Personality Disorders and ASD

10

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10.1 What Is Personality?

There are many definitions of personality, depending on the theoretical approaches. Millon [1] conceived personalities as varieties of successful and failed efforts in attempting to balance three essential bipolarities that comprise the goals of life: existential survival (avoiding death/pain and enhancing life/pleasure), ecological adaptation (environmental accommodation/passive and environmental modification/active), and species replication (maximizing reproduction/self and nurturing progeny/others). Roberts [2] defined personality traits as the relatively enduring patterns of thoughts, feelings, and behaviors that reflect the tendency to respond in certain ways under certain circumstances. In 1993, a model of the development of normal and deviant personality as a dynamic self-organizing system modeled on family and socio-cultural influences was formulated. According to the authors' perspective, personality can be defined as the dynamic organization, within an individual, of the psychobiological systems that modulate adaptation to a changing environment. They developed a test for personality assessment called "Temperament and Character Inventory" (TCI), a self-report tool that deconstructs personality in seven dimensions of temperament and character [3].

Temperament refers to those aspects of an individual's personality that are often regarded as the result of biological evolution, initially constitutionally based rather than learned [4]. Even though there are many definitions of character, it has been theorized as less heritable, later developing, influenced by processes of maturation, and representing individual differences in self-object relationships [5].

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Psychoanalytic theorists focused on the importance of early childhood experiences and their influence on the development of "character styles" and disorders of adaptation. In the psychogenetic hypothesis, early events determine the formation of defensive systems that may remain in adult life conditioning the reactions of the individual to new situations as if they were the same events occurred in childhood [6].

10.2 Personality Traits in Individuals with Autism Spectrum Disorder

Personality, temperament, and character are of course present in all people, including those with autism spectrum disorder (ASD). Findings about temperament, character, and broad personality traits among autistic population are, not surprisingly, consistent with the heterogeneous clinical picture of ASD. In fact, there might be a genetic effect behind the phenotypic covariation between neurodevelopmental disorders and personality [7]. Nevertheless, separating clinical features of ASD which are largely neurobiologically derived and early onset in childhood from possible overlapping pathological personality traits is important both for nosographic clarity and for clinical usefulness. Distinguishing personality disorders (PD) from abnormal personality trait patterns assumes also a relevant meaning in ASD-correlated personality evaluation.

Kraepelin defined the "*autistic temperament*" as a pre-psychotic state that could evolve in dementia praecox. In Kraepelin's observation children of this temperament "*frequently exhibited a quiet, shy, retiring disposition, made no friendship, and lived only for themselves.*" They were disinclined to be open or to become involved with others, were reclusive, and had difficulty adapting to new situations. They showed little interest in what went about them, often refrained from participating in games and other pleasures, seemed resistant to influence, and were inclined to withdraw increasingly in a world of their own fantasies [8].

Using the TCI, several studies correlated ASD positively with harm avoidance, negatively with sociability, novelty seeking, reward dependence, self-directedness, and cooperativeness both in adults and children [7, 9, 10]. According to these studies, ASD-specific social and communication impairments correspond with low reward dependence (temperament), less extraversion and agreeableness (five-factor model traits), schizoid and avoiding traits. A recent meta-analysis of Big Five personality traits in ASD [11] indicates that ASD is associated with lower openness, conscientiousness, extraversion, agreeableness, and emotional stability. Many studies examining the relationship of personality traits to ASD had as primary purpose the facilitation of diagnosis and identification of individuals with ASD. However, Big Five traits showed heterogeneous presentation in ASD and in our opinion clinicians should carefully consider the theoretical framework in which the construct was originally theorized. For these reasons we do not recommend the use of this approach for ASD diagnosis per se. It is our opinion that personality trait

measurement should be considered as a potential resource to enhance rather than replace traditional diagnostic tools.

Almost all researches about personality in the autistic spectrum include high-functioning autistic individuals, although rarely in these studies intelligence quotient (IQ) is specified. In part, this could be explained by the difficulty of describing personality in subjects with intellectual disability (ID). In general, people with ID experience more failure, rejection, and social deprivation leading to personality traits that may further impede their ability to learn [12]. Individuals with ID might also have more rigid or extreme personality traits, such as particularly high or low expectations for success, a more limited range of skills and solutions to negotiate difficult situations and difficulties with problem-solving or cognitive flexibility [13, 14].

