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The co-occurrence of personality disorders and substance use disorders

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Abstract

Purpose of review: Despite significant negative outcomes, the co-occurrence of personality disorders (PDs) and substance use disorders (SUDs) continues to be underrecognized, and the mechanisms contributing to this co-occurrence remain unclear. This review summarizes recent work on PD-SUD co-occurrence, with a focus on borderline and antisocial PDs, general substance use patterns among those with PDs, and the association of personality traits with SUDs.

Recent findings: The prevalence of co-occurring PD-SUD is generally high, with estimates ranging depending on the type of PD and SUD, the population assessed, and the sampling methods and measures used. Current theoretical explanations for co-occurrence include shared etiology and predisposition models, with research highlighting the importance of transactional processes. Potential underlying mechanisms include personality traits and transdiagnostic characteristics.

Summary: Recent research has increased focus on substances besides alcohol, dimensional models of personality pathology, and transactional explanations of co-occurrence, but more research is needed to disentangle the nuanced PD-SUD relationship.

Keywords

personality disorders; substance use disorders; substance use; borderline personality disorder; antisocial personality disorder

Introduction

People with personality disorders (PDs) often use substances, experience use-related problems, and meet criteria for substance use disorders (SUDs). In turn, people with SUDs often struggle with challenges related to personality dysfunction. This co-occurrence of PDs and SUDs leads to greater negative consequences, poorer treatment outcomes, and higher severity and chronicity of both disorders compared to either alone (1–3). Despite this, the co-occurrence of PDs and SUDs continues to be relatively underrecognized, and the mechanisms that contribute to this co-occurrence remain unclear. The current review summarizes recent work on PD-SUD co-occurrence. We focus on borderline and antisocial PDs, as most existing work has studied these two PDs. We then consider theoretical

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explanations for PD-SUD co-occurrence and identify potential mechanisms for the overlap, concluding the review with implications and future directions.

Setting the stage: Definitions

The *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5) (4) groups ten PDs into three clusters: “odd or eccentric” Cluster A (paranoid, schizoid, schizotypal PDs); “dramatic, emotional, or erratic” Cluster B (antisocial, borderline, histrionic, narcissistic PDs); and “anxious or fearful” Cluster C (avoidant, dependent, obsessive-compulsive PDs). Borderline personality disorder (BPD) and antisocial personality disorder (ASPD) are among the most diagnosed and studied PDs and are prevalent in the general population (estimated 3.8% ASPD and 2.7–5.9% BPD) (5). BPD is characterized by impulsive and self-destructive behaviors, and instability of affect, identity, and interpersonal relationships. ASPD involves behavior patterns showing deceit, impulsivity, and a lack of regard for the rights of others. The difficulties with emotional and behavioral control involved in these disorders manifest in a variety of maladaptive behaviors, including problematic substance use.

SUDs span ten separate classes of drugs (e.g., alcohol, cannabis, opioids) and are characterized by cognitive, behavioral, and physiological symptoms resulting from on-going substance use despite substance-related physiological, behavioral, and interpersonal problems (4). In the United States, past-year prevalence of SUD and alcohol use disorder (AUD) for those 12 and older was 16.5% and 10.6%, respectively (6), and lifetime AUD prevalence rates in adults approach 30% (4).

With ten PDs and ten SUDs, there are myriad possible combinations even before factoring in that many people meet for multiple PDs and use multiple substances. Perhaps it is no surprise, then, that there is heterogeneity in PD-SUD co-occurrence rates across studies, potentially reflecting different populations, sampling methods, and measures used. Co-occurrence also varies based on demographic factors like race, gender/sex, and age, among other characteristics. The existing literature has only scratched the surface in understanding the heterogeneity in PD-SUD co-occurrence.

Prevalence part I: Substance use disorders in people with personality disorders

The prevalence of SUDs across PDs is generally high, with estimates ranging depending on PDs and SUDs assessed. In the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), a population-based study of 36,000 people, 41.9% of those with any PD had lifetime DSM-IV alcohol dependence, 18.7% drug dependence, and 48.2% nicotine dependence (5). More recent work finds similar rates. A 2018 review found that 38.9% of people with undifferentiated PDs or PDs other than BPD/ASPD had lifetime AUD (7). In an Asian cohort of 1,172 adults with PDs, AUD was the most prevalent SUD (43.2%), followed by methamphetamine use disorder (23.6%) and other SUDs (33.2%) (8). In a representative Brazilian sample of 2,942 adults, more than half of individuals with any PD used alcohol in the previous year, with 80.6% of those who drank being regular drinkers (9). Among regular

drinkers, 42.3%, 70%, and 46.1% of those with Cluster A, B, and C PDs, respectively, met for AUD. The presence of a Cluster B PD increased the odds of not only AUD, but also alcohol consumption and more severe AUD (9). In a treatment seeking sample, 69.8% of patients with a PD had a co-occurring SUD (66.4% AUD, 58.5% cocaine use disorder, 27.1% opioid use disorder [OUD], 43.5% cannabis use disorder, and 16.2% sedative use disorder) (10).

Specifically examining BPD, a recent review found approximately half of those with BPD have at least one SUD, with average co-occurrence rates of 45.5% for current and 75.3% for lifetime SUDs (11). Among those with BPD, AUD was the most common SUD, with average lifetime rates of 52.2%−59.5% (7,11), while 39.2% met criteria for current drug use disorder (DUD) (11). Men with BPD from a community sample were somewhat more likely to have comorbid AUD and SUD (53.1% and 59.3%) than women with BPD (36.9% and 44.3%) (12). Compared to the general population, youth with BPD show between four and nine times higher prevalence of alcohol dependence (20% prevalence), daily tobacco use (63% prevalence), and past-month use of illicit substances (44% cannabis and 17% amphetamine prevalence) (13). The prevalence of substance and polysubstance use, as well as levels of alcohol-related problems and risk, are also significantly higher among youth with BPD than age-matched controls (13–14).

Co-occurring SUDs are also prevalent in ASPD, with rates ranging from 55.3% for any past-year SUD (10.5% DUD, 31.2% AUD) to 76.7% for lifetime AUD (7,15). Among 427 Chilean prison inmates, 26% had comorbid ASPD-SUD, and 39.8% comorbid BPD-SUD (16). In adults 50 years and older in NESARC Waves I and III, ASPD was associated with a higher likelihood of several SUDs, including alcohol, marijuana, cocaine, and nicotine (17). In a representative English population (N=7,218), hazardous alcohol use was most common in ASPD (30.3% prevalence), while alcohol dependence was most common in BPD (17.7% prevalence) (18).

