetitive behavior;
- behavioral rigidity – has difficulty tolerating changes in the order of the day and routine activities; environmental features must not change;
- sensory sensitivity – too strongly reacts to some tactile, auditory, visual, smell or taste sensations;
- attention/self-regulation – has difficulty focusing attention properly on one thing and ignoring distractors; seems lost and confused; may have deficits in motor and impulse control, is confrontational (Goldstein and Naglieri 2016).

In 2014, Polish standardization study was conducted. Standards were developed and the assessment of the reliability and accuracy of the questionnaires was developed. Internal consistency, defined by Cronbach's α coefficient, is very high; for the overall score of the version for parents it is 0.93. The scales distinguished on the basis of factor analysis have the highest reliability – coefficients for these scales range from 0.87 (social relations / communication) to 0.96 (atypical behavior). The coefficients for the DSM scale were also very high and ranged from 0.88 to 0.96 (Goldstein and Naglieri 2016). A version of the questionnaire for parents was used in the study.

4. *The Strengths and Difficulties Questionnaire* (SDQ) by Robert Goodman is a tool used to assess the intensity of symptoms of emotional, social and behavioral difficulties in children from 3 to 16 years of age. It consists of 25 statements describing various features of the studied person, 10 of which refer to strengths of the child, 14 describe his weaknesses, and 1 is a neutral statement. The SDQ questionnaire consists of 5 subscales (with 5 statements each): Hyperactivity/Inattention (HA), Emotional Symptoms (ES), Conduct Problems (CP), Peer Problems (PP), Prosocial Behavior Symptoms (PBS). The first 4 subscales are part of the Total Difficulties Score (TDS), which describes overall intensity of psychopathology symptoms. The answers are scored from 0 to 2 points for negative statements and from 2 to 0 points for positive statements. The overall score of the SDQ ranges from

0 to 40 points. A high number of points is associated with an increase in the difficulty of the tested child. The scores for the individual subscales and the overall score are categorized as: “normal”, “borderline”, „abnormal”. In Poland, the only available standards are for the self-report version of the SDQ questionnaire for adolescents (Mazur et al. 2007), and researchers most often refer to English standards of the SDQ (Becker et al. 2004, Rostkowska et al. 2013). In the study, a version of the questionnaire for parents was used.

Study procedure

The study was approved by the Bioethics Committee at the Medical University of Lublin, No. KE-0254/3/2020. The individuals who consented to the study were provided with a set of questionnaires. They were informed that they could consult a psychologist at any time in case of questions regarding the study. The female subjects completed the questionnaires individually at the Mental Health Centre, but also had the opportunity to complete them at their place of residence. Each of the subjects received material including instruction, a demographic survey and a set of the above questionnaires. The study was absolutely voluntary. The subjects had the opportunity to request psychological assistance if needed.

Statistical methods

The obtained scores were statistically analyzed using STATISTICA 10.0PL software. The consistency of the distribution of individual variables within the groups with the normal distribution was checked with the Kolmogorov-Smirnov tests, with the Lilliefors correction. Correlations between interval variables were determined by calculating Pearson's *r*-correlation coefficients. Non-hierarchical cluster analysis was used to isolate people with different personality traits. Cluster analysis leads to the grouping of objects based on their mathematically defined similarity. The technique which was applied is called the *k*-means method. It consists in creating clusters in such a way that the mean distance between all the cases in the emerging cluster is as small as possible, i.e. it is aimed at minimizing the variance within clusters and maximizing the variance between clusters (Statistica 1997, p. 3175). Differences between groups of women distinguished on the basis of cluster analysis in terms of criterion variables (scores on TIPI scales) and difficulties in psycho-

logical and social functioning observed in children with ASD (assessed on the basis of SDQ and ASRS scales) were determined using the Student's t-test for independent groups. Differences between the aforementioned groups of mothers, in which the count was below 30, were additionally calculated using the non-parametric U-Mann-Whitney test, obtaining the same scores as in the Student's t-test. Tables 2 and 3 show the scores of the Student's t-test. The value of 0.05 was considered statistically significant.