10.3 A Definition of Personality Disorders

As reported above, the term "personality" refers to the relatively constant pattern of thinking, feeling and relating to reality of a person: it represents the individual's peculiar way to adapt to intrapsychic and environmental reality, having the potential to strongly impact the subject's well-being. A pervasive, stiff and maladaptive pattern of cognitive, emotional, and behavioral responses is what is called a personality disorder (PD). These patterns develop early, typically in adolescence, becoming during the life course a rigid way to feel, think, or act to interpersonal and social experiences, causing significant distress and disability. The Diagnostic and Statistical Manual for mental disorder (DSM-5) [15] lists ten different types of personality disorders: paranoid, schizoid, schizotypal, antisocial, borderline, histrionic, narcissistic, avoidant, dependent, and obsessive-compulsive personality disorder. The DSM-5 now classifies these conditions in the same way as other mental diseases, rather than on a different axis, as in the previous editions of the manual [16]. A second change occurred in the last version of DSM is that PD are considered both from a categorial and a dimensional point of view, in two different sections. A consequence of adopting a hybrid categorial-dimensional classification is to consider PD less as discrete entities sharply separated from normal personality and more as a maladaptive extension of the same traits that describe a healthy personality. The introduction of an "Alternative DSM-5 Model for Personality Disorder" in Section III of the latest DSM version explains, on one hand, the person's degree of functioning impairment, considered both as a general quality of life reduction and as impairment of a specific personality domain (identity, self-direction, empathy, and intimacy) [15]. On the other hand, the Alternative Model offers a dimensional description of personality traits, derived from the five-factor model of personality, which can be assessed with several psychometric tests. The five broad trait domains are: negative affectivity (vs. emotional stability), detachment (vs. extraversion), antagonism (vs. agreeableness), disinhibition (vs. conscientiousness), psychoticism (vs. lucidity).

Including functioning and personality traits in PD diagnosis implies that an abnormal personality trait pattern alone doesn't constitute a personality disorder by itself. Rather, the relationship between personality and social context and the ability to adapt to environmental demands are considered, from a dimensional point of view, factors determining a personality disorder.

10.4 ASD and Personality Disorders as a Clinical Conundrum

In general, considering the relationship between ASD and personality disorders implies to clarify the nature of a certain personality trait in the context of an autistic person's functioning. More precisely, we can summarize three situations:

1. A certain abnormal personality trait can be considered as (or derives directly from) a typical clinical feature of ASD (no personality disorder).
2. A certain personological pattern reminds both an ASD clinical manifestation and a certain personality disorder in neurotypical people (differential diagnosis between ASD and PD).
3. Pathological personality traits develop during life as consequence of a complex interaction of multiple factors: person's temperament, early environmental response to his/her temperament, past and present life experiences, social demands, etc. Resulting cognitive, affective, or behavioral symptoms are a source of further distress and disability and are not a direct manifestation of the autistic symptomatology (comorbidity ASD-PD).

In the next paragraphs, we will focus on differential diagnosis, clinical features in common between autism and certain types of personality disorder and the feature of comorbid PD and ASD.

The diagnosis of personality disorder (PD) in the lowest-functioning part of the spectrum is particularly controversial. In fact, some clinicians are convinced that it is not possible to make a diagnosis of PD in individuals with ID, given the severity of the comorbid mental health problems [17]. Other authors suggest that individuals with ID are more vulnerable to PD and that more efforts are needed to meet the necessities of this population [13, 18]. In recognition of the limitations of the standard diagnostic systems (i.e., DSM and ICD), two alternative classification systems have been developed:

- Diagnostic Criteria for Learning Disability (DC-LD) [19],
- The Diagnostic Manual for ID (DM-ID) [20].

Considerable problems regarding PD in ID are: the absence of a sufficiently developed personality in individuals with severe or profound ID; the difficulty in making a diagnosis prior to the age of 21 because of immaturity and delayed personality development; diagnosis should be provisional as a change of environment

may lead to consequent change in behavior and attitudes; diagnosis of schizoid, dependent and anxious/avoidant PD is not recommended in DC-LD and DM-ID recommends they should only be diagnosed with care when traits are extreme [13]. Bertelli et al. [21] proposed the SPAID (Psychiatric Instrument for the Intellectually Disabled Adult) as a potential useful scale for the diagnosis of comorbid psychopathological conditions, including PD, in people with ID.