Prevalence part II: Personality disorders in people with substance use disorders

Prevalence estimates of co-occurring PDs in people with SUDs vary widely, with overall PD rates ranging from 50% to 92%, BPD rates from 12% to 53%, and ASPD rates from 9% to 23% (19). Presence of alcohol, opioid, sedative, stimulant, or heroin use disorder, as well as having multiple SUDs, was associated with increased risk of PD in NESARC (20). Almost a quarter (22.1%) of those with a current SUD met criteria for BPD (11), which was most associated with opioid, cocaine, and alcohol use disorders (21). Specifically examining alcohol, the prevalence of BPD ranges from 12–17% and ASPD from 19–22% (1). Compared to men, women with AUD in NESARC had a greater likelihood of BPD, and women with SUD had an increased likelihood of all PDs (22). Although receiving less attention, avoidant, histrionic, and paranoid PDs are also prevalent in AUD samples (19). Lower estimates of co-occurring AUD and ASPD/BPD (1.6–9.8%) have also been identified, which, together with high estimates of mixed/not specified PD (23), highlight the unreliability of prevalence estimates and diagnostic issues in categorical PDs. Additionally,

although many studies report general PD rates, PD type has been shown to account for most of the heterogeneity in lifetime AUD prevalence (7), emphasizing the potential value of differentiating personality dysfunction.

Recent research has linked PD diagnoses and PD traits to substances besides alcohol. PDs were highly prevalent among 577 males inpatients treated for methamphetamine use disorder in China, particularly ASPD (71.4%), BPD (20.2%), obsessive-compulsive (17.9%), avoidant (16.2%), and paranoid (14.3%) PDs (24). BPD features have been linked to heroin and methamphetamine use disorders in a small sample of Taiwanese adults (25), as well as to pre-incarceration alcohol, cannabis, cocaine, and opioid dependence among 510 people incarcerated in jail (26). Cannabis use in adolescence is associated with paranoid and schizotypal personality traits in young adulthood, consistent with other findings in linking early cannabis use to increased risk of psychotic symptoms and disorders (27). Conversely, schizotypal traits are also related to lower alcohol consumption, even among adolescents who are also elevated in borderline traits, potentially suggestive of less frequent engagement in social activities that may be associated with alcohol use (28). Different traits may be related to different substance use patterns, as shown in a study where paranoid PD traits were related only to cannabis use, whereas avoidant and dependent PD traits were more strongly linked to cannabis use disorder (29).

Given the impact of the ongoing opioid epidemic (30), it is important to examine the association of PDs and opioid use. Reviews find a 33.6% lifetime prevalence of ASPD and 18.2% BPD among those with OUD (31), indicating that a PD diagnosis may be a risk factor for OUD (32). Among 100 males in opioid treatment, PDs were among the most common comorbidities (27.6%), particularly ASPD (17.1%) and BPD (7.9%) (33). ASPD and BPD traits are also prevalent among people who use opioids, misuse prescription opioids, and meet criteria for OUD (34–36).

Considering that SUDs frequently co-occur and co-occurrence is associated with more severe problems (37), it is important to study this comorbidity in the context of PDs, which are associated with higher risk of polysubstance use (13,37). In NESARC, people with both alcohol and cannabis dependence had higher rates of PDs and a greater number of PDs than those with either diagnosis alone. Specifically, 77% of people with both SUDs had any lifetime PD, 41% were diagnosed with ASPD, 32.9% BPD, 29.1% obsessive-compulsive, 26.5% narcissistic, 24.4% paranoid, 21.2% schizotypal, 12.9% schizoid, 12.4% histrionic, 11.9% avoidant, and 4.4% dependent PDs (39). Co-occurring sedative use disorder and OUD have been linked to ASPD in both men and women, and schizotypal PD among women only (40). The co-occurrence and interaction of multiple PDs and SUDs likely results in distinctive clinical profiles warranting unique considerations. These relationships, although challenging to disentangle, are important to further study to improve our understanding and treatment of complex multimorbid disorders.

Prevalence part III: Dimensional models of personality disorders

Existing work is largely based on categorical diagnoses, the limitations of which include arbitrary boundaries for diagnosis, heterogeneity of symptoms and presentations, and

artificially high comorbidity, particularly among PDs (41). PDs can alternatively be conceptualized as configurations of extreme variations of personality traits. SUDs have been linked to a number of personality traits and individual differences, including impulsivity, novelty seeking, harm avoidance, and negative thinking, with many of these related to the severity of drug and alcohol use (25,42–44).

Alternative model of personality disorders

In contrast to the categorical PD classification, the DSM-5 Alternative Model of PD (AMPD) involves five broad personality domains: negative affectivity, detachment, antagonism, disinhibition, and psychoticism. For instance, both ASPD and BPD are characterized by disinhibition, with BPD additionally involving negative affectivity, and ASPD additionally involving antagonism (4). Research has started to explore relationships between AMPD personality facets and various SUD profiles, linking all five PD facets to drug and polydrug use (45–46). Cannabis use disorder has been linked to facets of schizotypal PD (i.e., suspiciousness, eccentricity, unusual perceptions), while patients with alcohol, heroin, and cocaine use disorders showed higher scores on pathological facets related to both schizotypal PD and BPD (i.e., emotional lability, separation insecurity, impulsivity) (45). A recent study found associations between AUD criteria and PD facets of risk taking, callousness, and irresponsibility, bridging externalizing personality traits with AUD criteria (47). These PD facets have also been linked to premature SUD treatment termination (48). As these facets are associated with BPD and ASPD, this may help explain why patients with these PDs have higher rates of relapse and treatment termination (47).

Externalizing spectrum

The broad externalizing “superspectrum” of the Hierarchical Taxonomy of Psychopathology (HiTOP), which is composed of disinhibited and antagonistic spectra, encapsulates a variety of mental disorders associated with difficulties with impulsive control and self-insertion, including SUDs and Cluster B PDs (49). Several factor analytic studies have pointed to shared externalizing components underlying SUDs and ASPD, such as impulsivity, disinhibition, and role interference (50–52). BPD, although highly heterogeneous and traditionally placed at the externalizing-internalizing intersection, has similarly been linked to substance use via externalizing pathology (53,46). AUD is also heterogeneous, with some symptom clusters reflecting disorder-specific expressions while other symptom combinations differentially relate to internalizing and externalizing dimensions (54). Compared to traditional disorder classification systems, HiTOP provides improved characterization of SUDs (55), offering promising avenues for disentangling PD-SUD co-occurrence.

