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SYSTEMATIC REVIEW

ROLES OF ADVERSE CHILDHOOD EXPERIENCES AND EARLY MALADAPTIVE SCHEMAS IN ANTISOCIAL PERSONALITY DISORDER: A SYSTEMATIC REVIEW

Marianna Aceto, Nicole Loren Angelo, Andrea Gragnani

Abstract

Objective: Antisocial personality disorder (ASPD) is characterized by a pattern of negligence towards social norms, illicit and aggressive conduct, and lack of remorse. Adverse Childhood Experiences (ACEs) and subsequent development of Early Maladaptive Schemas (EMS) play a significant role in psychopathology vulnerability, including personality disorders. However, the evidence on the link between cognitive and environmental vulnerability in ASPD specifically is still limited. The aim of the present review is to analyze and discuss the available literature exploring the role of specific ACEs and EMSs in the development of ASPD and investigate the possible mediating role of cognitive variables between environmental factors and ASPD.

Method: A systematic analysis was conducted of records published from January 1st, 2002 to March 18th, 2025 on APAJournals, MEDLINE, Google Scholar, PubMed, using keywords pertaining to three concepts: "antisocial personality disorder", "early maladaptive schema/schema mode", "adverse childhood experiences".

Results: A total of 7719 records were screened, while 229 records were analyzed against our eligibility criteria, resulting in the inclusion of 26 records. The studies emphasize the contribution of physical abuse, and Disconnection/Rejection and Impaired limits domains in the etiology of ASPD. Regarding the mediation between ACEs and ASPD, various studies focused on dysfunctional schema-modes, finding that Child, Over-compensatory, and Healthy Adult modes play a role in ASPD, highlighting the relevance of maladaptive coping and rapid emotional fluctuation in the disorder.

Conclusions: The results enhance our understanding of the contribution of ACEs and EMS in the development of ASPD; however, evidence of a link between cognitive and environmental variables in the development of the disorder is scarce and heterogeneous. Going forward, studies should particularly investigate environmental and cognitive vulnerability to promote a greater understanding of ASPD functioning and tailor clinical interventions based on specific hyper-invested goals and the learned maladaptive coping strategies to pursue them.

Key words: antisocial personality disorder, adverse childhood experiences, early maladaptive schemas, schema modes

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Introduction

Antisocial Personality Disorder (ASPD) – characteristics, nosography, and comorbidities

Antisocial Personality Disorder (ASPD) is characterized by an inflexible, maladaptive, and persistent pattern of disregard and violation of rights, desires, and feelings of others. Individuals with ASPD are uncapable to conform to social norms, tend to manipulate others and adopt immoral behaviors for personal gain, and show a reduced sensitivity to guilt or remorse for their actions (APA, 2023; Mancini et al., 2009). Other characteristics of ASPD include consistent irresponsibility, aggression, and disregard for the safety of self or others and involvement in illegal activities. According to the current nosography (APA, 2023), to establish a diagnosis of ASPD this pervasive behavioral pattern must begin in childhood or adolescence and be preceded by a conduct disorder with onset before age 15.

The diagnostic framework of ASPD is a matter of debate. Experimental studies and clinical observations (for a review see Glenn et al., 2013) highlight the heterogeneity of the construct of "antisociality", the over-inclusiveness of the nosography, and the frequent comorbidities and overlaps with other diagnostic categories.

Currently, the nosography proposes three conceptualizations of the disorder: antisocial personality disorder, described in the DSM-5-TR (APA, 2023), the

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antisocial personality syndrome, conceptualized by the ICD-10 (WHO, 1992), and the antisocial personality disorder with psychopathic characteristics, included in Section III of the DSM-5-TR (APA, 2023).

Each conceptualization highlights specific aspects of this complex syndrome. The diagnostic framework proposed by the DSM-5-TR focuses predominantly on externalizing behavioral components such as impulsive and aggressive conduct, irresponsibility, the tendency to lie, and the involvement in illegal activities. In Section III of the DSM-5-TR, antisocial personality disorder with psychopathic features is described as a variant of antisocial personality disorder characterized by low levels of anxiety, emotional detachment, and high levels of attention seeking. The latter formulation draws on the two-factor model of psychopathy proposed by Hare (2003), which in turn was inspired by the traditional conceptualization of psychopathy formulated by Cleckley (1976) in which Factor 1 reflects core interpersonal and affective characteristics of psychopathy, like callousness and manipulation, and Factor 2 features socially deviant lifestyle, like poor behavioral control, involvement in criminal activity, and parasitic lifestyle (Hare & Neumann, 2008). The ICD-10, on the other hand, highlights a set of aspects pertaining to the cognitive, interpersonal, and affective spheres and outlines a personality characterized by instability in interpersonal relationships, contempt for social responsibilities, and indifference towards others. While the traditional approach to the diagnosis of psychopathy considered aspects of a psychological nature, such as affective and interpersonal traits (Cleckley, 1976; Hare et al., 1991; Hare & Neumann, 2008), the nomothetic approach to the diagnosis proposed by the DSM and the ICD (Münch et al., 2020) proposes a syndromic framework overly focused on deviant behavior (Hare et al., 1991), which is distant from the traditional psychological framework of psychopathy. Despite criticism of current nosography, some authors argue that ASPD and psychopathy are conditions arranged along a continuum within which psychopathy represents the most extreme form of antisociality (Akhtar, 2000), while others argue (Venables et al., 2014; Werner et al., 2015) that despite sharing common characteristics, ASPD and psychopathy represent two distinct diagnostic entities, due to specific traits and different motivations underlying the behavior. The focus of this study is on ASPD as a condition covered by the DSM-5-TR nosography and characterized by a set of purely behavioral and psychological aspects, such as the inability to conform to social norms, dishonesty, irritability and physical aggression, habitual irresponsibility, disregard for one's and others' safety, and lack of remorse. We consider the variant of ASPD with psychopathic features, characterized by emotional detachment, low levels of anxiety, and seeking social attention, to be distinct, altough of interest to us. The available literature emphasizes the presence of two commonly found patterns, the first one characterized by impulsiveness and reactive aggression, the second by detachment, emotional coldness, and proactive/predatory aggression (Pardini et al., 2003). Individuals with the first pattern would be hyper-vigilant towards external threats or provocations to which they would react with dysregulated aggression and, in some cases, with guilt towards the victims of their actions. Individuals that present the second pattern would show, on the contrary, a limited reactivity to fear and a marked tendency to dominate others and the use of hetero-aggressive or predatory conduct for personal advantage. In this case, guilt is seldomly manifested and attention towards the rights of others and social norms is reduced or absent (G.R. Patterson et al., 1998). The etiology of ASPD is multi-factorial. The available literature currently agrees that the risk of developing ASPD is influenced by a complex interaction between multiple biological (Caspi 1995, 2002; Kumari et al., 2013), genetic (Kendler et al., 2008; Schorr et al., 2020), cognitive (Bernstein et al., 2007), and environmental variables, including the social context (G.R. Patterson et al., 1998; Anda et al., 2006; for a review see Glenn et al., 2013).

Adverse Childhood Experiences (ACEs) as risk factors in the development of ASPD

Numerous studies bring attention to the relationship between Adverse Childhood Experiences (ACEs) and problematic physical and mental health outcomes, such as frank psychopathological symptoms in clinical and general population samples (Anda et al., 2006; Bartlett & Sacks, 2019; Bernet & Stein, 1999; DeLisi et al., 2019; Edwards et al., 2003; Hovens et al., 2010; Kessler et al., 2010; Schorr et al., 2020; Sroufe et al., 2005). ACEs are a wide range of experiences and events that threaten the physical and psychological safety of a child, such as abuse, neglect, bullying, domestic violence, accidents and injuries, discrimination, and extreme poverty (E.B. Patterson, 1991). Research has drawn attention to how these experiences can have adverse consequences on physical and psychological health throughout the lifetime, resulting in pathological developmental trajectories, especially if they occur during critical developmental moments, they are chronic and/or severe in nature and/or are cumulative over time (Anda et al., 2006; Braga et al., 2017). The evidence acknowledges physical abuse, sexual abuse, and neglect as relatively common ACEs (Gilbert et al., 2009; Stoltenborgh et al., 2013).