10.5 ASD and Personality Disorders: From Differential Diagnosis to Comorbidity

Several psychiatric disorders are often mistaken for ASD in adults. Differential diagnosis is particularly challenging for psychiatrists who did not receive a specific training on psychopathology in adults with neurodevelopmental disorders [22]. A comprehensive evaluation performed by professionals with expertise in ASD is thus essential in making a differential diagnosis [23, 24].

Many PD, particularly those belonging to cluster A or C of DSM-IV-TR [16], share several features with ASD. As for psychotic disorders, a determination of the onset is critical, since personality disorders usually become evident at least since adolescence or early adulthood and they are usually not diagnosed before the age of 18 years. On the contrary ASD must be present in early development, although sometimes not recognized until adulthood [23, 25]. Moreover, it should be excluded that a PD is a manifestation or consequence of any other mental disorder (criterion E of PD diagnosis in accordance with DSM-5), in this case a manifestation or consequence of ASD. Similar to PD, ASD becomes most evident in social contexts and usually involves multiple areas of life, such as employment and relationships [26]. Furthermore, both ASD and PD patients often perceive their symptoms as highly ego-syntonic compared to patients with other psychiatric disorders. Therefore, it is difficult to make a differential diagnosis.

It is worth mentioning that more than 70% of individuals with ASD have concurrent medical, developmental, or psychiatric conditions. The high frequency of comorbidity could be a result of shared pathophysiology, secondary effects of growing up with autism, shared symptom domains and associated mechanisms, or overlapping diagnostic criteria [27]. Few studies analyzed the prevalence of PD in ASD, and all of these considered a sample of high-functioning autistic subjects. A recent meta-analysis estimated the prevalence of PD in adults with ASD around 12.6%, while the prevalence increased to 20.6% when researchers included only studies based on clinical interviews [28]. In their study Lugnegard et al. [29] suggested that approximately 50% of adults with ASD fulfilled criteria for a PD. Looking at patients with Asperger Syndrome, Hofvander et al. [30] found that 68% met DSM-IV criteria for at least one PD and according to Anckarsater et al. [31] 75% of the 174 subjects for whom the SCID-II was completed met criteria for at least one personality disorder, and 46% fulfilled criteria for more than one category of personality disorder.

10.5.1 ASD and Cluster A Personality Disorders

Personality disorders (PD) can be classified into three clusters of patterns of thinking and behavior. Cluster A personality disorders are characterized by odd, eccentric thinking or behavior, including schizoid, schizotypal, and paranoid personality disorders [15]. Schizoid and schizotypal personality disorders are characterized by long-standing patterns of detachment from social relationships and social anxiety. Although the impairment of social and interpersonal competences occurs in both disorders, each disorder has their own characteristic symptoms.

Symptoms of schizotypal personality disorder can include severe social anxiety, thought disorder, paranoid ideation, derealization, transient psychotic symptoms, and often unconventional beliefs (paranormal and superstitious beliefs are common). The DSM-5 defines the schizotypal personality disorder as a "*pervasive pattern of social and interpersonal deficits marked by acute discomfort with, and reduced capacity for, close relationships as well as by cognitive or perceptual distortions and eccentricities of behavior, beginning by early adulthood and present in a variety of contexts.*" Diagnostic criteria include thought and perception disorders (ideas of reference, strange beliefs or magical thinking, paranoia, abnormal perceptions), behavioral oddness (strange thinking and speech, strange behavior or appearance), and social and interpersonal impairment (inappropriate or constricted affect, lack of close friends, excessive social anxiety). Exclusion criterion is the co-occurring diagnosis of schizophrenia or ASD [15].

Symptoms of schizoid personality disorder include a high preference of conducting a solitary sheltered lifestyle, lack of understanding of social cues, an apparent little desire for intimate relations or sexual relationships, apathy and lack of motivation in everyday activities. Diagnostic features include pervasive mood/affect abnormalities (lack of pleasure in most/all activities, emotional coldness, detachment or flattened affectivity) and social-relational impairment (poor interest in close relationship, tendency to solitary life, indifference toward others' praise or criticism, lack of interest in sexual experiences) [15].