BPD and ASPD share key externalizing features, including deficits in emotional and behavioral control, and their co-occurrence may thus be particularly related with substance use and SUDs. Supporting this, the co-occurrence of BPD and ASPD was associated with a fivefold increase in SUD risk compared to those with only ASPD or BPD (15). A recent twin study found, in a bifactor model, that a general factor encompassing ASPD and BPD criteria was related to general substance use (56). Although bifactor models have important limitations (57), their findings may suggest that risk for substance use is not specific

to BPD or ASPD, but reflects a shared common pathway (56). These findings support transdiagnostic models of ASPD, BPD, substance use, and related behavioral disinhibition, in line with externalizing spectrum conceptualizations. Taken together with other findings on the structure of PD and SUD (e.g., (46,54)), research points to possible shared pathology as well as unique variance underlying the complexities of PD-SUD co-occurrence.

Why do people with personality disorders use substances?

At the most basic level, SUD development requires substance use and, thus, it is important to understand what factors lead people with PDs to use substances and whether those factors differ in strength or form from people without PDs. Unfortunately, little research has examined how or why people with PDs use substances. Some research has explored the role of emotion dysregulation in substance use among people with BPD, who may be particularly likely to use substances to alleviate negative affect. Although several motives for use have been highlighted in the literature (e.g., enhancement, social, conformity), coping motives, in particular, have been linked to substance use among those with BPD features (58–60). These coping motives may mediate the association of BPD pathology with SUDs (61,62). For example, a cross-sectional study found that BPD symptoms were indirectly related to self-reported alcohol-related problems via coping and enhancement drinking motives (63).

A better understanding of how substance use leads to use disorder requires examining how and why people with PDs use substances in their everyday lives. Research using ecological momentary assessment (EMA) has found that drinking motives moderate momentary associations between affect and alcohol use in BPD in daily life (64). Specifically, the interaction of greater self-reported drinking to cope and negative affect was associated with subsequent alcohol use, and the interaction of greater enhancement motives and positive affect was associated with starting a drink episode, but did not significantly predict whether an individual continued drinking. Among people who inject drugs, BPD was similarly associated with greater momentary negative affect intensity and greater instability of both negative and positive affect (65).

Theoretical models of co-occurrence

Comorbidity and co-occurrence have long been topics of importance in the field of psychopathology (e.g., (66)). Explanations range from pure chance to symptom overlap, to one disorder generating symptoms of the other as an epiphenomenon, to distinct disorders sharing the same underlying liability, to one disorder causing the other. Models of PD-SUD co-occurrence have largely focused on explanations involving shared liabilities and/or causation.

Developmental processes

Before briefly reviewing models of co-occurrence, we want to explicitly highlight the importance of understanding PD-SUD co-occurrence from a developmental lens, which can offer insights into not only the emergence of these problems during adolescence/young adulthood, but also their dynamic and transactional interplay throughout the lifespan. Adolescence and emerging adulthood are marked by increased substance use and elevated

impulsivity, sensation-seeking, and neuroticism (1), thus being critical periods for the development of co-occurrence. Early traumatic or stressful experiences and other family factors may also play important roles in the development of both PDs and SUDs. Individuals with family history of drug use and SUDs may have increased exposure to early life adversity and increased antisocial tendencies (67,68), and conversely, those with family history of BPD and ASPD are at higher risk of SUDs and early adolescent onset drug use (69,70). Adulthood antisocial and impulsive traits may then further mediate the effects of childhood stressful events on adulthood SUDs (71). These complex mechanisms highlight the dynamic and transactional nature of PD-SUD co-occurrence, emphasizing that models described below are not mutually exclusive, and co-occurrence likely involves many different factors.

Shared etiology models

Shared etiology models, such as the spectrum model, suggest that SUDs and PDs have a shared vulnerability rising from common etiological factors (1,72,73). For example, that trait impulsivity/disinhibition serves as a risk factor for both BPD/ASPD and SUD (1,72,73). As a core feature in both SUDs and many PDs, impulsivity may be higher in people with BPD-SUD comorbidity than with either disorder alone (73,74), although other studies have not found this (75,76). Personality pathology and substance use may represent different manifestations of shared underlying impulsivity and disinhibition (73). In addition to influencing substance use onset, impulsivity can contribute to its continued use and overuse, particularly in the context of more stress relief from substances for those with higher disinhibition (73,77). A longitudinal study found that changes in early adolescent impulsivity predicted late adolescent ASPD and AUD, mediated by changes in mid-adolescent alcohol use and conduct problems (78). These findings are consistent with the behavioral disinhibition model, which posits that, while early vulnerability toward impulsivity underlies the co-emergence of antisocial behavior and alcohol use in early/mid adolescence, the subsequent development of these problem behaviors, rather than impulsivity itself, predicts the emergence of ASPD and AUD in late adolescence (78).

Shared etiology models are supported by the literature on the externalizing spectrum, which highlights common externalizing mechanisms underlying PD-SUD co-occurrence. Several genetics studies have identified the same genes underpinning both personality pathology and substance use (79,80). SUDs are also among the most common psychiatric diagnoses in probands/relatives of those with BPD (81). Moreover, individual differences in BPD and ASPD traits appeared as the strongest phenotypic and genetic correlates of lifetime use and problematic use of cannabis (29). In addition to common traits, other mechanisms have been proposed to underpin both personality pathology and substance use. Meta-analytic findings show that dysfunctions in social processing and distress tolerance may be core transdiagnostic phenotypes of BPD and problematic substance use, including SUD (82,83).

Causal models

Causal models posit that existing PDs lead to the onset of SUDs or vice versa (84). Similar to shared etiology models, these models may also highlight the role of traits, such as impulsivity, novelty-seeking, and neuroticism, that contribute to both disorders. However,

these models propose distinct disorders and that one disorder either causes or exacerbates the other.