Results

In order to verify Hypothesis 1, Pearson's r-correlation coefficients were calculated between the scores on the scales of the TIPI Questionnaire and the scales of the Strengths and Difficulties Questionnaire (SDQ), and the Autism Spectrum Disorders Diagnosis Questionnaire (Table 1). It should be emphasized that psychological and social functioning and the severity of ASD symptoms in children were assessed by their mothers.

Table 1. Pearson's r-correlation coefficients calculated between scores in TIPI and SDQ and ASRS scales

Variables	TIPI				
	Extraversion	Agreeableness	Conscientiousness	Emotional stability	Openness to experience
SDQ					
Hyperactivity/inattention	-0.09	-0.24	-0.21	-0.27*	-0.21
Emotional symptoms	-0.07	-0.06	-0.01	-0.17	-0.11
Conduct problems	-0.18	-0.18	-0.19	-0.38**	-0.22
Peer relationships	-0.26*	-0.10	-0.08	-0.21	0.16
Prosocial behavior	0.31*	0.20	0.17	0.32*	0.16
Total score	-0.20	-0.20	-0.16	-0.35**	-0.14

ASRS					
Social/communication	-0.38**	-0.32**	-0.15	-0.29*	-0.07
Unusual behavior	-0.42***	-0.32*	-0.06	-0.19	-0.24
Self-regulation	-0.23	-0.31*	-0.21	-0.30*	-0.15
DSM	-0.45***	-0.37**	-0.14	-0.30*	-0.18
Peer socialization	-0.45***	-0.24	-0.07	-0.25	-0.06
Adult socialization	-0.22	-0.19	-0.11	-0.27*	-0.15
Social-emotional reciprocity	-0.32**	-0.33**	-0.18	-0.33**	-0.04
Atypical language	-0.42***	-0.22	-0.11	-0.21	-0.13
Stereotypy	-0.28*	-0.27*	0.03	-0.08	-0.25
Rigidity of behavior	-0.40**	-0.39**	-0.11	-0.15	-0.25
Sensory sensitivity	-0.29	-0.15	0.02	-0.14	-0.19
Attention	-0.22	-0.26	-0.20	-0.29*	-0.12

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Source: own study.

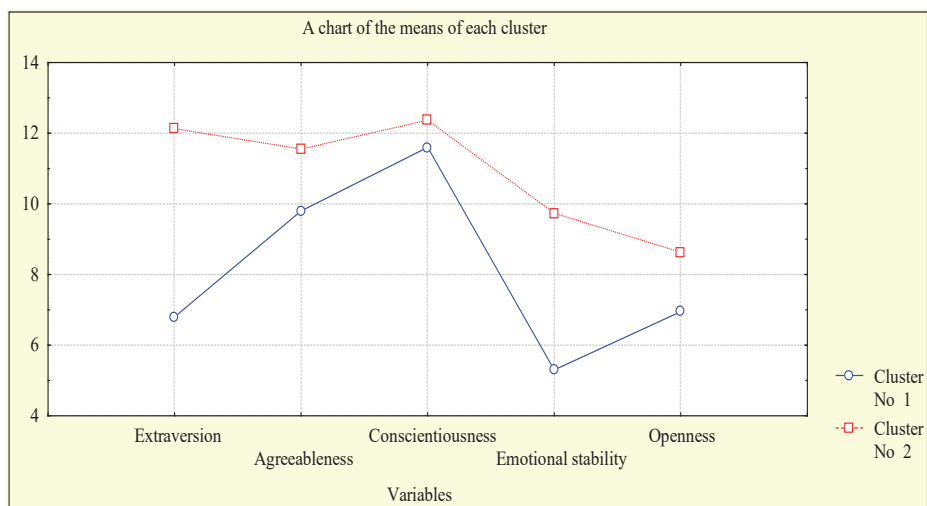
Correlation coefficients calculated between the results in the TIPI and SDQ scales point to the existence of significant correlation between low emotional stability, increased neuroticism, feeling of dissatisfaction, guilt, fear, tension, anger, low stress tolerance in mothers and problems with behavior in children and rare pro-social behavior often observed by them. Moreover, there are significant correlations between mothers' personality traits, such as: increased introversion, shyness, seeking isolation, withdrawal from social relationships, and problems in relations with peers and rare pro-social behavior observed in children with ASD.