Still controversial is the linkage between those two conditions and schizophrenia: some experts suggest that schizotypal personality disorder might be a mild form of schizophrenia, whereas other researchers argue that the two conditions strongly differentiate from each other from clinical, genetic, and neuropathological point of view [32]. The concepts of autism and schizophrenia have common roots. Bleuler defined autism as a detachment from reality associated with rich fantasy life [33]. He considered autism as a pathognomonic feature of the whole schizophrenia spectrum, including the schizoid and "*latent*" cases. He described a wide set of clinical manifestations of autism: poor ability to get in touch with others, withdrawal, inaccessibility (even negativism), indifference, rigid attitudes and behaviors, deranged hierarchy of values and goals, inappropriate behavior, idiosyncratic logic, and a propensity to delusional thinking [34]. This first effort to describe the autistic phenomenon was focused mainly on observable "*external*" behaviors or signs, rather than on patients' inner life. A deeper phenomenological

investigation of the autistic feature was conducted by Minkowski [35]*:* he considered mental states as an expression of the more basic experiential and existential alterations (for example, changes in temporalization or in the relatedness to the world). He named those primary changes at the base of pathological mental states "*troubles générateur*" (generative disorder), considering autism to be the generative disorder of schizophrenia [36]. In his description, autism is not simply a withdrawal to solitude or an attitude to daydreaming, but a deficit in the basic attunement between the person and his world, i.e., a lack of *"vital contact with reality"* [37]. Minkowski defined the vital contact as the capacity of "resonating with the world" and empathizing with others. In this perspective, autistic attitudes are either direct manifestations of the lack of vital contact or compensating personality traits: they comprise "*morbid rationalism*" (viewing all human moves as driven by purely logical rules), excessive preoccupations with symmetry and numerical aspects of the world ("*geometrism*"), excessive fantasy life, and peculiarly lifeless patterns of stereotyped regrets or moodiness [37]. As previously said, those first descriptions of the autistic phenomenon were referred to patients who are today classified within the schizophrenic spectrum rather than the autistic spectrum. Nevertheless, several phenomenological and clinical features seem to belong to both categories.

Within the current research on ASD, several studies focused on delimiting difference and overlays between ASD and schizophrenia spectrum. In particular, the comparison between the milder manifestations of both continuums (i.e., schizoid and schizotypal personality and high-functioning ASD) shows a partial clinical overlapping and often represents a further diagnostic challenge.

Indeed, both spectra involve altered and impaired social and communicative functioning [38, 39], which has suggested to some authors that ASD and schizotypy spectrum conditions overlap in their etiologies [40, 41]. On the other hand, shared clinical features often have different diagnostic relevance in the two conditions. For example, impairments in social reciprocity, communication, and behavioral flexibility are more central features of the autism spectrum than they are of schizoid-schizotypic personalities.

A common approach to addressing the relationship between ASD and schizotypy spectrum conditions has been the compared analysis of the psychometric questionnaires currently used to assess both conditions, collected from clinical or nonclinical populations. Most of the studies focused on cognitive and behavioral features, most notably in the realm of social dysfunction: in fact, if the presence of positive symptoms (i.e., hallucinations, paranoia, thought disorder, referential thinking, or delusions) constitutes a significative criterion for differential diagnosis, indeed it could be a feature of schizotypy, but not classically related to autism [42]; negative symptoms, like social withdrawal, flattened affect, apathy and alogia, tend to co-occur in both spectra [43] and appear most directly related to social and communication deficits.

Trying to summarize the current hypotheses on the relationship between autism and schizotypy at both etiological and phenotypic level, three different models could be identified [44]:

1. Under the "independence model," autism and schizoid-schizotypic personality disorders are distinct conditions which do not share common etiology and differ in many clinical and phenomenological aspects. In support of this hypothesis, there is the evidence of different developmental trajectories and age of onset of the two conditions. Moreover, the lack of evidence for an increased prevalence of schizophrenia in autistic populations [45], and, in reverse, the evidence of a strongest linkage between schizotypy and schizophrenia, have shaped the view that the etiologies underlying the two disorders are independent [46].
2. Conversely, the "*overlapping model*" asserts that overlapping phenotypes between autism and schizotypy could reflect common etiologies. That hypothesis emerges from several neuropsychological and psychometric evidences: both spectra are characterized by reduced performances across a range of social-cognitive abilities, including theory of mind and emotion recognition, as well as corresponding impairments in overall social functioning. Psychometric tools as the Autism-Spectrum Quotient (AQ) [47] and the Schizotypy Personality Questionnaire (SPQ) [48] showed, in different studies conducted on both clinical and nonclinical populations, a strong positive association between the two tests scores [41, 49, 50], especially between negative schizotypy and AQ social skills, and between disorganized schizotypy and AQ communication. According to this model, the authors interpreted these trait associations as indicating that autism and schizoid-schizotypy conditions may overlap on a single spectrum, rather than existing as two distinct nosologic entities as currently implied by DSM categories.
3. A third model places autism and schizotypy on opposite ends of an axis of social cognition. By this "diametric model" [44, 51], the phenotypes of autism spectrum develop around a core constituted by an under-developed social cognition, whereas positive schizotypal and schizophrenic spectrum phenotypes involve manifestations of over-developed social cognition, such as "hyper-developed" theory of mind in paranoid symptoms or an exaggerated sense of self and agency in referral or megalomanic delusions. Under the diametric model, social deficits and lack of interpersonal competences as assayed by psychometric data could manifest similarly (for example, as social withdrawal or disinterest), but such similarities may reflect highly diverse or diametrically different causes between ASD and schizotypy conditions. Some studies provide evidences in support of the model: after statistically removing the overlap between the AQ and the SPQ, which, as previously said, is mainly referred to the similarity between negative schizotypy and autistic-like interpersonal features, an autism-schizotypy phenotypic axis will emerge where autistic features negatively predict positive schizotypal [44, 52].

In conclusion, autism and schizoid and schizotypic personality disorders partially share their clinical manifestations, and a phenotypic overlap has been empirically highlighted, especially between the negative symptoms of schizoid-schizotypal PD and the social-communicative deficits that are central to autism. Generalized deficits, such as abnormal social functioning, comprise a broad range of mental disease and likely reflect a multitude of complex causal factors, such that

phenotypic similarities inferred from psychometric and behavioral data are not sufficient to infer shared etiologies, sustaining the DSM-5 choice to keep these conditions separate. Moreover, recent research suggests that focusing on more constitutive factors, as social cognition and theory of mind, the two conditions tend to place at the two ends of an axis.

Unfortunately, we could not extensively discuss the linkage between ASD and paranoid personality disorder. Paranoid personality disorder is characterized by paranoia and a pervasive and generalized suspiciousness and mistrust of others. People with this PD habitually relate to the world by a vigilant scanning of the environment for clues or suggestions that may validate their suspects [15]. Given the deficit in social cognition and theory of mind of ASD individuals, subtle social clues might be difficult to interpret for them, thus provoking higher levels of paranoia [53]. Unfortunately, literature describing the overlapping symptomatology, as well as the possible co-occurrence, between ASD and paranoid personality disorder, another PD belonging to cluster A, is underrepresented.

However, according to the aforementioned observations, it is our opinion that the possible overlapping manifestation of cluster APD and ASD poses a complex conundrum regarding the possibility of actual comorbidity. This is especially true for those conditions in which a series of negative experiences with other people could bring to a paranoid style of thinking [54]. More practically, we highlighted the differences between these conditions, as from an accurate assessment different therapy approaches could be derived. For differential diagnosis purposes we suggest exploring the whole range of symptoms that could manifest in these conditions, and to carefully consider the subjective point of view, the insight and the personal perception of the behaviors. Finally, as always in ASD assessment, the developmental perspective could help in the differential diagnosis.

10.5.2 ASD and Cluster B Personality Disorders

Borderline personality disorder (BPD) is a frequent psychiatric disorder since it affects 10% of psychiatric out-patients and 20% of in-patients [55]. It is characterized mainly by marked instability in various areas of psychic life and behavior, including affect regulation, interpersonal relationships, impulse control, and self-image, often accompanied by self-harm and suicidal ideation [56]. It has been suggested a significant overlap between BPD and ASD, particularly for what concerns the highest-functioning side of the autism spectrum. ASD and BPD could share some behavioral manifestations: acting out instead of verbalizing emotions, especially through self-injurious behavior, the presence of intense relationships and superficial friendships, miscommunications associated with impairments in social functioning (especially incorrectly assumed intentions), and emotionally charged meltdowns. This potential overlap between the two disorders could be possibly related with similar—but not identical—neurocognitive functioning. In fact, neuropsychological studies targeting the recognition of emotions in faces and tone of voice have found that both subjects with ASD and BPD have similar difficulty in