The predisposition/vulnerability model proposes that existing personality pathology elicits environmental consequences (e.g., interpersonal conflict) that provide an impetus for substance use and SUD development (1). Presence of a PD is an established risk factor for substance use and SUDs in cross-sectional assessments, with some longitudinal studies supporting this association (5,10,13). For example, a quasi-longitudinal latent class analysis in a community-based twin sample showed that ASPD increased persistent polydrug use risk (38). Moreover, a longitudinal study with 1,354 juvenile offenders showed ASPD diagnosis and BPD symptom severity predicted increased drug use variety, with sensation-seeking mediating this relationship in BPD, and self-control and deviant peer association in ASPD (85,86). ASPD also increased risk for opioid use, with self-control and moral disengagement identified as important mechanisms (87). Those with higher levels of certain personality traits may also select into high-risk environments for substance use. For instance, the traits of low constraint and negative emotionality in adolescence may predict selection into negative social contexts during early adulthood, which can then reinforce those traits and associated AUD symptoms through young adulthood (88). Moreover, increased risk of violence exposure may help explain the effect of BPD symptoms on increased opioid use frequency (89).

With the emergence of personality pathology in childhood and onset of PDs in adolescence/early adulthood, causal theories have focused on PDs leading to substance use, rather than the reverse. However, a longitudinal study of 4,576 individuals suggests early drug use may be a precursor to delinquency and crime via impulsivity (90). Similarly, early use of alcohol, cigarettes, and cannabis in adolescence has been associated with higher risk of adult ASPD onset (91). In the complication model, an existing Axis I disorder is theorized to complicate or “scar” one’s personality (84). Indeed, the presence of a comorbid SUD tends to exacerbate existing PD pathology, and using substances can influence subsequent personality changes (1,72).

Clinical outcomes and implications

Prognosis, course, and treatment

PD-SUD co-occurrence tends to lead to poorer prognoses than either condition alone, with higher severity and chronicity of both disorders and unfavorable treatment outcomes (1–3). SUDs exacerbate PD symptomatology and contribute to its chronicity (11). The reverse is also true – ASPD and BPD are associated with persistence of alcohol dependence (92), and the severity of personality pathology is one of the main risk factors for concurrent SUDs in AUD (23). Despite this exacerbation, rates of SUD among BPD patients, similar to the general population, tend to decrease over time (93). Alcohol outcomes and psychosocial functioning can also improve for those with co-occurring AUD-ASPD who stay in treatment, although attrition is high (1). Specialized treatments for comorbid PD-SUD are thus critically needed. Several psychotherapies for PD-SUD co-occurrence have demonstrated some effectiveness, including Dialectical Behavior Therapy for SUD, Dynamic Deconstructive Psychotherapy, and Dual-Focus Schema Therapy, which all use

systematic and integrative approaches of treating PD simultaneously with SUD ((1,3,94) for detailed reviews). Nevertheless, further research is needed.

Self-harm and suicide

The increased risk of self-harm and suicide are two particularly notable negative outcomes in PD-SUD co-occurrence and, thus, often a focus of clinical intervention. Those with co-occurring PD-SUD in Taiwan had a risk of suicide 74 times higher than the general population (8), while U.S. veterans with comorbid PD-SUD were 13.5 times more likely to have a lifetime suicide attempt compared to the healthy group, and a higher rate of lifetime suicide history than those with SUD alone (27% vs 5%) (95). ASPD is associated with suicide the Epidemiologic Catchment Area study (96) and in SUD treatment samples (97). BPD is itself strongly linked with self-harm and suicidal behavior (98), with recent evidence of compounded risk for those with SUD and BPD (99).

The interactive effects of substance use, self-harm, and PD are important to understand from a developmental lens. Recent engagement in both risky alcohol use and self-injurious behavior were longitudinal predictors of BPD symptoms in adolescence (100). Moreover, once adolescents engaged in excessive alcohol use, the risk for BPD symptoms increased regardless of later terminating use, suggesting symptoms may often shift from one impulsive behavior to another (e.g., alcohol use to self-harm). Transdiagnostic factors, particularly high impulsivity and low distress tolerance, have been proposed to explain the high incidence of suicide and self-harm among those with comorbid PD-SUD (83). More empirical and clinical focus is needed on interventions for suicide/self-harm in PD-SUD co-occurrence, with transdiagnostic mechanisms offering particularly important treatment targets.

Conclusions and Future Directions

Prevalence estimates of PD-SUD co-occurrence are generally high, with significant heterogeneity across different types of PDs, SUDs, and demographic factors. Research should continue exploring personality traits and dimensional models of PD, substances besides alcohol, and multiple comorbid SUDs. Several models have been proposed for PD-SUD co-occurrence, with some (e.g., shared etiology and predisposition models) receiving more empirical attention and support than others. Nevertheless, the complexities underlying PD-SUD co-occurrence suggest that models are not mutually exclusive and multiple mechanisms are at play. Key temperamental vulnerabilities (e.g., impulsivity, emotion dysregulation) together with environmental factors (e.g., traumatic experiences) may predispose individuals to a higher risk of both PDs and SUDs (i.e., shared etiology model), and the earlier onset of PDs may further contribute to SUD development (i.e., predisposition/vulnerability model). For some individuals, substance use becomes problematic and develops into SUDs, which in turn can make PD symptoms more severe or chronic (i.e., complication model). The bidirectionality inherent in PD-SUD co-occurrence warrants research testing dynamic, reciprocal effects rather than unidirectional effects, which requires intensive longitudinal studies.

The assessment of mechanisms underlying PD-SUD co-occurrence has focused on broad/heterogeneous constructs (e.g., impulsivity, emotion regulation). Studying more nuanced variables is needed to improve our understanding of PD-SUD development and maintenance. More rigorous methodology (e.g., EMA) can further aid in these efforts. Research on PD-SUD co-occurrence has also largely focused on BPD and ASPD, yet more emphasis on other PDs and co-occurring PDs could help in further disentangling these mechanisms. Moreover, significant issues in the measurement and diagnosis of PDs and SUDs are important to consider. The ongoing shift towards dimensional conceptualization of psychopathology, including personality and substance use pathology, may aid in a more nuanced understanding of the PD-SUD relationship. As research has uncovered both common and distinct underlying components, it is important to balance broad transdiagnostic conceptualizations with retaining enough heterogeneity and specificity for targeted assessment and treatment approaches. Both empirical and clinical efforts warrant continued improvements in tailoring screening, prevention, and treatment for the complex and heterogeneous of PD-SUD co-occurrence.