Correlation coefficients calculated between the scores on the TIPI and ASRS scales point out the occurrence of statistically significant correlations between mothers' increased introversion, shyness, lack of optimism, seeking solitude and observed in the children increased symptoms corresponding to the diagnostic criteria of ASD (acc. to DSM), like increased rigidity of behavior, difficulties in social relations, verbal and non-verbal communication, limited ability to adequately react emotionally in interpersonal relationships.

The aforementioned symptoms of autism spectrum disorder in children are associated with low agreeableness, increased egocentrism and aggression in mothers. Moreover, significant correlations were revealed between mothers' high neuroticism, shyness, anxiety, tension, lower ability to control their urges, struggling with stress and a tendency to worry, and children's severe difficulties in communication and social relations, mainly with adults, severe symptoms matching the criteria of ASD and attention deficit disorder.

Personality traits of the surveyed mothers, such as a high level of extraversion, cordiality, sociability, agreeableness, altruism, empathy, as well as high emotional stability and resistance to stress are associated with less difficulty in communication, social relations, lower severity of attention deficit disorder and better control of emotions in children with ASD.

In order to verify Hypothesis 2, a non-hierarchical cluster analysis was used. Two groups of mothers were distinguished, which are characterized by a distinctive arrangement of scores in terms of the TIPI Questionnaire scales. The division into two subgroups (2 clusters/types) is justified by statistical and substantive arguments: the size of the subgroups allows of comparing them in terms of specific variables and clear psychological significance of the revealed personality types (Chart 1).



Source: own study.

Chart 1. Distinguished groups of mothers of children with ASD with two personality types: type/cluster 1 and type/cluster 2

First, using the t-test, two groups of women with personality types 1 and 2 were compared in terms of criterion variables (personality traits according to the Big Five concept, included in the TIPI scales) (Table 2).

Table 2. Comparison of mean scores obtained by distinguished groups of women with type 1 and type 2 on the TIPI scales

TIPI	Group with personality type 1		Group with personality type 2		t
	M	SD	M	SD	
Extraversion	6.80	2.78	12.13	1.32	-9.93***
Agreeability	9.80	2.78	11.55	2.31	-2.56**
Conscientiousness	11.60	2.06	12.37	1.88	-1.43
Emotional stability	5.30	2.23	9.74	1.81	-8.19***
Openness to experience	6.95	2.82	8.63	2.03	-2.61**

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Source: own study.

The group with personality type 1 (cluster 1) consists of 20 females. It is characterized by a significantly higher levels of: introversion, shyness, pessimism, seeking solitude, egocentrism, aggression, dryness in interpersonal relationships, neuroticism, guilt, anger, lack of trust, impulsiveness, fear and irritability than the group with personality type 2 (cluster 2). Mothers with personality type 1 compared to mothers with type 2 personality are characterized by significantly lower ability to cope with stress, lower openness to experience, lower cognitive curiosity, creativity, yet greater conventionality, conservativeness, and competitive attitude. Personality type presented by the first group of studied mothers was called the **isolating/neurotic type**. The following features prevail in them: introversion, negative attitude towards people, antagonism, neuroticism, and avoidance of new experience.