Regarding psychopathy, although a robust body of empirical evidence has underlined the role of genetic and temperamental factors in the etiology of psychopathy, especially in relation to the presence of callous-unemotional traits since childhood (Frick et al., 2003), the literature has traditionally highlighted a characteristic impairment in the affective and interpersonal sphere in individuals with psychopathy, expressed, among other manifestations, by an inability to build and maintain strong attachment bonds (in Schimmenti et al., 2014). These observations have contributed to the appreciation of psychological and environmental variables in the development and maintenance of psychopathy. In this regard, some authors have hypothesized that the core characteristics of psychopathy derive from early adverse experiences, such as abuse, deprivation, neglect and inconsistent discipline (Cornah et al., 2003), while others (Schimmenti et al., 2014) have highlighted the central role of insecure and disorganized attachment styles. Not unlike psychopathy, the available evidence has shed light on various ACEs occurring during the developmental stages of individuals with ASPD, such as parental neglect characterized by rigid discipline and lack of affection, a low educational level, exposure to family members or peers engaged in illicit activities (Berenz et al., 2013; Bernstein & Fink, 1998). It has been shown that physical and emotional neglect have an impact on impulsiveness and on the cerebral development of a child (McMahon et al., 2018), aspects that, in turn, influence emotional regulation and impulse control disorders linked to the development of antisocial behaviors. A longitudinal study (Fergusson et al., 2008) exploring the association between ACEs and ASPD, emphasized how physical abuse represents the most prevalent ACE in individuals with ASPD between the ages of 18 and 25 and how those

that experienced regular and/or more severe physical abuse presented a 2 to 7 times greater risk to develop ASPD compared to those that did not.

Although there is widespread recognition that adverse experiences occurring early in development represent potential risk factors, rendering the individual more vulnerable to develop psychopathology in the face of adversity, in adulthood, the debate regarding which mechanisms are responsible for the predictive relationship between ACEs and psychopathology is still open. The diathesis-stress model (Monroe & Cummins, 2014; Rosenthal, 1963) suggests that individuals have a varying vulnerability to the development of psychopathology and that individuals' response to the same experiences, including adverse ones, may significantly contribute to differentiating pathological or favorable outcomes from a prognostic point of view.

Early Maladaptive Schema (EMS) as a link between ACEs and ASPD

Some of the literature (for a review see Aafjes-van Doorn et al., 2020) focuses on the role of cognitive factors (i.e., beliefs, schemas, biases, mental representations, internal working models) in explaining how ACEs are linked to psychopathology (e.g., Bowlby, 1988; Young et al., 2003; for empirical support see Emami et al., 2024; Shah &Waller, 2000; Valiente et al., 2014). In the clinical setting, cognition has a significant relevance to understanding psychological functioning and is a specific target of evidence-based psychotherapeutic approaches. A theoretical model that we will be considering for the purposes of this review and that particularly considers the mediating role of cognitive factors between early adverse experiences and psychological functioning is Schema Therapy. In this model, proposed by Jeffrey Young (Young, 1998; Young et al., 2003), Early Maladaptive Schemas (EMS) are defined as "*the unconditional and dysfunctional underlying beliefs about the self and one's relationship with others*" (Lobbestael et al., 2008). These schemas are chronic and maladaptive, originate from adverse childhood experiences, and they selectively filter incoming experiences. Another construct central to Young's model that emphasizes the role of coping responses in personality disorders is that of Schema modes which are emotional, behavioral, and cognitive states that an individual expresses at a given moment in time. While the EMS reflect a one-dimensional theme and tend to be stable, Modes represent a combination of EMS and/or three types of coping strategies, Surrender, Avoidant, Over-Compensation (Young, 1998; Young & Brown, 2003) and greatly depend on the contingent emotional state. The literature shows that individuals with severe personality disorders exhibit nonintegrated mental states that, unknowingly, shift frequently and rapidly between different problematic emotional states (Bernstein et al., 2007; Horowitz, 2013; Semerari et al., 2003; Young et al., 2003), making it difficult for the clinician to define the target of the intervention. Originally, Young identified 18 EMS, divided in 5 domains, and 11 modes divided in 4 domains (see **table 1**).

Bernstein et al. (2007) elaborate on Young's model and propose another 4 Modes that the Authors found to be common in ASPD: Angry Protector Mode, Predator Mode, Conning and Manipulative Mode, and Over-Controller Mode (Obsessive and Paranoid subtypes). The literature recognizes the presence of different schema patterns across different PDs (Lobbestael et al., 2008). Regarding ASPD, empirical studies and clinical observations suggest that antisocial patients frequently exhibit behavior related to the Angry Child and the Bully and Attack modes (Lobbestael et al., 2008). Studies conducted by Bernstein et al. (2007; Keulen-de Vos et al., 2013) have observed the activation of certain Modes in ASPD, specifically Angry Protector, Vulnerable Child and Punitive Parent mode. Recent reviews (Bakos et al., 2015; Davidson et al., 2025; Gahlot & Biraje, 2024; Giesen-Bloo et al., 2006; Karaburun & Çalışır, 2025; Renner et al., 2013; Sargın et al., 2017; Sousa et al., 2024; Taylor et al., 2017; Tracy et al., 2025) have highlighted the efficacy of Schema Therapy, in individual or group settings, in the treatment of personality disorders. Indeed, Schema Therapy reduces symptomatic distress, improves quality of life, substantially reduces

Table 1. *Early Maladaptive Schemas and Schema Modes (Young et al., 2003; Bernstein et al., 2007)*

Early Maladaptive Schemas		Schema Modes	
Disconnection/ Rejection	1. Abandonment/Instability 2. Mistrust/Abuse 3. Emotional deprivation 4. Defectiveness/Shame 5. Social Isolation/Alienation	**Child modes**	1. Vulnerable child 2. Angry child 3. Impulsive, undisciplined child 4. Lonely child
Impaired Autonomy/ Performance	6. Dependence/Incompetence 7. Vulnerability to harm or illness 8. Enmeshment/Underdeveloped Self 9. Failure	**Dysfunctional coping modes**	5. Detached protector 6. Detached self-soother/ self-stimulator 7. Compliant surrenderer 8. Angry protector
Impaired limits	10. Entitlement/Grandiosity 11. Insufficient Self-control/Self-discipline	**Maladaptive Parent modes**	9. Punitive, critical parent 10. Demanding parent
Other directedness	12. Subjugation 13. Self-sacrifice 14. Approval-seeking/Recognition-seeking	**Over-compensatory modes**	11. Self-aggrandizer mode 12. Bully/Attack mode 13. Conning/Manipulative mode 14. Predator mode 15. Over-controller mode
Over-vigilance/ Inhibition	15. Negativity/Pessimism 16. Emotional inhibition 17. Unrelenting standards/Hyper criticalness 18. Punitiveness		

maladaptive schemas, schema modes, and dysfunctional coping responses. It is however important to underline how most of the studies investigate the efficacy of Schema Therapy in borderline personality disorder or other personality disorders; therefore, literature regarding specifically to ASPD is scarce. These results are confirmed in a meta-analysis (Zhang et al., 2023) in which it was found that Schema Therapy has a moderate positive effect on relieving PD symptoms, especially in a group setting. Nonetheless, recent studies (Bernstein et al., 2007; Chakhssi et al., 2010) obtained promising results: applying schema therapy to patients with ASPD in forensic settings reduced recidivism rates. Particularly, the use of the mode model allows to work on the sudden and frequent mood fluctuation and dysfunctional coping responses, therefore, regulating coping responses and developing more adaptive schema modes.

Study objectives

At the current state of research, the interaction between specific ACEs and EMS is still little explored in the ASPD population. Our goals were to perform a systematic review of the literature and offer a qualitative synthesis of the empirical studies that have dealt with:

1) Exploring the role of specific ACEs in the development of ASPD. In this sense, we hypothesize that physical abuse and physical neglect will be the most frequent and specific ACEs in ASPD;
2) Identifying the most typical EMS in the ASPD population. We hypothesize that the most representative EMS in ASPD are those linked to impulsive domains. We expect that the most represented schemas will be those pertaining to the Impaired limits domain and, more specifically, Entitlement/Grandiosity and Insufficient self-control/self-discipline, and the Disconnection/Rejection Domain, more specifically Mistrust/Abuse;
3) Exploring the role of cognitive factors, precisely EMS, in mediating the link between specific ACEs and the development of ASPD. We expect to find that the EMS play a statistically significant mediating role between ACEs and ASPD.

Methods

The present review analyzed empirical studies, written in Italian and/or English, published from January 1st, 2002 to March 18th, 2025. Seeing that our objectives were three-fold i) explore the role of specific ACEs; ii) and EMS in the development and maintenance of ASPD; iii) and the mediating role of EMS on the link between ACEs and the development and maintenance of ASPD, we used three specific research filters for the variables considered and divided our results accordingly.

Eligibility criteria

The studies were analyzed according to the following eligibility criteria, divided in specific categories for each filter.