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References

Papers of particular interest, published recently (within past 3 years), have been highlighted as:

• important

•• very important

1••. Helle AC, Watts AL, Trull TJ, Sher KJ. Alcohol use disorder and antisocial and borderline personality disorders. Alcohol Research: Current Reviews. 2019;40:35–50. Review of co-occurring alcohol use disorder and antisocial and borderline personality disorders, with an emphasis on theoretical explanations, outcomes, and treatments.

2. Kienast T, Stoffers J, Bermpohl F, Lieb K. Borderline Personality Disorder and Comorbid Addiction. Dtsch Arztebl Int. 2014 Apr;111(16):280–6. [PubMed: 24791755]

3. Parmar A, Kaloiya G. Comorbidity of Personality Disorder among Substance Use Disorder Patients: A Narrative Review. Indian Journal of Psychological Medicine. 2018 Nov 1;40(6):517–27. [PubMed: 30533947]

4. American Psychiatric Association. Diagnostic and statistical manual of mental disorders: DSM-5. [Internet]. 5th edition. Arlington, VA: American Psychiatric Association; 2013 [cited 2023 Jun 21]. 947 p.

5. Trull TJ, Jahng S, Tomko RL, Wood PK, Sher KJ. Revised NESARC Personality Disorder Diagnoses: Gender, Prevalence, and Comorbidity with Substance Dependence Disorders. Journal of Personality Disorders. 2010 Aug;24(4):412–26. [PubMed: 20695803]

6. Substance Abuse and Mental Health Services Administration (SAMHSA). 2021 NSDUH Annual National Report | CBHSQ Data [Internet]. 2021 [cited 2023 Jun 22]. Available from: https://www.samhsa.gov/data/report/2021-nsduh-annual-national-report

7. Guy N, Newton-Howes G, Ford H, Williman J, Foulds J. The prevalence of comorbid alcohol use disorder in the presence of personality disorder: Systematic review and explanatory modelling. Personal Ment Health. 2018 Aug;12(3):216–28. [PubMed: 29611335]

8. Kuo CJ, Chen WY, Tsai SY, Chen PH, Ko KT, Chen CC. Excessive mortality and causes of death among patients with personality disorder with comorbid psychiatric disorders. Soc Psychiatry Psychiatr Epidemiol. 2019 Jan;54(1):121–30. [PubMed: 30151650]

9•. Hanna Chaim C, Santana GL, de Vries Albertin P, Silveira CM, Siu ER, Viana MC, et al. Alcohol use patterns and disorders among individuals with personality disorders in the Sao Paulo Metropolitan Area. PLoS One. 2021;16(3):e0248403. Cross-sectional study of prevalence of alcohol use disorder and patterns among 2,942 Brazilian adults in Brazil, which found Cluster B PDs to be particularly associated with alcohol.

10. González E, Arias F, Szerman N, Vega P, Mesias B, Basurte I. Coexistence between personality disorders and substance use disorder. Madrid study about prevalence of dual pathology. Actas Esp Psiquiatr. 2019 Nov;47(6):218–28. [PubMed: 31869422]

11. Trull TJ, Freeman LK, Vebares TJ, Choate AM, Helle AC, Wycoff AM. Borderline personality disorder and substance use disorders: an updated review. Borderline Personality Disorder and Emotion Dysregulation. 2018 Sep 19;5(1):15. [PubMed: 30250740]

12. Sher L, Rutter SB, New AS, Siever LJ, Hazlett EA. Gender differences and similarities in aggression, suicidal behaviour, and psychiatric comorbidity in borderline personality disorder. Acta Psychiatr Scand. 2019 Feb;139(2):145–53. [PubMed: 30353921]

13. Scalzo F, Hulbert CA, Betts JK, Cotton SM, Chanen AM. Substance Use in Youth With Borderline Personality Disorder. J Pers Disord. 2018 Oct;32(5):603–17. [PubMed: 28926304]

14. Scalzo F, Hulbert CA, Betts JK, Cotton SM, Chanen AM. Predictors of substance use in youth with borderline personality disorder. Personal Disord. 2018 Jul;9(4):390–6. [PubMed: 28627903]

15. Howard R, Hasin D, Stohl M. Substance use disorders and criminal justice contact among those with co-occurring antisocial and borderline personality disorders: Findings from a nationally representative sample. Personal Ment Health. 2021 Feb;15(1):40–8. [PubMed: 32588546]

16. Mundt AP, Baranyi G. The Unhappy Mental Health Triad: Comorbid Severe Mental Illnesses, Personality Disorders, and Substance Use Disorders in Prison Populations. Front Psychiatry. 2020;11:804. [PubMed: 32922316]

17. Holzer KJ, Vaughn MG, Loux TM, Mancini MA, Fearn NE, Wallace CL. Prevalence and correlates of antisocial personality disorder in older adults. Aging Ment Health. 2022 Jan;26(1):169–78. [PubMed: 33107330]

18. Puddephatt JA, Jones A, Gage SH, Fear NT, Field M, McManus S, et al. Associations of alcohol use, mental health and socioeconomic status in England: Findings from a representative population survey. Drug Alcohol Depend. 2021 Feb 1;219:108463. [PubMed: 33421804]

19. Torgersen S, Kringlen E, Cramer V. The prevalence of personality disorders in a community sample. Arch Gen Psychiatry. 2001 Jun;58(6):590–6. [PubMed: 11386989]

20. Hochheimer M, Sacco P, Ware OD. Latent classes of lifetime drug use disorder in national epidemiological survey on alcohol and related conditions - III. Addict Behav. 2020 Jul;106:106379. [PubMed: 32199206]

21. Carpenter RW, Wood PK, Trull TJ. Comorbidity of Borderline Personality Disorder and Lifetime Substance Use Disorders in a Nationally Representative Sample. Journal of Personality Disorders. 2016 Jun;30(3):336–50. [PubMed: 25893556]

22. Rhee TG, Rosenheck RA. Gender Differences in Psychiatric and Behavioral Health Burden Among Adults With Alcohol and Other Substance Use Disorders in the United States. J Addict Med. 2022 Jun 1;16(3):295–302. [PubMed: 34310435]

23. Cavicchioli M, Prudenziati F, Movalli M, Ramella P, Maffei C. The Severity of Personality Pathology: A Risk Factor for Concurrent Substance Use Disorders in Alcohol Use Disorder. J Dual Diagn. 2019 Sep;15(3):159–71. [PubMed: 31088228]