theory of mind and in accurate interpretation of emotions [57]. Dell'Osso et al. [58] showed that patients with BPD have higher autistic traits than healthy individuals. Moreover, higher levels of autistic traits were found to relate to a history of physical or sexual abuse and to lifetime suicidality among subjects suffering from BPD [58]. During the past ten years there has been a growing interest in mentalizing. Both in autism and in PD research, the term "mentalization" is referred to the implicit and explicit understanding of other persons' act as motivated by inner mental process such as beliefs, wishes, and fears [59, 60]. Clinical and empirical evidence suggests that there is a common ground in defect mentalizing skill both in PD and ASD [61, 62]. However, failure in mentalizing due to BPD is considered to be intermittent, often triggered by an emotional climate that the subject experienced as too intense. In ASD a low mentalizing skill is considered as one of the possible mechanisms underlying the interpersonal difficulties, but, in contrast to BPD, it appears more as a "trait condition," relatively stable in time and across situations, rather than a "state condition."

The co-occurrence of ASD and BPD is not rare. Rydén et al. [63] found that 15% of 41 female patients with BPD fulfilled diagnostic criteria for ASD. Noteworthy, the relevance of this comorbidity is supported by several clinical observations. Patients with comorbid BPD and ASD had significantly more frequent suicide attempts, more negative self-image, and lower global functioning. The association appears to be specific, as they did not seem to differ in number of comorbid axis I and II disorders with the exception of less common substance abuse [63]. Nanchen et al. [64] reported that almost half of 38 women with BPD scored beyond the ASD cut-off of the AQ. The subgroup with high autistic traits had lower scores for cognitive empathy and higher alexithymia scores. Conversely, Anckarsater et al. [31] reported a 12.2% prevalence of BPD among 74 ASD patients and Hofvander et al. [30] found that, among 122 referred adults with high-functioning ASD, 15% of females and 5% of males had comorbid BPD. Finally, Dudas et al. [65] compared 624 ASD, 23 BPD, and 16 comorbid (ASD + BPD) patients, and 2081 neurotypical controls. According to the report of this observational study, comorbid ASD and BPD patients appear to have the higher levels of autistic traits [65]. The clinical overlapping of the behavioral manifestation observed in the two conditions appears also to be present as a sub-clinical manifestation. A recent study of Chabrol and Raynal [66] examined the co-occurrence of autistic and borderline traits in a nonclinical sample of young adults and its influence on the levels of suicidal ideation, depressive symptomatology, and substance use. This study suggests that there is a significant minority of nonclinical adolescents characterized by the presence of both autistic and borderline traits, and higher levels of suicidal ideations. Taking this group into account may have implications in the understanding and prevention of suicidal behaviors [66].

Few studies analyzed the overlap between ASD and narcissistic personality disorder (NPD). It may be difficult to distinguish these disorders considering solely the behavioral level. Like individuals with ASD, patients with NPD tend to focus predominantly on themselves. NPD relationships are described as self-centered and

selfish [67]. The DSM-5 states that interpersonal relationships of patients with NPD are impaired due to a disregard for the sensitivities of others. In fact, for both ASD and NPD, there is clinical and scientific evidence for reduced empathic abilities [68, 69]. However, the limitations in empathy are expressed in different ways. Whereas individuals with ASD have limited competencies in theory of mind and are therefore impaired in cognitive empathy, i.e., recognizing and defining emotional expressions [68], patients with NPD show primarily reduced emotional empathy, i.e., sympathy and compassion, and they are less motivated to make attributions for the mental states of others [69]. Therefore, patients with NPD have no difficulties in identifying the needs and feelings of others but appear to be less interested in others' mental states and probably feel less compassion.

Strunz et al. [70] revealed clear differences between the personality profile of ASD subjects and the personality profiles of NPD and BPD patients and nonclinical controls. In sum, the ASD personality profile was characterized by introversion in almost all aspects, and low openness to experience, straightforwardness, orderliness, and conscientiousness. Dissocial behavior was significantly lower in individuals with ASD than both NPD and BPD patients. Compared to ASD patients, individuals with NPD were more extroverted, more open to experience and much less organized. Compared to patients with BPD, individuals with ASD were significantly more introverted and conscientious [70].