The group with personality type 2 (cluster 2) consists of 38 females. It is characterized by a significantly higher level of extraversion, energy, activity, cordiality, sociability, optimism, talkativeness, positive attitude towards people, altruism, trust, honesty than the group with type 1 (cluster 1) personality. Compared to type 1, women with type 2 are characterized by significantly higher emotional stability (low neuroticism), the ability to cope with stress, problems, adapt to

a new, difficult situation without fear, anxiety, and the ability to control their urges and emotions. Women with type 2 personality, compared to mothers with type 1 (isolating/neurotic), are more creative, unconventional, independent in their judgments and open to new experience that they value positively and to which they adapt more easily. In personality type presented by the second group of the surveyed mothers (cluster 2), the following traits dominate: extraversion, agreeableness (positive attitude towards people), emotional stability and openness to experience. This type is called **the open/ emotionally stable type**.

Then, using the t-test, the surveyed mothers with two distinct personality types were compared: type 1 – isolating/neurotic and type 2 – open/stable, in terms of assessing psychosocial functioning of their children with ASD. Psychological and social functioning of children was determined on the basis of the answers given by the respondents in the SDQ and ASRS questionnaires (Table 3).

Table 3. Comparison of mean scores obtained by distinguished groups of women with personality types 1 and 2 on the SDQ and ASRS scales

Variables	Type 1 isolating/neurotic		Type 2 Open/emotionally stable		t
	M	SD	M	SD	
SDQ					
Hyperactivity/inattention	7.45	1.96	6.42	2.62	1.54
Emotional symptoms	5.80	2.26	4.71	2.51	1.62
Conduct problems	4.55	1.85	3.24	2.20	2.28*
Peer relationships	5.85	1.53	4.37	2.24	2.65**
Prosocial behavior	5.10	1.74	6.74	1.77	-3.37***
Total score	23.65	5.13	18.74	6.89	2.80**
ASRS					
Social/communication	38.60	10.66	31.47	11.03	2.37*
Unusual behavior	54.75	19.26	41.53	16.58	2.73**
Self-regulation	41.70	7.44	34.84	11.97	2.33*
DSM	79.05	19.12	62.42	19.64	3.09**
Peer socialization	21.90	5.42	16.58	6.27	3.21**

Adult socialization	13.65	3.56	11.34	4.71	1.92
Social-emotional reciprocity	27.80	6.59	22.71	8.04	2.43*
Atypical language	10.10	5.70	6.58	4.64	2.54**
Stereotypy	11.10	4.59	8.82	4.27	1.89
Rigidity of behavior	21.35	6.99	17.05	6.65	2.30*
Sensory sensitivity	11.40	5.66	8.61	4.91	1.95
Attention	26.15	5.35	22.97	6.30	1.92

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

Source: own study.

Women with personality type 1 (isolating/neurotic) much more often than mothers with personality type 2 (open/ emotionally stable) observe in their children with ASD problems with behavior, peer socialization and emotions control, and less often pro-social behavior. Besides, mothers with personality type 1 (isolating/neurotic), compared to mothers with personality type 2 (open/emotionally stable), assess that their children are characterized by significantly more severe symptoms belonging to autism spectrum disorder (acc. to DSM), difficulties with communication, social relations, emotional exchange, self-regulation and problems resulting from rigidity of behavior.

Discussion

The statistical analyses which were conducted allowed to verify the research hypotheses formulated in the work. Correlations were determined between the mothers' personality traits included in the Big Five concept, assessed with regard to the TI-PI-PL Personality Inventory, and psychosocial functioning of their children diagnosed with autism spectrum disorder (acc. to DSM-IV). Children's psychosocial functioning (as perceived by mothers) was assessed with regard to the results of the Autism Spectrum Disorder Diagnosis Set by S. Goldstein and J. A. Naglieri and the Strengths and Difficulties Questionnaire (SDQ) by R. Goodman.