1. *Studies that evaluate the presence of ACEs in ASPD (ACE+ASDP filter):* the studies pertaining to this category were included in the review if they were primary empirical studies (i.e., cross-sectional, RCT or longitudinal) that evaluated the presence of ACEs in individuals aged 15 years and older with a diagnosis of ASPD, and that used categorical or dimensional measures (e.g., Millon Clinical Multiaxial Inventory-III, MCMI-III, Millon et al., 1994; Assessment of DSM-IV Personality disorders, ADP-IV, Doering et al., 2007; Personality Disorder Questionnaire-4 PDQ-4, Hyler et al., 1988; Alcohol Use Disorder and Associated Disabilities Interview Schedule – Diagnostic and Statistical Manual of Mental Disorders, AUDADIS, Grant et al., 2001; Structured Clinical Interview for DSM-III-R Personality Disorders, SCID-II, First et al., 1994; Sorias et al., 1990; International Personality Disorder Examination, IPDE, Loranger et al., 1994; Composite International Diagnostic Interview, CIDI, WHO, 1990). The following studies were excluded: non empirical or non-primary studies (i.e., review); qualitative studies or studies conducted on samples under the age of 15 years; studies that did not take into consideration an ASPD diagnosis (i.e., studies that highlight the presence of antisocial-like behavior, for example dishonesty, delinquent behavior, violent behavior, etc.) or the presence of ACEs in the population examined; studies that only evaluated the presence of an ASPD diagnosis or that solely evaluated the presence of ACEs in the population without taking into consideration an ASPD diagnosis.
2. *Studies that evaluated the presence of EMS in ASPD (EMS + ASPD filter):* studies pertaining to this category were included in the review if they were primary empirical studies (i.e., cross-sectional, RCT or longitudinal) that evaluated the presence of EMS in individuals aged 15 or over with a diagnosis of ASPD and that used categorical or dimensional measures. The following studies were excluded: non empirical or non-primary studies (i.e., review); qualitative studies or studies conducted on samples under the age of 15 years; studies that did not take into consideration an ASPD diagnosis (i.e., studies that highlight the presence of antisocial-like behavior, for example dishonesty, delinquent behavior, violent behavior, etc.) or the presence of EMS in the population examined; studies that only evaluated the presence of an ASPD diagnosis or that solely evaluated the presence of EMS in the population without taking into consideration an ASPD diagnosis.
3. *Studies that evaluated the presence of EMS in a population with an ASPD diagnosis, linking them to a specific ACE or studies that evaluated the presence of ACEs in a population with an ASPD diagnosis, linking them to specific EMS (ACE + EMS + ASPD filter):* main criterion in this category is the presence of the mediating role of EMS between ACEs and ASPD, in terms of traits and a confirmed diagnosis in a clinical or non-clinical population aged 15 or older, in primary empirical studies (i.e., cross-sectional, RCT or longitudinal) that used categorical or dimensional measures. The following studies were excluded: non empirical or non-primary studies (i.e., review); qualitative studies or studies conducted on samples under the age of 15 years; studies that did not take into consideration an ASPD diagnosis (i.e., studies that highlight the presence of antisocial-like behavior, for example dishonesty, delinquent behavior, violent behavior, etc.) in relation to the presence of ACEs or EMS; studies that evaluated the presence of an ASPD diagnosis in association with specific EMS or ACE in a population under the age of 15.

In general, studies that evaluated adverse childhood experiences and early maladaptive schemas in other clinical samples (e.g., other personality disorders, mood disorders, anxiety disorders, etc.,) were not considered eligible for a further analysis and, therefore, were not included in our review.

Research procedure and sources

The literature review was conducted using four electronic databases (PubMed, MEDLINE, APAJournals, and Google Scholar) to identify eligible studies. In each database specific keywords were inserted referring to specific central concepts: antisocial personality disorder, early maladaptive schemas, adverse childhood experiences, schema therapy.

Selection of studies

During the screening phase (January 1st, 2002 – March 18th, 2025) the articles resulting from the consultation of the databases were analyzed separately by two authors of the study based on title and abstract to evaluate their includability in the review. Successively, we proceeded to the second phase of the screening process characterized by a more detailed analysis of the full text of the articles selected, examining them following the eligibility criteria. During each phase, any doubts were resolved through discussion with a third author, external to the selection phase.

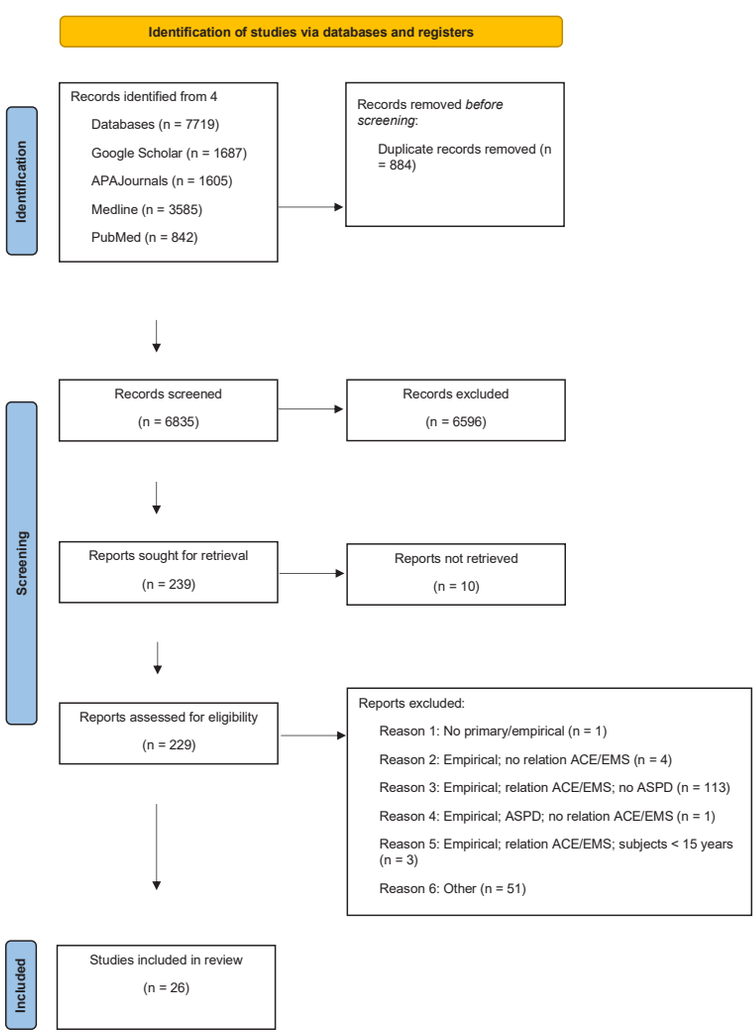
Results

The consultation of the databases offered a total of 7719 articles (Google Scholar n = 1687; APAJournals n = 1605; Medline n = 3585; PubMed n = 842), of which 884 duplicates, for a total of 6161 screened articles for title and abstract. 229 articles were evaluated against our eligibility criteria resulting in a total of 26 articles included in the review. More details regarding the selection and inclusion process of the studies are offered in **figure 1** (PRISMA Flow-chart).

Given that the objectives of the review were to i) explore the role of specific ACEs; ii) specific EMS in the development and maintenance of ASPD; iii) and the role of the relationship between ACEs and EMS in the development and the maintenance of ASPD, the 26 articles were divided according to said objectives.

We would like to note that the studies emerged from the keyword launch for one filter, but that resulted, through a more detailed analysis, more specifically pertinent to

Figure 1. *PRISMA Flow-chart.*



another filter, were inserted in the most representative filter (e.g., a study investigating the presence of ACEs in a population of individuals with ASPD, aged 15 years or older emerging from the ACE + ASPD filter launch, but that investigated the presence of specific modes in APD individuals, will be included in the ACE + EMS + ASPD filter).

Studies that evaluate the role of specific ACEs in the development and maintenance of ASPD

13 studies included in the review investigated the presence of specific ACEs in the development and maintenance of ASPD.

The most representative and frequently reported risk factor that emerged from the studies is physical abuse (Afifi et al., 2011; Chen et al., 2022; Dargis et al., 2016; Evren et al., 2006; Harris et al., 2021; Kolla et al., 2013). Other studies, however, found an impact of physical neglect (Afifi et al., 2011; Alegria et al., 2013; Chen et al., 2022; Li et al., 2023), verbal abuse (Alegria et al., 2013), emotional neglect (Afifi et al., 2011; Li et al., 2023), and sexual abuse (Alegria et al., 2013; Chen et al., 2022; Drury et al., 2019).

Reti et al. (2002) highlighted the influence of parenting style (in terms of the absence of care or elevated control) on the development of ASPD. Arditti and Le Strat (2020) found that the prevalence of ASPD is greater in children whose parents experienced traumatic childhood experiences or present a history of ASPD. Finally, Bruce and Laporte (2015) and C. Yang et al. (2022) shed light on how child maltreatment is associated with the development of ASPD. For more details, see **table 2**.