24. Zhang C, Luo T, Liu L, Dong H, Hao W. Prevalence Rates of Personality Disorder and Its Association With Methamphetamine Dependence in Compulsory Treatment Facilities in China. Front Psychiatry. 2018;9:698. [PubMed: 30618872]

25. Ma CH, Lin KF, Chen TT, Yu YF, Chien HF, Huang WL. Specific personality traits and associated psychosocial distresses among individuals with heroin or methamphetamine use disorder in Taiwan. J Formos Med Assoc. 2020 Mar;119(3):735–42. [PubMed: 31500938]

26. Loya JM, Tangney JP, Stuewig JB. Are Borderline Personality Disorder Features Differentially Related to Pre-Incarceration Alcohol, Cannabis, Cocaine, and Opioid Dependence Among People Recently Incarcerated in Jail? J Pers Disord. 2022 Oct;36(5):623–40. [PubMed: 36181491]
27. Sharma P, Riehm KE, Young AS, Reynolds MD, Tarter RE, Horner MS, et al. Do the Transmissible Liability Index (TLI) and Adolescent Cannabis Use Predict Paranoid and Schizotypal Symptoms at Young Adulthood? Subst Use Misuse. 2021;56(13):2026–34. [PubMed: 34402373]
28. Bronchain J, Chabrol H, Raynal P. Could schizotypy protect against the negative outcomes of borderline traits on alcohol consumption? A cluster analytic study. Psychiatry Res. 2018 Nov;269:21–4. [PubMed: 30145296]
29. Gillespie NA, Aggen SH, Neale MC, Knudsen GP, Krueger RF, South SC, et al. Associations between personality disorders and cannabis use and cannabis use disorder: a population-based twin study. Addiction. 2018 Aug;113(8):1488–98. [PubMed: 29500852]
30. Spencer M, Miniño A, Warner M. Drug overdose deaths in the United States, 2001–2021. NCHS Data Brief, no 457. [Internet]. Hyattsville, MD: National Center for Health Statistics.; 2022 Dec [cited 2023 Jun 22]. Available from: https://www.cdc.gov/nchs/products/databriefs/db457.htm
31. Santo TJ, Campbell G, Gisev N, Martino-Burke D, Wilson J, Colledge-Frisby S, et al. Prevalence of mental disorders among people with opioid use disorder: A systematic review and meta-analysis. Drug Alcohol Depend. 2022 Sep 1;238:109551. [PubMed: 35797876]
32. Klimas J, Gorfinkel L, Fairbairn N, Amato L, Ahamad K, Nolan S, et al. Strategies to Identify Patient Risks of Prescription Opioid Addiction When Initiating Opioids for Pain: A Systematic Review. JAMA Netw Open. 2019 May 3;2(5):e193365. [PubMed: 31050783]
33. Farooqui AM, Arya A, Singh A, Dalal PK. Psychiatric Comorbidity, Psychosocial Problems, and Functioning of People Who Inject Opioids: An Observational Study. Addict Health. 2022 Jul;14(3):218–23. [PubMed: 36544978]
34. Nevid JS, Gordon AJ, Barris A, Sperber JE, Haggerty G. Personality profiles of patients with alcohol use disorder and opioid use disorder in an inpatient treatment setting. J Subst Abuse Treat. 2019 Feb;97:91–6. [PubMed: 30577905]
35. Nichols LM, Pedroza JA, Fleming CM, O'Brien KM, Tanner-Smith EE. Social-Ecological Predictors of Opioid Use Among Adolescents With Histories of Substance Use Disorders. Front Psychol. 2021;12:686414. [PubMed: 34335400]
36. Vest N, Tragesser S. Borderline Features and Prescription Opioid Misuse in a Substance Use Disorder Treatment Sample. Subst Use Misuse. 2019;54(1):166–75. [PubMed: 30375912]
37. Bhalla IP, Stefanovics EA, Rosenheck RA. Clinical Epidemiology of Single Versus Multiple Substance Use Disorders: Polysubstance Use Disorder. Medical Care. 2017;55(9):S24–32. [PubMed: 28806363]
38. Dash GF, Martin NG, Agrawal A, Lynskey MT, Slutske WS. Typologies of illicit drug use in mid-adulthood: a quasi-longitudinal latent class analysis in a community-based sample of twins. Addiction. 2021 May;116(5):1101–12. [PubMed: 33463859]
39•. Cougle JR, McDermott KA, Hakes JK, Joyner KJ. Personality disorders and social support in cannabis dependence: A comparison with alcohol dependence. J Affect Disord. 2020 Mar 15;265:26–31. [PubMed: 31957689] Cross-sectional study using NESARC, which found that people with both alcohol and cannabis dependence had higher rates of PDs and a greater number of PDs than those with either diagnosis alone.
40. Ellis JD, Pittman BP, McKee SA. Co-occurring opioid and sedative use disorder: Gender differences in use patterns and psychiatric co-morbidities in the United States. J Subst Abuse Treat. 2020 Jul;114:108012. [PubMed: 32527509]
41. Trull TJ, Durrett CA. Categorical and dimensional models of personality disorder. Annu Rev Clin Psychol. 2005;1:355–80. [PubMed: 17716092]
42. Guillot CR, Lucke HR, Ramsey AJ, Kearns NT, Blumenthal H, Berman ME. Cluster-b personality disorder traits and impulsivity: Indirect associations with alcohol use severity through positive alcohol expectancies. Exp Clin Psychopharmacol. 2022 Sep 1;

43. Poelen EAP, Schijven EP, Otten R. The mediating role of substance use motives in the relationship between personality dimensions and alcohol and drug use in adolescents and young adults with mild intellectual disabilities. Addict Behav. 2022 Mar;126:107173. [PubMed: 34776302]

44. Roviš D, Vasiljev V, Jenko-Pražnikar Z, Petelin A, Drevenšek G, Peruč D, et al. Mental health and drug use severity: the role of substance P, neuropeptide Y, self-reported childhood history of trauma, parental bonding and current resiliency. J Ment Health. 2021 Feb;30(1):88–96. [PubMed: 31347421]

45•. Moraleda E, Ramírez López J, Fernández-Calderón F, Lozano ÓM, Diaz-Batanero C. Personality Traits among the Various Profiles of Substance Use Disorder Patients: New Evidence Using the DSM-5 Section III Framework. Eur Addict Res. 2019;25(5):238–47. [PubMed: 31163437] Cross-sectional study assessing relationships between facets of the Alternative Model for Personality Disorders, substance use disorders, and substance use profiles among a sample of patients in SUD treatment.