Study results imply that difficulties in establishing and sustaining proper interpersonal relationships of children with ASD may be related to their mothers' personality traits that make it difficult to establish an open, affectionate interpersonal relationship. The results obtained in the work allow of formulating this hypothe-

sis. The scores show significant correlations between mothers' personality traits: increased introversion, shyness, reserve, negative attitude towards people, lack of trust in them, egocentrism, aggression, dryness, preference for solitude, and observed in children difficulties in social relations, mainly with peers, lack of emotional reciprocity, pro-social behavior, and increased communication problems.

There may be several hypotheses that attempt to explain significant correlations between introversion and a negative attitude towards people (low agreeableness) in the surveyed mothers, and difficulties in social relations in their children with ASD. Firstly, some personality traits, including temperament, are determined genetically. These traits are intensified in the child rearing process, under the influence of environmental factors. It should be emphasized that the surveyed mothers assessed the behavior of their children with ASD, and the criteria for this disorder include difficulties in relationships with adults and peers, communication problems, and emotional exchange. The features of the child's developing personality and the ASD symptoms overlapping with them are intensified and consolidated under the influence of the process of learning behaviors, reactions observed in parents who are role models and authorities for the child, and whom the child copies. Through the system of rewards and punishments, parents teach which behaviors are desirable, for which the child will get their attention, time, interest, and expressions of acceptance. Parents may not realize an important role of their reactions and their parenting attitudes observed by the children in their developing positive interpersonal relationships, constructive ways of coping with stress, ability to properly communicate emotions and needs, and to control them.

It should be emphasized that withdrawal from social contacts, distrust and reserve towards people, negative attitude towards other surveyed mothers may be determined not only by their personality traits, but also by the severity of ASD symptoms in the child and the reactions of people from the closer (family) or more distant environment. It can be expected that the more severe the ASD symptoms are in the child, the greater the social rejection the parent may face. Lack of social support, rejection, parent's stigmatization will be conducive to adopting a hostile, defensive, distrustful attitude towards people. This kind of experience may cause the parents to increase their tendency to isolation, negative attitude towards people, lack of trust in them, feelings of shame, guilt, fear, threat, failure, anger, disappointment with themselves and their child. The negative, distrustful attitude towards people presented by the parents, which the child observes, will affect its difficulties in establishing proper interpersonal relationships, communicating its needs, emotions,

attitude towards peers and adults. Parents may reject the child, feeling stigmatized, not accepted because of the increased difficulties related to the child's behavior. The child, craving parental attention, will seek it in a learned way that has proven effective, by intensifying emotional and behavioral difficulties. Studying and understanding the relationship between the parents' personality traits and the child's behavior, both adaptive and non-adaptive could help break this vicious circle. Coplan et al. (2009) emphasize that parents' reactions to the emotions revealed by the child play an important role in its socialization and development of emotional self-regulation. Both the mother's personality and the child's behavior and temperament affect the parenting style used by the parents (Coplan et al. 2009).

The results obtained in the work correspond to Coplan et al.'s view (2009). They believe that a high level of neuroticism in the mother is associated with the child's emotional lability. The results of statistical analyses indicate significant correlations between a low level of emotional stability, increased susceptibility to experiencing negative emotions (dissatisfaction, fear, anger, irritability, tension, guilt) and difficulties in coping with stress in the surveyed mothers, and increased behavioral problems, increased impulsiveness, low self-regulation, attention deficit and hyperactivity disorders, and severe ASD symptoms (acc. to DSM) in their children.

Similar research results were obtained by Cumberland-Li et al. (2003) and Kochanska et al. (2005); Kochanska (1997). In their view, the mother's emotional instability is associated with abnormal regulation of emotions and behavioral problems in children in situations that cause anger or frustration. Similarly, Rothbart et al. (2011) attribute a pivotal role in the development of emotional reactions in children with ASD to the mother's personality traits and the upbringing style and recognize them as predictors of emotions regulation in children, especially anger and fear. A higher level of emotional control in the mother was associated with better emotional control and more adapted behavior in the child (Hirschler-Guttenberg et al. 2015; Evans and Rothbart 2009). Puff and Renk (2015) point out that mothers with mood control problems show inconsistent parental attitudes, which is associated with difficulties with emotions regulation in children.