Studies that evaluate the role of specific EMS in the development of ASPD

8 studies investigated the role of specific EMS in the development and maintenance of ASPD (Bilge & Balaban, 2021; Corral & Calvete, 2014; Jacobs et al., 2019; Lobbestael & Arntz, 2012; Lobbestael, Arntz, Cima et al., 2009; Lobbestael et al., 2008; Shorey et al., 2014; Specht et al., 2009).

The studies show that the most represented schemas and modes in ASPD are: Social isolation/Mistrust (Bilge & Balaban, 2021); Angry Child (Jacobs et al., 2019; Lobbestael & Arntz, 2012; Lobbestael et al., 2008), Bully and Attack mode (Lobbestael & Arntz, 2012; Lobbestael et al., 2008;); Disconnection/Rejection and Impaired limits (Corral & Calvete, 2014; Specht et al., 2009); Impulsive Child (Lobbestael et al., 2008). Shorey et al. (2014) found positive correlations between the Disconnection/Rejection, Impaired Autonomy, Impaired limits, Other-directedness. For more details, see **table 2**.

Studies that evaluate the role of EMS in mediating the relationship between ACEs and ASPD

5 studies (Batool et al., 2017; Lobbestael et al., 2005; Lobbestael & Arntz, 2010; Mertens et al., 2020; Pellerone et al., 2016) investigate the specific mediating role of EMS on the relationship between ACE and ASPD were found.

Batool et al. (2017) found a weak positive correlation between permissive parenting style ($r = 0.23$, $p < .05$) and ASPD, a moderate positive correlation between EMS ($r = 0.38$, $p < .01$) and ASPD in a non-clinical sample of university students: EMS, however, do not seem to mediate the relationship between permissive parenting style and ASPD ($R^2 = 0.17$). Although permissive parenting and early maladaptive schema possibly influence the development of ASPD, EMS do not influence parenting style in a way that necessarily leads to the development of ASPD.

The Lobbestael et al. (2005) study compared PD patients (ASPD and BPD) and non-clinical individuals regarding schema modes and childhood abuse history. The Authors found that ASPD patients score significantly higher than non-clinical individuals, albeit lower than BPD patients, on Detached Protector, Angry/Impulsive Child, Abandoned Child, and Punitive Parent modes. While the Bully and Attack mode was higher in the ASPD group, although not significantly, these patients score significantly higher on the Healthy Adult mode. The results would suggest that the Bully and Attack mode is specific to ASPD patients. Further, physical, emotional, and sexual abuse are significantly higher in ASPD patients as compared to the non-patient group, but not to the BPD group. In conclusion, as stated by the Authors, the results suggest that ASPD patients tend to deny the Abandoned/Abused Child mode and the results do not point towards cognitive variables mediating the relationship between childhood abuse and the development of ASPD.

Similarly, Lobbestael and Arntz (2010) found that ASPD patients score higher than non-patients on maladaptive modes and childhood trauma; while the two groups obtained similar results regarding adaptive modes ($\chi^2 = 13.67$; $p < .001$). The results suggest that in terms of adaptive modes ASPD and non-clinical individuals are similar. In general, the Authors found that the severity of childhood trauma was significantly and positively correlated with maladaptive ($r_s = 0.27$; $p = .002$) and significantly and negatively correlated with adaptive modes ($r_s = -0.20$; $p = .02$); in other words, severe childhood abuse possibly influences the development of specific modes.

A significant correlation between child maltreatment (intended as emotional abuse, emotional neglect, sexual abuse, and physical abuse) and the development of maladaptive schema modes emerges from the study of Mertens et al. (2020). Indeed, the authors found a positive correlation between physical abuse and the development of ASPD ($r = 0.23$, $p < .05$) and the mediating role of Parent mode between emotional abuse and the development of ASPD ($\beta = -0.49$, $p < .001$) in a clinical sample of PD patients. The results of the study, therefore, suggest that experiences of physical abuse during childhood could contribute to the development of ASPD, while Parent mode seems to partially explain the influence of emotional abuse during childhood and the future development of ASPD.

Pellerone et al. (2016), evaluating the influence of parenting styles on the development of specific EMS in individuals with ASPD, found that low maternal care or a maternal unemotional control style (characterized by high levels of control and low levels of care) influence the development of schemas linked to the Disconnection/Rejection domain. For more details, see **table 2**.

Discussion

The objective of the present study was to analyze the scientifical research contributions that explored typical and significant ACEs and EMS in individuals with ASPD, and that explored the role of EMS in mediating the relationship between ACEs and ASPD. Considering the threefold objective of our review, the analyzed studies

Table 2. *Characteristics of studies included in review*

Study	Design	Sample	Objective	Instruments	Main results
ACE+ASPD FILTER					
Afifi et al., 2011	Cross-sectional	n = 36.309 of the general population (> 20 years of age)	Examine the relationship between ACE and Axis II PDs.	Specific questions to assess ACE and household dysfunction Alcohol Use Disorder and Associated Disabilities Interview Schedule-Diagnostic and Statistical Manual of Mental Disorders -Fourth Edition (AUDADIS-IV; Grant et al., 2001) for ASPD symptoms	Almost all types of child abuse, neglect, and household dysfunction were associated with an increased likelihood of having ASPD.
Alegria et al., 2013	Cross-sectional	n = 1.226 civilian, non-institutionalized adults, 18 years and older, with an ASPD diagnosis	Examine sex differences in childhood and adult adverse events, lifetime psychiatric comorbidity, and clinical correlates of ASPD.	Specific questions to assess ACE AUDADIS-IV (Grant et al., 2001)	Women with ASPD were more likely to report physical neglect, verbal abuse, physical abuse, emotional neglect, and sexual abuse.
Arditti & Le Strat, 2020	Cross-sectional	n = 36.309 civilian, non-institutionalized adults, 18 years and over.	Prevalence of psychiatric disorders according to the presence of traumatic events in their parental history.	AUDADIS-5 (Grant et al., 2010)	Significantly higher prevalence of psychiatric disorders in children when parents experienced a traumatic event in childhood. Prevalence of ASPD in children was higher when the parent reported a personal history of ASPD and a history of trauma.
Bruce & Laporte, 2015	Cross-sectional	n =192 male inpatients	Examine the conceptual pathway which links childhood traumatic exposure, development of antisocial behavior (early vs late starter APSD) among adult inpatients with SMI.	SCID-II (First et al., 1995) Traumatic History Questionnaire (THQ; B. Green, 1996)	Participants with a history of childhood trauma were more likely to meet criteria for early starter ASPD compared to controls.
Chen et al., 2022	Cross-sectional	n = 483 violent inmates incarcerated at a men's prison in Nanjing, China of which n = 116 present ASPD.	Explore the relationship among childhood maltreatment, impulsiveness and antisocial personality in violent male inmates with and without ASPD.	Personality Diagnostic Questionnaire-4 (PDQ-4; J. Yang et al., 2000) Child- hood Trauma Questionnaire-28 item Short Form (CTQ- SF; Bernstein et al., 2003)	Inmates with ASPD reported emotional and physical neglect.
Dargis et al., 2016	Cross-sectional with retrospective self-report data	n = 183 incarcerated adult males aged 18 to 55.	To investigate which construct (conduct disorder, ASPD, psychopathy) is most strongly associated with specific abuse history.	Psychopathy Checklist-Revised (PCL-R; Hare, 2003) Interviews to assess ASPD in adulthood and Conduct Disorder in childhood were conducted following the DSM-IV-TR criteria Childhood Trauma Questionnaire (CTQ; Bernstein & Fink, 1998)	Number of adult ASPD symptoms were significantly associated with physical abuse.