46. Bresin K, Mekawi Y, Stevens JS, Hinrichs R, Fani N, Michopoulos V, et al. From alcohol to aggression: Examining the structure and nomological network of dysregulated behaviors in a trauma-exposed community sample. J Clin Psychol. 2022 Jun;78(6):1220–39. [PubMed: 34862625]

47•. De la Rosa-Cáceres A, Narvaez-Camargo M, Blanc-Molina A, Romero-Pérez N, Dacosta-Sánchez D, González-Ponce BM, et al. Bridge Nodes between Personality Traits and Alcohol-Use Disorder Criteria: The Relevance of Externalizing Traits of Risk Taking, Callousness, and Irresponsibility. J Clin Med. 2022 Jun 16;11(12). Cross-sectional study with an adult sample in Spain, which linked several externalizing AMPD facets with AUD criteria.

48•. Choate AM, Gorey C, Rappaport LM, Wiernik BM, Bornovalova MA. Alternative model of personality disorders traits predict residential addictions treatment completion. Drug Alcohol Depend. 2021 Nov 1;228:109011. [PubMed: 34521057] A study linking AMPD facets with premature treatment termination in a cross-sectional sample of people receiving residential SUD treatment.

49••. Krueger RF, Hobbs KA, Conway CC, Dick DM, Dretsch MN, Eaton NR, et al. Validity and utility of Hierarchical Taxonomy of Psychopathology (HiTOP): II. Externalizing superspectrum. World Psychiatry. 2021 Jun;20(2):171–93. [PubMed: 34002506] Review of evidence on the validity and utility of the externalizing spectrum of the Hierarchical Taxonomy of Psychopathology.

50. Ignatyev Y, Baggio S, Mundt AP. The Underlying Structure of Comorbid Mental Health and Substance Use Disorders in Prison Populations. Psychopathology. 2019;52(1):2–9. [PubMed: 30654380]

51. McDonald JB, Bozzay ML, Bresin K, Verona E. Facets of externalizing psychopathology in relation to inhibitory control and error processing. Int J Psychophysiol. 2021 May;163:79–91. [PubMed: 31634490]

52. McDowell YE, Vergés A, Sher KJ. Are Some Alcohol Use Disorder Criteria More (or Less) Externalizing than Others? Distinguishing Alcohol Use Symptomatology from General Externalizing Psychopathology. Alcohol Clin Exp Res. 2019 Mar;43(3):483–96. [PubMed: 30620411]

53. Bailey AJ, Finn PR. Borderline Personality Disorder Symptom Comorbidity Within a High Externalizing Sample: Relationship to the Internalizing-Externalizing Dimensional Structure of Psychopathology. J Pers Disord. 2020 Dec;34(6):814–26. [PubMed: 30730780]

54•. Watts AL, Watson D, Heath AC, Sher KJ. Alcohol use disorder criteria exhibit different comorbidity patterns. Addiction [Internet]. [cited 2023 Apr 18];n/a(n/a). Available from: https://onlinelibrary.wiley.com/doi/abs/10.1111/add.16121 Study mapping individual AUD criteria onto internalizing and externalizing dimensions, using multivariate and factor analytical modeling in two large nationally representative samples of past-year drinkers.

55•. Watts AL, Latzman RD, Boness CL, Kotov R, Keyser-Marcus L, DeYoung CG, et al. New approaches to deep phenotyping in addictions. Psychology of Addictive Behaviors. 2023;37(3):361–75. [PubMed: 36174150] Review and integration of two recently developed frameworks (NIDA PhAB and HiTOP) utilizing deep phenotyping to improve the understanding of causes and consequences of psychopathology.

56••. Rosenström T, Torvik FA, Ystrom E, Aggen SH, Gillespie NA, Krueger RF, et al. Specific antisocial and borderline personality disorder criteria and general substance use: A twin study. Personal Disord. 2021 May;12(3):228–40. [PubMed: 32584092] Longitudinal study using a sample of 1410 pairs of Norwegian twins, which showed that a general factor encompassing ASPD and BPD criteria was related to general substance use.

57. Bonifay W, Lane SP, Reise SP. Three Concerns With Applying a Bifactor Model as a Structure of Psychopathology. Clinical Psychological Science. 2017 Jan 1;5(1):184–6.

58. Kaufman EA, Perez J, Lazarus S, Stepp SD, Pedersen SL. Understanding the association between borderline personality disorder and alcohol-related problems: An examination of drinking motives, impulsivity, and affective instability. Personal Disord. 2020 May;11(3):213–21. [PubMed: 31724410]

59•. Scamaldo KM, Tull MT, Gratz KL. Motives for opioid use explain the relation between borderline personality disorder pathology and opioid use problems. Psychiatry Res. 2021 Feb;296:113609. [PubMed: 33418458] Cross-sectional study showing the importance of both emotion- and interpersonal-related motives for opioid use among patients with BPD pathology in SUD treatment.

60. Vest NA, Murphy KT, Tragesser SL. Borderline personality disorder features and drinking, cannabis, and prescription opioid motives: Differential associations across substance and sex. Addict Behav. 2018 Dec;87:46–54. [PubMed: 29945027]

61. Miglin R, Bounoua N, Spielberg JM, Sadeh N. A transdiagnostic examination of affective motivations for drug use. Addict Behav Rep. 2020 Dec;12:100279. [PubMed: 32637559]

62•. Vest NA, Tragesser S. Coping motives mediate the relationship between borderline personality features and alcohol, cannabis, and prescription opioid use disorder symptomatology in a substance use disorder treatment sample. Personal Disord. 2020 May;11(3):230–6. [PubMed: 31815505] Cross-sectional study using a sample of 193 individuals in SUD treatment, which showed the role of coping motives in the relationships between BPD and alcohol, cannabis, and opioid use disorders.

63•. Chugani CD, Byrd AL, Pedersen SL, Chung T, Hipwell AE, Stepp SD. Affective and Sensation-Seeking Pathways Linking Borderline Personality Disorder Symptoms and Alcohol-Related Problems in Young Women. J Pers Disord. 2020 Jun;34(3):420–31. [PubMed: 30179582] Cross-sectional study highlighting coping and enhancement drinking motives as possible mechanisms that explain co-occurrence of BPD symptoms and alcohol-related problems in young females.