According to Coplan et al. (2009), the mother's high level of neuroticism, her sensitivity to threat and the resulting overprotective parental attitude may increase difficulties in interpersonal relationships in the child. Conversely, difficulties in social relations exhibited by the child may exacerbate neurotic characteristics in the mother, her tendency to overestimate threats and dangers in the environment and lead to an even more intense overprotective attitude. Anxious

and overprotective mothers with a high level of neuroticism may limit their children's opportunities to develop, learn constructive, adaptive strategies for dealing with negative emotions, and establishing positive social relationships. The authors found that mothers with a high level of agreeableness were less authoritarian. Bornstein et al. (2011) pointed to a relationship between a higher level of parental neuroticism and low involvement in the child's upbringing process, a low sense of competence and satisfaction with parenthood, a lower level of warmth and sensitivity, and a higher level of control and dominance shown in relations with the child.

Many authors emphasize that parents' personality traits significantly affect their parental attitudes and the child rearing methods used by them (Coplan et al. 2009; Greenberg et al. 2006; Bornstein et al. 2011; Clark et al. 2000; Smith 2010). Metsäpelto and Pulkkinen (2003) showed that a low level of openness to experience in parents is associated with their use of more restrictive parenting methods, while a low level of neuroticism, with parents' greater knowledge about children.

The results obtained in the work also revealed significant correlations between the surveyed mothers' personality traits, such as: a high level of extraversion, cordiality, sociability, agreeableness, altruism, empathy, high emotional stability and resistance to stress, and lower difficulties in communication, social relations, lower intensification of attention deficit disorder, and better emotions control in children with ASD. Smith (2010) pointed out that expressions of warmth shown by mothers to their children were associated with a reduction of behavior problems. Kochanska (1997) emphasize that empathic care, sensitivity to the child's needs and messages facilitate adaptation, control of negative emotions, positive perception of the child, and cooperation in mother-child relationship. In frustrating situations, the mother can reinforce the child in regulating its behavior. Similarly, Rutgers et al. (2007) and Hirschler-Guttenberg et al. (2015) point out that parents can reduce difficulties in social communication and help develop self-regulation in children with ASD.

It can be assumed that extraversion, and associated with this personality trait of the surveyed mothers energy, activity, cordiality, sociability, self-confidence, positive attitude towards people will enable the use of social support, cooperation in the process of rehabilitation, child's therapy, and prevent the feeling of rejection. Optimism will allow of coping with the feeling of regret, guilt, it will allow to notice the child's achievements, enjoy them and the child's development. Emotional stability will facilitate controlling your urges and emotions, overcoming fear, anxiety, struggle with stress and problems. Openness to expe-

rience will allow of adaptation to a new, difficult situation, positive coping with stigmatization, acceptance of the child and oneself as its mother, creative use of the methods proposed during therapy, so that they are attractive to the child and match its needs. The aforementioned personality traits will be conducive to taking actions by parents that will allow them to build a sense of competence, confidence, use task-based ways of coping with stress, look optimistically at the sense of their actions and mobilize to make effort, prevent resignation and passiveness, making them resistant to failures (cf. Buchholz 2022).

The relationships described above correspond to the results of the research on the characteristics of parents raising children with autism presented by other authors (Buchholz 2022; Leone et al. 2016). In their opinion, the parents' personality traits: adaptability, coping with stress, mental toughness are conducive to accepting the child, along with its limitations, strengthening empathy-based bonds with the child, establishing proper communication, and adapting to new roles imposed by the symptoms of a comprehensive developmental disorder. It is the parents' personality traits that will determine whether they will focus on the positive aspects of everyday life, developing greater sensitivity, patience, care, optimism, a sense of competence, and adopt a positive attitude towards themselves and the child (Bayat 2007; Levine 2009; Sekułowicz and Kaczmarek 2014). Perception of the child's difficulties as a challenge, perseverance, mobilization to act in unfavorable circumstances, stress tolerance, negative emotions, determination in active coping with problems, consistency and the ability to use support resulting from openness to accepting help depend on the parents' personality and adaptability (e.g. Hrdlicka et al. 2016; Manohar et al. 2019; Buchholz 2022).