Table 2. *Continued*

Drury et al., 2019	Retrospective	n = 863 active correctional clients in a federal jurisdiction (mean age 44 years). 24.45% had a diagnosis of ASPD.	To test the hypothesis that childhood sexual abuse (CSA) was positively associated with sexual offending during adulthood among a population of federal correctional clients.	ACE were scored on a 3-point ordinal scale and were assessed based on self-reports Prior DSM-IV diagnosis as documented in personal files	Rape/sexual abuse seem to contribute to the development of ASPD.
Evren et al., 2006	Cross-sectional	n = 66 alcohol and n = 66 drug dependent inpatients according to DSM-IV criteria. n = 31 presented ASPD (30.55±8.86)	Establish the prevalence rate of ASPD in a group of treatment-seeking Turkish substance dependent patients; examine the relationship of ASPD with Axis I disorders; with severity of anxiety, depression and substance use, and with childhood abuse history.	SCID-II (Sorias et al., 1990; Spitzer e al., 1989) Childhood Abuse and Neglect Questionnaire (CANQ; Yargic et al., 1994)	Patients with ASPD had higher rates for childhood physical abuse, verbal abuse and neglect, suicide attempt history and self-destructive behavior than patients without personality disorder.
Harris et al., 2021	Cross-sectional	n = 150 African American women between the ages of 18 and 64 (35.57±10.22) recruited from a level-1 trauma public hospital.	Examine the mediational role of PTSS in the relation between CPA and AS traits in a sample of African American women with histories of intimate partner violence (IPV).	Childhood Trauma Questionnaire – Short Form (CTQ-SF; Bernstein et al., 2003) Posttraumatic Diagnostic Scale (PDS; Foa et al., 1997) International Personality Disorder Examination – Screening Questionnaire (IPDE-SQ; Loranger, 1999)	Most of the sample endorsed three or more AS traits; however, no significant direct effect of CPA on AS traits was found.
Kolla et al., 2013	Cross-sectional	n = 10 violent offenders with ASPD and psychopathy (ASPD+P; 39.0±5.7); n = 15 violent offenders with ASPD and no psychopathy (ASPD–P; 35.0±9.3); n = 15 nonoffenders (35.9±8.1).	Document experiences of childhood maltreatment among violent offenders with ASPD distinguishing between those with and without the syndrome of psychopathy (+P and –P), and to determine whether maltreatment is associated with proactive and reactive aggression.	SCID-II (First et al., 1997c) Psychopathy Checklist-Revised (PCL-R; Hare, 2003) Early Trauma Inventory (ETI; Bremner et al., 2000)	ASPD-P offenders obtained lower total scores for childhood abuse as compared to ASPD+P but were not statistically significant. Aggression may be affected by experiences of abuse in childhood.
Li et al., 2023	Cross-sectional	n = 423 adult male prisoners, aged 18-65, of which n = 166 with ASPD.	Determine whether NOS1AP genetic variability and childhood trauma are associated with ASPD, and whether these polymorphisms interact with childhood trauma to affect the severity of ASPD in Chinese male prisoners.	Personality Diagnostic Questionnaire for the DSM-IV (PDQ-4; Hyler, 1994) CTQ-SF (Bernstein et al., 1994; Xing-Fu et al., 2005)	Emotional abuse, physical abuse, sex abuse, emotional neglect, and physical neglect were higher in the ASPD group.

Table 2. *Continued*

Reti et al., 2002	Retrospective/ Longitudinal	n = 742 community subjects between the ages od 34-94 (mean age = 51 years).	Assess varied and comprehensive measures of parenting behavior in a community sample and analyze the contribution they made to later antisocial traits.	International Personality Disorder Examination (IPDE; Loranger et al., 1994) Parental Bonding Instrument (PBI; Parker et al., 1979) Questions regarding other parenting variables: discipline, punishment, and rules.	For men, low maternal care and high maternal behavioral restrictiveness were significantly associated with adult antisocial traits. For women, low paternal care and high maternal denial of psychological autonomy were significantly associated with adult antisocial traits.
C. Yang et al., 2022	Cross-sectional	n = 2358 male inmates located in Guangdong, China, aged 18 to 69 (35.44±9.67). 21.2% reported ASPD (n = 316)	Investigate the prevalence of probable ASPD and BPD among prisoners and examine the mediating effect of difficulties in emotional regulation between childhood trauma and symptoms of ASPD and BPD.	PDQ-4+ (Huang et al., 2007) Childhood Trauma Questionnaire – Brief screening version (CTQ; Bernstein et al., 2003; Wang et al., 2019)	ASPD had significant positive correlations with childhood trauma and all dimensions of difficulties in ER.
EMS+ASPD FILTER					
Bilge & Balaban, 2021	Cross-sectional	n = 654 participants: 368 (56.4%) women and 286 (43.6%) men, aged 18-75 years,	Examine the relationship between PDs and EMS; to determine the EMS that predict PDs; investigate the moderating role of gender in the relationship between PDs and EMS.	Coolidge Axis II Inventory Plus Turkish Form (CATI+TR; Bilge, 2018; Bilge & Berke, 2017) Young Schema Questionnaire-Short Form 3 (YSQ-SF; Soygut et al., 2009; Young et al., 2003)	The Isolation/Mistrust Schema predicts, more than others, ASPD.
Corral & Calvete, 2014	Cross-sectional	n = 119 men convicted of intimate partner violence (IPV) in Spain, aged 19 to 70 years (40.96±9.70). Of which ASPD was found in 6.1%.	Examine the prevalence of PD traits in a sample of men who committed violence against their partners and the relationship between EMSs domains and PD traits.	Millon Clinical Multiaxial Inventory-III (MCMI-III; Millon et al., 1994) YSQ-SF (Young & Brown, 2003)	The impaired limits domain was positively associated with antisocial PD traits. The disconnection/rejection domain was positively associated with antisocial PD traits.
Jacobs et al., 2019	Cross-sectional	n = 521 participants recruited at the psychiatric department of a hospital in Germany.	Replicate PD-specific mode models, to investigate relationships among modes, higher order mode factors (i.e., Internalization, Externalization, and Compulsivity), and defense styles and to test the contributions of higher order mode factors and defense styles to variance in PD symptoms.	Defense Style Questionnaire (DSQ-40; Andrews et al., 1993; Schauenburg et al., 2007) German Extended Schema Mode Inventory (GE-SMI; Jacobs et al., 2018) Assessment of DSM-IV Personality Disorders, German version (ADP-IV; Doering et al., 2007)	Positive associations between ASPD and enraged child mode were found.
Lobbestael et al., 2008	Cross-sectional	n = 489 subjects, including 390 patients from several psychiatric and forensic mental health care institutes and prisons in the Netherlands and Belgium and 99 non-patient controls. Of these, 8.6% presented an ASPD diagnosis.	Assess relationship between 14 schema modes and all PDs.	Schema Mode Inventory (SMI; Young et al., 2007) Dutch version of the SCID-I and SCID-II (First et al., 1994; 1997c; van Groenestijn et al., 1999; Weertman et al., 2000)	The relationship between antisocial PD and the modes was positive for the Enraged Child and the Bully and Attack modes, and negative for the Demanding Parent and Compliant Surrender modes.

Table 2. *Continued*

Lobbestael, Arntz, Cima et al., 2009	Cross-sectional	n = 147 subjects of which n = 21 were ASPD with a mean age of 30.29 (SD = 7.79)	Examine emotional, cognitive and physiological correlates of anger and compare these between ASPD patients with varying degree of psychopathy and control groups.	SCID-I, SCID-II (First et al., 1994; 1997c) Schema Mode Inventory (SMI; Young et al., 2007) Psychopathy Checklist-Revised (PCL-R; Hare, 2003)	ASPD participants scored higher on Angry Child.
Lobbestael & Arntz, 2012	Cross-sectional	n = 147 subjects belonging to four different groups: patients with ASPD (n = 21), BPD (n = 45) or Cluster C personality disorder (ClC-PD, n = 46) and non-patient controls without psychopathology (NpCs, n = 35).	Assess the impact of autobiographical anger recollection on state cognitions.	Dutch versions of the SCID-I and SCID-II (First et al., 1994; 1997c; van Groenestijn et al., 1999; Weertman et al., 2000) Schema Modes Inventory (SMI; Young et al., 2007)	The ASPD group scored lower than average on baseline levels of 5 maladaptive modes (Vulnerable Child, Angry Child, Compliant Surrender, Detached Protector and Demanding Parent), and higher than average on the Healthy Adult mode. The ASPD-group displayed a stronger decrease in the Impulsive Child and Healthy Adult schema modes after the anger induction compared to the overall mean.
Shorey et al., 2014	Cross-sectional	n = 98 male substance use patients (38.89±10.60). Of these, 16.3% (n = 16) met the probable diagnostic cut-off score for ASPD.	Examine whether (1) EMS domains would be associated with antisocial and borderline personality symptoms and (2) whether EMS domains would be associated with personality symptoms above and beyond the effects of other personality symptoms, substance use, and relevant demographic characteristics.	Young Schema Questionnaire, Third Edition (YSQ-L3; Young & Brown, 2003) Personality Disorder Questionnaire-4 (PDQ-4; Hyler et al., 1988)	ASPD symptoms were positively related to all five schema domains, except for other directedness. Specifically, the domains of overvigilance and inhibition and impaired autonomy were negatively associated with ASPD, whereas impaired limits and disconnection and rejection were positively associated with ASPD.
Specht et al., 2009	Cross-sectional	n = 105 incarcerated females (33.9±8.5) of which 44% met diagnostic criteria for ASPD.	Examine the association of Young's EMS domains with the BPD symptom severity; test the hypothesis that EMS domains are a critical mechanism by which childhood maltreatment influences adult BPD severity; examine the relationship between childhood abuse and EMS domains, and determine if identified EMS domains accounted for the association between childhood maltreatment and adult BPD severity.	CTQ (Bernstein et al., 1994) YSQ-S (Young & Brown, 1994) SCID-II—PQ (First et al., 1997b)	All five of the YSQ-S domains were less strongly associated with ASPD dimensions. Schema content subsumed by the Impaired Limits domain reflects entitlement as well as insufficient self-control and/or self-discipline and was partially related to ASPD severity.
ACE+EMS+ASPD FILTER					