The relationship between histrionic personality disorder and ASD has been understudied, and a recent meta-analysis reported a low rate of diagnosis of histrionic PD in comorbidity with ASD [28]. However, among cluster B personality disorders, antisocial personality disorder (APD) could present overlapping appearance with ASD. According to DSM-5, antisocial personality is referred to those individuals who habitually and pervasively ignore or violate the rights and considerations of others without remorse [15]. Therefore, people with APD may be habitual criminals, or engage in criminal behaviors; they can also be manipulative and hurt others in non-criminal, but immoral or irresponsible ways, in violation of social norms and expectations. APD is sometimes known as "sociopathy" or "psychopathy" [71]. Indeed, in the first accounts of the condition, Hans Asperger denominated ASD as "Autistic Psychopathy" [72]. While defining the clinical picture of "Autistic Psychopathy," Asperger depicted some typical and unmistakable characteristics, such as the disturbance of contact, the disciplinary difficulties, the malice, the pedantries and stereotypies, the automaton-like nature of the whole personality, the lack of ability to learn, in contrast with relatively superior spontaneous performance. Asperger also recognized unemphatic conducts and aggressive behaviors among the ASD population [73]. Notably, some of these features seem to partially overlap those of APD. However, literature have scarcely focused on the potential comorbidity between the two conditions, and the majority of research was conducted in the last few years. The overlapping symptomatology might be related to the deficits in empathy showed by individuals affected by both disorders. In particular, psychopathic tendencies appear to be associated with diminished affective empathy (i.e., the capacity to respond with an appropriate emotion to another's mental states) but not cognitive empathy or

theory of mind (i.e., the ability to take another's perspective) [74]. Conversely, individuals with ASD would show deficits in theory of mind [75], but not in affective empathy [74]. In fact, in her translation and commentary on Asperger's work, Frith [73] suggests that while Asperger described some behaviors as antisocial in nature, the intent of such conducts may not have been malicious, but instead aimed at eliciting a clear emotional reaction in other people by individuals who found difficulties in interpreting the social world. It is worth mentioning that individuals with ASD have difficulty in understanding the perspective of others and consequently may react in a seemingly cold and uncaring manner in real-life situations [76]. However, if information is presented in a way that enables individuals with ASD to identify others' point of view, they appear to show as much concern and compassion as typically developing individuals. The available data thus suggest that, although both psychopathy and ASD are associated with social difficulties and a decreased emotional expression, the etiology, broad behavioral profiles, and the cognitive-affective deficits associated with these two disorders may be quite separate [74].

However, some studies showed that psychopathic tendencies could co-occur with ASD [77]. In particular, a distinct subgroup of autistic people with a stable pattern of antisocial behavior has been designated as having "callous–unemotional traits" [78], defined by a lack of empathy, a lack of guilt, a failure to put forth effort in important activities, and shallow emotions [79]. Additionally, some ASD behaviors may put them at risk of being persecuted by the criminal justice system. For instance, a disruption of routines, a lack of understanding of social situations, and poor negotiation skills might lead people with an ASD to becoming aggressive; an obsessional interest might lead someone to committing an offence in the pursuit of that interest, perhaps exacerbated by a failure to recognize the consequences of the behavior [80]. Recently, few researchers have sought to identify the presence of autistic subjects in forensic settings, finding that the proportion of people with ASD in the criminal justice system can be compared to that found among the general population, though they commit a variety of crimes and seem to have a number of predisposing features. Notably, there is poor evidence of the presence of comorbid psychiatric diagnoses (except in mental health settings) amongst offenders with ASD [80].

Conclusively, we suggest to carefully consider the clinical relevance of both possible comorbidity and differential diagnosis between cluster B personality disorders and ASD. Aside from theoretical consideration, the clinical relevance of the differential diagnosis is clear as very different care planning is required for the two conditions and similar therapeutic approaches have shown different results [81]. Furthermore, despite the common impairment in social and occupational functioning, alongside with several other clinical features, the severity of the clinical picture tends to diminish with time among patients with BPD, as opposed to what is described in ASD. Nevertheless, it is clinically crucial to correctly diagnose the presence of comorbidity as the severity of the symptoms and problem behavior appear to be more severe in this scenario.