The performed cluster analysis provided additional, interesting results. It revealed different personality types of the mothers of children with ASD. A group of mothers with an isolating/neurotic personality type and open/emotionally stable type was distinguished. Women with an isolating/neurotic personality type, in whom the following features dominate: introversion, negative attitude towards people, neuroticism, avoidance of new experience point to a greater severity of behavioral problems, interpersonal relationships, communication, self-regulation, emotional reciprocity, and rigidity of behavior in the children than mothers with an open/ emotionally stable personality type. Meanwhile, raising a child with ASD requires from parents a lot of self-control, patience, creativity, ability to cope with stress, cooperation skills, good adaptability to a difficult, new situation, perseverance, both due to problems resulting from difficulties in the child's functioning and the need to often confront the opinion of the environment, sometimes immediate family.

Mothers with the open/emotionally stable type of personality were characterized by a higher level of extraversion, positive attitude towards people (agreeableness), emotional stability and openness to experience. They observed in their children significantly less severe than mothers with an isolating/neurotic personality type symptoms belonging to autism spectrum disorders (acc. to DSM), difficulties in communication, social relations, emotional exchange, self-regulation, less severe problems with controlling emotions and behavior and, more often, pro-social behavior. According to Gosztyła and Trubiłowicz (2017), the features of mothers of children with autism: extraversion, agreeableness and openness to experience make a very beneficial set of features for the child's development. Mothers with a high level of extraversion and agreeableness adopt an attitude of acceptance towards the child. An inconsistent parenting attitude was associated with a high level of introversion, a low level of agreeableness and openness to new experience. In their view, developing the expression of emotions, openness in interpersonal relations creates opportunities to reduce tension, get necessary support, help in the situation of raising a child with developmental disorders. Agreeableness and openness to new experience facilitate the search for new solutions and adaptation to a difficult situation, dealing with it in a task-oriented, constructive way (Gosztyła and Trubiłowicz 2017).

Similarly, Metsäpelto and Pulkkinen (2003) pointed out that parents who preferred various parenting attitudes differed in personality profiles. They distinguished a group of parents with a high level of extroversion and a high or moderate level of openness to experience, who were emotionally involved in their children's upbringing, showed high concern for the child and great parental knowledge. The second group of parents was characterized by a low level of openness to experience and extroversion. Their parenting attitudes were described by Metsäpelto and Pulkkinen (2003) as authoritarian, characterized by a low level of concern for the child's upbringing, a high to moderate level of rigidity, principledness, and a moderate to low level of parental knowledge.

A hypothesis can be formulated that mothers with an open/emotionally stable personality type, by adopting parental attitudes that are favorable for the child's development, use educational methods that help children learn proper communication, establish positive social relationships, pro-social behavior, self-control, and express its needs and emotions (including negative ones) in a constructive and adaptive way (cf. Rutgers et al. 2007; Hirschler-Guttenberg et al. 2015).

Knowledge about different personality types in parents of children with ASD and the relationship between these types, and the severity of difficulties in the child's functioning can help identify a group of parents who can be offered

psychological and pedagogical help, workshops, thanks to which their interactions and work with the child will become more effective and will allow them to experience success in dealing with the child, and thus strengthen their sense of competence, willingness to cooperate, reduce the sense of isolation, threat or failure as educators. The research results presented in the work may be helpful for specialists dealing with the therapy of children with ASD. Information on the mutual dependence between the parents' personality traits and the severity of symptoms in children may allow to identify factors contributing to lack of progress in the child's rehabilitation and therapy, or even break the cooperation with therapists by the parents. Buchholz (2022) emphasizes that working with parents can strengthen or develop desirable personality traits, thus overcome difficulties of their children's psychological and social functioning.