Table 2. *Continued*

Batool et al., 2017	Cross-sectional	n = 100 students from the University of Sargodha, Sargodha, Pakistan.	Examine the mediating role of maladaptive schemas between permissive/authoritarian parenting by fathers and personality disorders, including histrionic, antisocial, narcissistic and depressive attitudes among adults.	Parental Authority Questionnaire (PAQ; Buri, 1991) YSQ-SF (Young & Brown, 2003) Personality Disorder Questionnaire-4 (PDQ-4; Hyler et al., 1988)	Permissive parenting style and EMS had positive correlations with ASPD.
Lobbeastael et al., 2005	Cross-sectional	BPD n = 16 ASPD n = 16 Non-clinical (Control) n = 16 ages 19-46 (30.9)	Assess and compare the presence of hypothesized schema modes in subjects with BDP, ASPD and controls and to compare childhood abuse history in the three groups.	Dutch versions of the SCID-I and SCID-II (First et al., 1994; 1997c; van Groenestijn et al., 1999; Weertman et al., 2000) Schema Modes Questionnaire (SMQ; Arntz et al., 2005) Interview for traumatic events	ASPD was characterized by four maladaptive modes (Detached Protector; Punitive Parent Abandoned/Abused Child; Angry Child) and displayed most characteristics of the Bully and Attack mode, Healthy Adult mode was of high presence in ASPD The three kinds of abuse (sexual; emotional; physical) had high frequency and severity in ASPD and were significantly higher than in controls.
Lobbestael & Arntz, 2010	Cross-sectional	BPD n = 45 ASPD n = 21 cluster C PD (32 avoidant; 6 dependent; 19 obsessive-compulsive PD) n = 46 NC controls = 36	Investigate the effects of abuse related stimuli in BPD and ASPD-patients, both at a direct and an indirect level	Dutch versions of the SCID-I and SCID-II (First et al., 1994; 1997c; van Groenestijn et al., 1999; Weertman et al., 2000) Interview for Traumatic Events in Childhood (ITEC; Lobbestael et al., 2006) Schema Modes Inventory (SMI; Young et al., 2007)	ASPD patients showed a non-deviant physiological pattern in reaction to abuse-related stimuli and increased frowning.
Mertens et al., 2020	Cross- sectional	n = 120 (34.4±10.5) clinical patients n = 86 non-clinical patients n = 34 di cui 12.5% ASPD	Explore the mediating effect of schema modes on the association between childhood maltreatment and the expression of Cluster B (borderline and antisocial) and C (avoidant and dependent) PDs.	Dutch versions of the SCID-I and SCID-II (First et al., 1994; 1997a, c; van Groenestijn et al., 1999; Weertman et al., 2000) Interview of Traumatic Experiences in Childhood (ITEC; Lobbestael et al., 2009) SMI (Lobbestael et al., 2010)	Parent modes mediated the link between emotional abuse and ASPD.
Pellerone et al., 2016	Cross-sectional	n = 130 offenders pure ASPD between the ages of 20 and 70.	Investigate the presence of cognitive schemas in a group of male adult prisoners, whether parental style influences the cognitive patterns, and investigate the predictive variables of these cognitive schemas in adult offenders.	SCID-II (First et al., 1997c) Parental Bonding Instrument (PBI; Parker et al., 1979) Young Schema Questionnaire – Short Form 3 (YSQ-3; Young, 2005)	In the disconnection and rejection domain, high scores in the schema of mistrust and the fear of being abandoned; in the over-vigilance domain, higher scores in unrelenting standards; in the other-directedness domain, highest value in the tendency to sacrifice for others.

are classified and discussed in three main categories based on the objective of the included studies.

ACEs and ASPD: Role of physical abuse, neglect, and dysfunctional parenting style in the vulnerability toward ASPD

The 13 selected records converge in recognizing the influence and contribution of ACEs in the development of ASPD. The studies that compared ASPD patients with other PD patients (Afifi et al., 2011; Evren et al., 2006; C. Yang et al., 2022) and general population samples (Kolla et al., 2013) found a greater number of and more severe ACEs in ASPD compared to the general population, but do not refer substantial differences in the frequency and severity of ACEs between ASPD and other Cluster B PDs, in particular BDP (Lobbestael et al., 2005). Some studies highlight that the presence of traumatic experiences during childhood is associated with an earlier onset of the disorder (Bruce & Laporte, 2015; C. Yang et al., 2022)

In line with previous research (Aafjes-van Doorn et al., 2020), the most typical ACEs in the ASPD population is dividable in three main categories: abuse, neglect, and adverse parenting style.

Specifically, of the 13 studies selected that explored the relationship between ACEs and the development and maintenance of ASPD, 6 studies (Afifi et al., 2011; Alegria et al., 2013; Chen et al., 2022; Dargis et al., 2016; Evren et al., 2006; Kolla et al., 2013), congruently with previous evidence on the positive relationship between ASPD and childhood abuse (in Lobbestael, 2008), shed light on physical abuse as a significant ACE in the development and maintenance of ASPD, representing a prognostic predictor. Physical abuse is defined by the WHO (in Daley et al., 2025) as the *beating, shaking, burning, and biting* of a child, experience that, similarly to other forms of child maltreatment, *results in actual or potential harm to the child's health, development or dignity.* One of the 13 studies highlights that the presence of traumatic life experiences in parents contributes to antisocial trajectories in children, such that the prevalence of ASPD doubles (9,61%) in children whose parents experienced traumatic events but that do not have a history of ASPD, compared to (4,5%) the children of parents that do not have childhood traumatic experiences or an ASPD diagnosis (Arditti & Le Strat, 2020).

In line with the thesis proposed by Mancini and Mancini (2021) in an appraisal model framework (Barrett, 2015), according to which antisocial conducts are regulated by goals, it could be hypothesized that in individuals with ASPD and prior experiences of physical abuse, there is a hyper-investment in goals to protect oneself from a world that is maltreating (Goal: "I have to protect myself from the world/others"; Anti-goal: "I must not let myself be mistreated") and the use of reactive and hetero-aggressive coping strategies. Indeed, previous research (Dodge et al., 1995) reports that early physical abuse can be considered a risk factor that is associated with the development of externalizing behaviors and/or disorders, such as ASPD. The relationship between physical abuse and externalizing symptoms is mediated by biased social information processing patterns like encoding errors, hostile attributional biases, accessing of aggressive responses, and positive evaluations of aggression, which, in turn, would predict future externalizing outcomes. Based on these data, we could hypothesize that the reactive and hetero-aggressive coping in ASPD patients, especially when associated to personal experiences of childhood maltreatment, is sustained by a motivational disposition to protect oneself from the world and others that are perceived as hostile, offensive, unfair, and non-collaborative (Mancini et al., 2009). If these experiences occurred in primary relationships, it could be hypothesized that feelings of mistrust, hostility and/or contempt towards authority were internalized (DeLisi et al., 2019; Mancini et al., 2009), bringing to perceive authority as non-protective and/or unjust. This could lead to a disengagement/investment in affiliative goals, in favor of a hyper-investment in goals of social dominance, and a low adherence to heteronomous rules that are likely interpreted as arbitrary and/or their respect as threatening or disadvantageous for the self (Mancini & Mancini, 2021).

This observation can be supported by the studies of Gerald Roy Patterson and his group and by the theory of coercion (G.R. Patterson et al., 2013). According to this theory, coercive acts are used to control the behavior of another person*;* such acts would be adopted according to a temporal contingency to favor a reciprocal associative learning between who enacts and who endures and would be perceived as aversive by the latter. The learning of the coercive modality through parent-child interactions tends to be generalized to other contexts and situations (G.R. Patterson et al., 2013) in a progressive escalation process. This could explain the uncooperative or frankly oppositional attitudes of children towards parental figures from whom they receive and/or towards which they engage with coercive attitudes and their antagonistic interpersonal interaction. This could also suggest the development of the marked aversion towards the control of authority figures, perceived as unfair and non-authoritative, and of indifference towards others (DeLisi et al., 2019), therefore legitimizing one's tendency to procure advantages and benefits at the expense of others (Mancini et al, 2009). In line with the appraisal model framework, the theory of coercion, and in accordance with recent evidence on the role of dysfunctional parenting style in ASPD development (DeLisi et al., 2019), the studies included in the present review, highlight that an authoritarian parenting style characterized by harsh discipline (Mertens et al., 2020) or, conversely, a permissive style marked by lax and/or inconsistent discipline (Batool et al., 2017; Pellerone et al., 2016), or even a parenting style distinguished by low affectivity and high control, especially maternal (Pellerone et al., 2016; Reti et al, 2002), and a paternal rejecting style (Pellerone et al., 2016) with a tendency toward denial of the child's autonomy (Reti et al., 2002), might characterize typical parenting experiences in ASPD.