10.5.3 ASD and Cluster C Personality Disorders

According to DSM-5 [15], cluster C personality disorders include the avoidant, dependent, and obsessive-compulsive personality disorder. Avoidant personality disorder is characterized by a pervasive pattern of social inhibition, feelings of inadequacy, and hypersensitivity to negative evaluation that begins by early adulthood and is present in a variety of contexts. Dependent personality disorder (DPD) is characterized by a pervasive and excessive need to be taken care of that leads to submissive and clinging behavior associated with fears of separation beginning in the early adulthood. The obsessive-compulsive personality disorder (OCPD) is described by pervasive preoccupation with orderliness, perfectionism, and mental and interpersonal control, at the expense of flexibility, openness, and efficiency beginning by early adulthood.

Frequently, avoidant behavior is present in individuals with ASD, and could be considered a consequence of the ASD itself. For some individuals with ASD, their disability in interpreting social cues leads to a major concern about what impression they make on others and even a disabling fear for social situations, thus increasing the risk for avoidant behavior. Moreover, elevated sensitivity to stressful environments because of visual and auditory perceptual difficulties may well contribute to avoidant behavior.

A meta-analysis by Vuijk [82], including four studies [29, 30, 83, 84], shows that avoidant PD and OCPD are among the most widespread PD in comorbidity with ASD (23% and 31%, respectively). Criteria for OCPD and ASD criteria show similarities, particularly about restricted behavior patterns. The major difference across the two categories regards the onset: for obsessive-compulsive PD, the onset of the behavior has to be at least "early adulthood," whereas for ASD, a childhood onset is stipulated [29]. However, the differential diagnosis could be difficult considering that obsessive-compulsive personality traits, even though not overtly dysfunctional, could be already present during earlier stages of life. According to Fitzgerald [85], there is a clear risk for misdiagnosis if ASD is not considered in patients with obvious obsessive-compulsive traits [85]. Nevertheless, there are features of compulsive personality disorder that are not typically seen in subjects with ASD, such as excessively high performance standards, perfectionism, a disproportionate inclination to self-criticism, and agonizing indecisiveness when the customary rules and values do not apply [86].

In his self-report, Paul [87] explored the phenomenological nature of the comorbidity between the autism spectrum disorder known as Asperger's syndrome (AS), obsessive-compulsive disorder (OCD), obsessive-compulsive personality disorder (OCPD), and major depressive disorder (MDD). The author used himself as the basis of a case study for the purpose of exploring the phenomenology of the intersections. In fact, during his life he received the diagnoses of AS, OCD, MDD, and OCPD. His hypothesis was that his AS created a "*vacuum of the mind*"—which he would define as an inner mental life that consists of abnormally few representations of real and living human beings—and that this vacuum made him susceptible to the development of

obsessive-compulsive traits (OCPD) and behaviors (OCD). AS is neither a necessary nor a sufficient condition for the genesis of OCD—many persons have OCD without AS, and conversely, many persons have AS without OCD; nevertheless, AS and OCD have been found to be related to a number of clinically significant ways. Paul [87] elaborated general hypotheses potentially susceptible of investigation: one of these assumed that "*if AS and OCPD are comorbid in a given subject, then the subject's obsessive pursuit of narrow interests is more likely to be circumscribed by rules, procedures, and restrictions than in subject with AS without OCPD.*"

10.6 Conclusion

Acknowledging the heterogeneous theoretical framework about personality disorders in ASD, we still consider the evaluation of personality of extreme clinical relevance in individuals with ASD. Apart from the troublesome and essential differential diagnosis among these conditions, we also regard the dimensional investigation of individual personality as a relevant field of research where, in fact, personality traits could mirror the heterogeneity of the clinical presentations of ASD. The two groups of conditions share many psychopathological features: from oddness (cluster A), to emotional dysregulation (cluster B), to obsessiveness and social avoidance (cluster C). However, the developmental anamnestic approach is diriment and crucial especially in the adult population. For this reason, an accurate clinical evaluation made by experts in neurodevelopmental disorders, together with the administration of appropriate standardized assessment tools, appears of extreme importance while assessing adults who present overlapping symptomatology. Comorbid ID could pose significant limitations in the adoption of standardized assessment tools, and the use of reference manual is recommended in these cases. As literature reports the possible comorbidity between ASD and PD, it is always important to take into account also this occurrence, that could imply more severe clinical outcomes and require more careful treatment approach.

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