Conclusions

1. Mothers' personality traits: introversion and a negative attitude towards people are associated with difficulties in social relations, communication and increased symptoms of autism spectrum disorders in children, according to DSM.
2. Increased neuroticism in mothers is associated with increased behavioral problems, difficulties with attention, peer relations, self-regulation and emotional-social exchange observed in the child.
3. Mothers of children with ASD make a diverse group in terms of personality types. A group of mothers with an isolating/neurotic personality type and an open/emotionally stable type was distinguished.
4. Women with the isolating/neurotic type compared to mothers with the open/emotionally stable type assess that their children have significantly more severe difficulties in social relations, behavioral problems and more severe symptoms of autism spectrum disorders.

Limitations

A small volume of the group of surveyed mothers is the limitation of the results presented in this work. Therefore, the presented study should be treated as a preliminary report. The received conclusions should be related to very carefully, more as hypotheses and the basis for further research in the future. The severity of

autism spectrum symptoms and difficulties with psychosocial functioning in children were based on the information from mothers. Therefore, the possibility of an inadequate assessment of the child's difficulties should be taken into account. Observations of parents of children with various difficulties show that some parents do not want to see the child's problems, deny its clinical symptoms, want to have a "healthy" child, defend themselves against feeling guilty for its problems. Other parents may exaggerate the child's difficulties. The assessment of the functioning of children with ASD was not based on the observation of specialists. Of course, the value of assessing the child's behavior by the parent who sees the child daily, in various situations, and spends the most time with him/her should be emphasized. Despite these limitations, the results point to a very important problem – the significance of parents' personality traits and their influence on the functioning of a child diagnosed with autism spectrum disorder.

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SUMMARY

The aim of the work was to analyze the relationship between personality traits of the surveyed mothers and psychosocial functioning of their children with a medical diagnosis of disorder belonging to autism spectrum (acc. to DSM-5). Moreover, an attempt was made to distinguish personality types in the group of surveyed women raising children with ASD. The study involved 58 women raising children diagnosed

with autism spectrum disorder (acc. to DSM-5). The results of statistical analyses point out the occurrence of statistically significant correlations between mothers' personality traits: low level of extraversion, agreeableness and emotional stability, and severe difficulties in psychological and social functioning of their children diagnosed with autism spectrum disorder (ASD). Based on the cluster analysis, two groups of mothers of children with ASD were distinguished, differing in personality types/profiles.

KEYWORDS: autism spectrum disorder, psychosocial functioning, personality traits, mother

STRESZCZENIE

Celem pracy była analiza zależności między cechami osobowości badanych matek a funkcjonowaniem psychospołecznym ich dzieci z diagnozą lekarską zaburzeń należących do spektrum autyzmu (wg DSM-5). Podjęto ponadto próbę wyodrębnienia typów osobowości w grupie badanych kobiet wychowujących dzieci z ASD. Badaniami objęto 58 kobiet wychowujących dzieci z diagnozą zaburzeń należących do spektrum autyzmu (wg DSM-5). Wyniki analiz statystycznych informują o występowaniu istotnych statystycznie korelacji między cechami osobowości matek: niskim poziomem ekstrawersji, ugodowości i stabilności emocjonalnej a nasilonymi trudnościami w zakresie funkcjonowania psychologicznego i społecznego u ich dzieci z diagnozą zaburzeń należących do spektrum autyzmu (ASD). Na podstawie analizy skupień wyodrębniono dwie grupy matek dzieci z ASD, różniące się typami/profilami osobowości.

SŁOWA KLUCZOWE: zaburzenia ze spektrum autyzmu, funkcjonowanie psychospołeczne, cechy osobowości, matka

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