Although to a lesser extent than physical abuse, two of the selected studies recognize verbal abuse (Alegria et al., 2013; Evren et al., 2006) among the ACEs contributing to ASPD developmental trajectories, while two other studies recognize emotional abuse (Afifi et al., 2011; Chen et al., 2022). Both forms of abuse are considered types of psychological abuse and are characterized by continuous and severe attacks on the sense of self, examples of which could be intentional humiliation, threats to the child's well-being or acts that frighten or terrorize the child and may result in future psychological distress (Gilbert et al., 2009). In accordance with the thesis proposed by Perdighe and Pavesi (2023) on the role of humiliation in antisocial behavior, physical and verbal abuse (humiliation), understood as acts of offense, exclusion, or discrimination suffered and accompanied by the perception that the other person arrogates the power to act in an abusive manner exposing the individual, helplessly, to the judgment of others, could link to the

development of experiences of exclusion, disvalue, and degradation of the self and contribute to poor or absent adherence to shared morality and, finally, to dominance as a management of fear of humiliation and degradation within the social hierarchy.

Relative to neglect, which may include inadequate health care, education, supervision, protection from hazards in the environment, and unmet basic needs such as clothing and food (in Daley et al., 2025), three studies recognize the contribution of physical and emotional neglect to ASPD developmental trajectories (Chen et al., 2022; Evren et al., 2006; Li et al., 2023), while one study recognizes the more specific contribution of physical neglect (Afifi et al., 2011). These data could be in line with the hypothesis that children, who early on and during critical ages of life, experience insufficient security and deprivation or neglect regarding their basic needs, could manifest overcompensation coping, instrumental in acquiring the lacking resources and, thus, associate with a proactive and predatory mode of aggression.

EMS and ASPD: Disconnection/Rejection and Impaired limits as significant domains in the development of ASPD

From the 8 selected studies that have investigated the specific role of EMS in the development of ASPD, the EMS domains significantly represented in ASPD, although not in a disorder-specific manner, appear to be Disconnection/Rejection (Corral & Calvete, 2014; Shorey et al., 2014; Specht et al., 2009) and Impaired Limits (Corral & Calvete, 2014), often in co-presence. The former, when active, is connoted by the expectation that one's needs for safety, nurturance, and acceptance will not be met. The domain predicts that one's earliest relational experiences with caregivers were predominantly characterized by detachment, rejection, unwillingness, instability, and abusive attitudes. The latter domain, is characterized by a lack of internal limits, responsibility to others or orientation to long-term goals. When active, it is accompanied by difficulties in cooperating with others and respecting their rights, making commitments, or setting and achieving realistic personal goals. Typically, this domain originates in a family context characterized by permissiveness, overindulgence, poor guidance and lack of supervision, rather than appropriate confrontation, discipline and realistic limits in relation to taking responsibility. The development of this type of pattern might be consistent with the findings of the studies on the relationship between ACEs and ASPD discussed above. Experiences of abuse or neglect, which undermine the child's needs for safety, security, emotional warmth and negatively affect the child's sense of personal worth and dignity, could contribute to a representation of the other and, specifically, authority, as unjust, punitive, unfair, or inconsistent. Coupled with rigid and authoritarian parenting or, conversely, permissive parenting, with authority represented as unreliable and inadequate, the individual might fail to internalize norms and imprint interactions with others with an autonomous rule system. The tendency to perceive oneself as unlovable, lonely, and rejected could link to the development of maladaptive beliefs and strategies designed to compensate for the sense of victimization (Beck et al., 2004, p. 37).

Several studies selected from our work have focused their attention on dysfunctional Schema-modes, an aspect that could be indicative of the importance of the reaction to or anticipation of EMS activation in helping to differentiate the functioning of ASPD. Indeed, studies converge in identifying Child modes as the most represented Mode domains in ASPD (Dunne et al., 2018; Jacobs et al., 2019; Lobbestael et al., 2008), highlighting the Enraged Child and Impulsive Child as the most active Schema-modes in the observed samples and with positive correlations with ASPD (Jacobs et al., 2019; Lobbestael et al., 2008) and the Over-compensatory modes, specifically the Bully and Attack mode (Dunne et al., 2018; Lobbestael et al., 2005; Lobbestael et al., 2008). These findings appear to be consistent with experiences of externalized irritability and aggression, low tolerance for deferral of gratification, and a tendency to self-centeredly and heedlessly pursue one's own desire with acting out, typical features of ASPD.

On a clinical level, it could be hypothesized that the unmet childhood emotional needs are associated with dysfunctional coping modes that exaggerate the use of survival responses (fight, flight or freeze) (Lobbestael et al., 2008) and lead to assaultive, manipulative, or exploitive behavior (Özdel et al., 2015). In contrast, one study finds negative correlations between the Demanding parent mode and ASPD (Lobbestael et al., 2008), an aspect that could be explained as a poor internalization of parental norms and, associated with the EMS Impaired limits domain, as a tendency to disregard the limits and harmful consequences of one's own acts or transgression of the shared norm, typical aspects of ASPD (APA, 2023), in favor of personal benefits. The modes detected by the studies would be common to other personality disorders, in this case BDP, so they would not be ASPD-specific. For example, Bully and Attack mode was found to be markedly active and characteristic of the ASPD samples in some studies; however, the differences between ASPD and BDPs in reference to said mode are not (Lobbestael et al., 2005). In summary, coping strategies exhibited by impulsivity and externalization of reactive-based acts, up to frank forms of aggression and prevarication typical of Bully and Attack mode, appear to be more represented. The finding that correlations between EMS and ASPD are not significant could indicate that the EMS-ASPD correlation alone does not explain the presence and/or severity of the pathology (Lobbestael et al., 2008).

Of particular interest is the finding of Healthy Adult Mode (Lobbestael et al., 2005; Lobbestael & Arntz, 2012; Mertens et al., 2020), a functional mode that nurtures, validates and affirms the vulnerable child mode; promotes and supports the healthy child mode; combats and eventually replaces the maladaptive coping modes; performs appropriate adult functions such as working, parenting, taking responsibility. Implications regarding this result will be discussed in the following section.

ACEs, EMS, and ASPD: the role of EMS in mediating ACEs outcomes in the development of ASPD

Of the 5 studies that explored the mediating role of maladaptive schemas in the relationship between adverse childhood experiences and ASPD, only one study acknowledges a significant mediating role of Schema modes (Mertens et al., 2020); the remainder detect an association between ACEs, EMS and ASPD, however, not identifying a significant mediating role of EMS/Schema modes. In this regard, we hypothesize the intervention of other variables, not studied in our review, such as socioeconomic variables.

Mertens et al. (2020) find a significant correlation between physical abuse and ASPD mediated by coping modes. The results point to a significant association between emotional abuse and ASPD mediated by Parent modes, specifically Demanding parent. The authors explain this unexpected relationship by referring to the

characteristics with which Parent mode is described in the specific instrument used in the study to assess Schema-modes (SMI; Lobbestael et al., 2010), opposed to typical antisocial cognition and behavior, a reason that might explain why participants scored high on the items representing Parent modes. Emotional abuse would stimulate the development of vulnerable, anger-related childhood states, typical of the Child mode domain, and secondly, the development of coping styles consistent with distancing oneself from unwanted states and/or aggressive coping for protective purposes from experienced maltreatment, such as Bully and Attack mode. Although these coping modes appear essential in protecting the maltreated child during childhood, their dysfunctional persistence in adulthood is hypothesized even when the threat is absent or diminished (Gilbert et al., 2009).

The study by Lobbestael et al. (2005), which explored the relationship between Schema modes and child abuse in 3 samples, BDP, ASPD, and controls, finds the presence of 4 specific Maladaptive modes (Detached Protector; Punitive Parent Abandoned/ Abused Child; Angry Child) in ASPD and BDP. The clinical samples differed from the nonclinical sample in a significant and markedly greater degree of childhood experiences of abuse (sexual, physical, emotional), although in comparison ASPD and BDP did not differ in the frequency and severity of such experiences. In ASPDs, Bully and Attack mode was typically detected, although it did not manifest significantly differently from BDPs. Of particular interest is the overlapping presence of Healthy Adult Mode between ASPD and healthy controls. Although one would clinically expect ASPDs to manifest behavior closer to the characteristics of the Angry Child and Bully and Attack modes and to exhibit little activation of the Healthy Adult Mode, in line with the authors, it could be hypothesized that underreporting these Modes by ASPDs could be explained by the tendency of this population to minimize or deny socially unacceptable personal behavior or to intentionally give a more desirable social image (in Lobbestael et al., 2005), intentionally manipulating the self-report instruments administered. Such suggestions could also account for the Healthy Adult Mode scores of ASPDs overlapping with those of controls. In agreement with authors who adopt a Schema Therapy perspective, individuals with personality disorders experience a set of recurring and systematically shifting problematic states of mind (Horowitz, 2013; Semerari et al., 2003), therefore the severity of functioning would be related to a more pronounced activation of maladaptive Modes and by the presence of a higher number of Modes and a rapid shift between them.

Indeed, it could be surmised that some ASPDs, if not activated by frustrating stimuli, retain adequate cognitions but rapidly shift to more dysfunctional modes in case of activating stimuli (Lobbestael, Arntz, Cima et al., 2009). Studies (Lobbestael & Arntz, 2012) that measured the degree of dysfunctional cognitions in ASPD after anger-induction by means of a semi-structured interview on past autobiographical events in which they had experienced a conflict with an aggressor, showed high levels of healthy cognitions in ASPD in baseline conditions, which decreased dramatically and significantly when anger emotions were elicited. Anger levels were found to decrease when participants were asked to recall the activating episode, an aspect likely indicative that the reflexivity and cognitive focus spent in recalling the activating episode to memory decreased the degree of impulsivity experienced and gave access to a higher level of emotional regulation. While decreased impulsivity could reflect the rise of adaptive emotional coping processes, the same decrease in impulsivity in ASPDs could be read as the emergence of a more controlled action-orientated and predatory aggression (Lobbestael & Arntz, 2012; Derefinko et al., 2011).

Another study by Lobbestael & Arntz (2010) measured stress related to abuse-recalling stimuli in 4 samples, BDPs, ASPDs, cluster C (avoidant, dependent, obsessive-compulsive) and control group using direct measures of schema-modes and indirect measures for physiological activation parameters upon induction of abuse-related stressful stimuli. The results showed in ASPDs an implicit cognitive abuse-related stress reactivity, detected by a greater number and more pronounced intensity of active Schema-modes, like that of BDPs, but it did not show self-reported and physiological hyper-reactivity response patterns, which was instead shown to be comparable to that of healthy controls who had no abuse experiences in their developmental history. The physiological hypo-reactivity exhibited by ASPDs subjected to abuse-evocating stimuli, together with a more intense and numerous pattern activation (Lobbestael et al., 2005; Lobbestael et al. 2008) could be associated with a predatory/assertive type of aggression and the preparation phase of a controlled predatory response in the face of a threatening and/or appetitive stimulus, as found in studies that have shown that those exhibiting proactive aggression do not have increased autonomic arousal (Conner et al., 2003). In the face of a reduced autonomic response, ASPDs and controls showed an increased frowning response, suggesting aversion and moral disgust toward the perpetrator of the aggression shown in the stimulus (movie frame). The difference in responsiveness of ASPDs compared to BDPs might indicate a more pervasive and disorganized response in the face of abuse-related stimuli than BDPs, a history of vulnerability more frequently characterized by stimulus-like experiences (sexual abuse) that might evoke a marked and dysregulated autonomic response.

Limits

This review has some limitations. First, qualitative studies were excluded from analysis since our interest was to consider empirical studies only. This could represent a limitation given that qualitative studies could have been equally informative. Second, we excluded studies that described the presence of antisocial traits or behaviors in the sample (i.e., antisocial behavior, antisocial symptoms, antisocial traits) and that did not confirm an ASPD diagnosis nor did describe and/ or administer diagnostic interviews to the sample. Therefore, even though a diagnosis of ASPD was a required inclusion criterion, the exclusion of studies without an explicit ASPD diagnosis could have omitted from analysis interesting and informative studies on the topic of interest. Third, most of the included studies used small ASPD samples; this is a limitation in that small samples are not sufficient to detect statistical significance or clinical relevance of the results. Fourth, the number of studies available in the literature and selected for the purposes of this review is low, limiting the possibility to generalize the results to the whole ASPD population. Generalizability is further limited due to the inclusion of studies that used the same samples: although the objectives of the studies differ, the results obtained are similar and, therefore, could be conducted to the sample used (i.e., Lobbestael Arntz, Cima et al., 2009 and Lobbestael & Arntz, 2012). Fifth,

none of the selected studies included in the review contemplated the Schema-modes recently hypothesized by Bernstein and colleagues (Bernstein et al., 2007) as an expansion to the 11 modes originally proposed by Young et al. (2003) and more frequently observed by the authors in ASPD, such as Angry Protector Mode, Predator Mode, Conning and Manipulative Mode, and Over-Controller Mode (Obsessive and Paranoid subtypes) of the Dysfunctional Coping Modes (Angry Protector) and Over-compensatory Modes domains. We assume that rather than not being present in the antisocial population, the studies adopted measures that did not detect abovementioned schemas or for the lack of an instrument measuring said schema-modes or their relationship with PDs at the time of the studies. Furthermore, studies (e.g., Batool et al., 2017) conducting structured clinical interviews on-site in non-clinical samples could be less reliable than those that use institutionalized clinical samples or ascertained patients. Lastly, many studies do not provide an in detail definition of the type of ACE considered, the age at which it was experienced and/or data related to the exposure to cumulative or multiple ACEs. This lack of information represents a limitation in that it could restrain from formulating hypotheses regarding the psychopathological outcomes related to the exposure to different ACEs. Moreover, different measures were used to identify the ACE construct, therefore, the results could be heterogeneous.

Despite the aforementioned limitations, the overall results support the conclusion that ACEs are major contributors to the development of ASPD and that cognitive factors, such as EMS and Schema modes, may play a role in moderating the effects of ACEs on ASPD developmental trajectories.

Conclusions and future directions

Our study aimed to offer a systematic review of the available studies investigating the role of specific ACEs and EMS in the development of ASPD and possible mediators of this relationship.

The studies converge in highlighting the contribution of ACEs in the etiology of ASPD, with a positive relation of the disorder with pysical abuse and neglect in childhood. The EMS domains most frequently detected from the included studies, albeit not solely specific to ASPD, seem to be Disconnection/Rejection and Impaired limits.

Regarding the relationship between ACE and ASPD, different studies focused their attention, rather than on EMS, on dysfunctional schema-modes, such as Child modes and Over-compensatory modes, presuming that they mediate the relationship between ACEs and ASPD.

In brief, the role of ACEs, namely physical abuse and neglect, in the vulnerability to ASPD suggests that basic and fundamental human needs, such as safety, stability, trust (Young et al., 2003), and predictability (Dweck, 2017) were not met during critical or early stages of development and the forming and maintenance of antisocial functioning is oriented towards hyper-investing in goals suited to satisfy said psychological needs. These goals are oriented by tendencies promoting the procurement of resources or preventing threats (Higgins, 1998), and seem to be pursued through dysfunctional coping strategies that could have developed as forms of adaptation to extreme conditions threatening the individual's integrity, for instance abuse or neglect (Bernstein et al., 2007), and linked to the development of mental representations that sustain and orient goals and that could substantiate in specific EMS. More specifically, experiences of physical abuse could be associated with prevention-oriented goals (Higgins, 1998) and the hyper-investment in protecting one's self from a mistreating world to obtain security and predictability of present or potential threats, therefore leading to difensive/reactive aggression as a coping strategy; while experiences of neglect would be associated with promotion-oriented goals accompanied by hyper-investment in acquiring that of which one was previously deprived, leading to a more proactive/predatorial aggression. The paucity of studies warrants the need for further empirical investigation of the topic with the intent both to provide additional evidence regarding the EMS and Schema-modes characterizing ASPD and to conceptualize and develop any other EMS and Schema-modes that are specifically representative of the ASPD population, in addition to those currently known in the literature. This is motivated by the need to gather directions for clinical work with complex patients, such as those with ASPD, and to orient the treatment of the disorder toward promoting awareness of its and others mental functioning and work on dysfunctional processes, such as frequent and rapid fluctuations in emotional states, that takes into account the role of maladaptive meanings learned in development, the hyper-investment in goals, and the related maladaptive coping strategies in pursuing them.

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