64•. Wycoff AM, Carpenter RW, Hepp J, Lane SP, Trull TJ. Drinking motives moderate daily-life associations between affect and alcohol use in individuals with borderline personality disorder. Psychol Addict Behav. 2020 Nov;34(7):745–55. [PubMed: 32324000] Ecological momentary assessment study examining daily drinking motives, affect, and alcohol use in a BPD sample.

65. Mackesy-Amiti ME, Donenberg G. Negative affect and emotion dysregulation among people who inject drugs: An ecological momentary assessment study. Psychol Addict Behav. 2020 Sep;34(6):650–9. [PubMed: 32271056]

66. Neale MC, Kendler KS. Models of comorbidity for multifactorial disorders. Am J Hum Genet. 1995 Oct;57(4):935–53. [PubMed: 7573055]

67. Acheson A, Vincent AS, Cohoon AJ, Lovallo WR. Early life adversity and increased antisocial and depressive tendencies in young adults with family histories of alcohol and other substance use disorders: Findings from the Family Health Patterns project. Addict Behav Rep. 2022 Jun;15:100401. [PubMed: 35434243]

68. Feder KA, Ali MM, Sherman LJ, Letourneau E, Barry CL, Stuart EA, et al. Elevated prevalence of antisocial behavior in adolescent children whose mothers misuse opioids. Drug Alcohol Depend. 2020 Oct 1;215:108153. [PubMed: 32862083]

69•. Scholes-Balog KE, Hemphill SA, Heerde JA, Toumbourou JW, Patton GC. Childhood social environmental and behavioural predictors of early adolescent onset cannabis use. Drug Alcohol Rev. 2020 May;39(4):384–93. [PubMed: 32372532] Longitudinal study showing the associations between family history of antisocial behavior and early adolescent onset cannabis use.

70. Kerr S, Dalrymple K, Chelminski I, Zimmerman M. Depression and substance use disorders in the offspring of depressed parents as a function of the parent's borderline personality disorder symptomatology. Ann Clin Psychiatry. 2018 Aug;30(2):207–14. [PubMed: 30028895]

71••. Rosenström T, Czajkowski NO, Ystrom E, Krueger RF, Aggen SH, Gillespie NA, et al. Genetically Informative Mediation Modeling Applied to Stressors and Personality-Disorder Traits in Etiology of Alcohol Use Disorder. Behav Genet. 2019 Jan;49(1):11–23. [PubMed: 30536213] Longitudinal study using a sample of 1410 pairs of Norwegian twins, which found that adulthood antisocial and impulsive traits mediated the effect of childhood stressful life events on adulthood AUD.

72. Sher KJ, Trull TJ. Substance use disorder and personality disorder. Curr Psychiatry Rep. 2002 Jan 1;4(1):25–9. [PubMed: 11814392]

73. Trull TJ, Sher KJ, Minks-Brown C, Durbin J, Burr R. Borderline personality disorder and substance use disorders: A review and integration. Clinical Psychology Review. 2000 Mar 1;20(2):235–53. [PubMed: 10721499]

74. Snow MB, Balling C, Zimmerman M. Re-examining borderline personality disorder and substance use disorder: The role of emotion dysregulation. Ann Clin Psychiatry. 2020 Aug 1;32(3):170–5. [PubMed: 32343289]

75. Boog M, Dugonjic H, Arntz A, Goudriaan AE, Wetering BJMVD, Franken IHA. Borderline Personality Disorder With Versus Without Alcohol Use Disorder: Comparing Impulsivity and Schema Modes. J Pers Disord. 2022 Feb;36(1):1–18. [PubMed: 33999655]

76•. Moraleda-Barreno E, Cáceres Pachón MDP, Lozano ÓM, Pérez Moreno PJ, Lorca Marín JA, Fernández-Calderón F, et al. Impairments in Executive Functioning in Patients with Comorbid Substance Use and Personality Disorders: A Systematic Review. J Dual Diagn. 2021 Mar;17(1):64–79. [PubMed: 33092494] Review on impairments in executive functioning in people with comorbid substance use and Cluster A, B, and C personality disorders, compared to those with a single diagnosis.

77. Griffin SA, Freeman LK, Trull TJ. Measuring impulsivity in daily life: A systematic review and recommendations for future research [Internet]. PsyArXiv; 2020 [cited 2023 Jun 30]. Available from: https://psyarxiv.com/mfdp6/

78•. Defoe IN, Khurana A, Betancourt LM, Hurt H, Romer D. Cascades From Early Adolescent Impulsivity to Late Adolescent Antisocial Personality Disorder and Alcohol Use Disorder. J Adolesc Health. 2022 Nov;71(5):579–86. [PubMed: 35934585] Longitudinal study using mediation to show associations between early adolescent impulsivity, mid-adolescent alcohol use and conduct problems, and late adolescent ASPD and AUD.

79. da Silva BS, Cupertino RB, Schuch JB, Kappel DB, Sanvicente-Vieira B, Bandeira CE, et al. The association between SYT1-rs2251214 and cocaine use disorder further supports its role in psychiatry. Prog Neuropsychopharmacol Biol Psychiatry. 2019 Aug 30;94:109642. [PubMed: 31059723]

80. Karlsson Linnér R, Mallard TT, Barr PB, Sanchez-Roige S, Madole JW, Driver MN, et al. Multivariate analysis of 1.5 million people identifies genetic associations with traits related to self-regulation and addiction. Nat Neurosci. 2021 Oct;24(10):1367–76. [PubMed: 34446935]

81. Ruocco AC, Daros AR, Chang J, Rodrigo AH, Lam J, Ledochowski J, et al. Clinical, personality, and neurodevelopmental phenotypes in borderline personality disorder: a family study. Psychol Med. 2019 Sep;49(12):2069–80. [PubMed: 30303056]

82••. Hanegraaf L, van Baal S, Hohwy J, Verdejo-Garcia A. A systematic review and meta-analysis of “Systems for Social Processes” in borderline personality and substance use disorders. Neurosci Biobehav Rev. 2021 Aug;127:572–92. [PubMed: 33865874] Review and meta-analysis showing that deficits in social processing may be a core transdiagnostic phenotype of BPD and SUD.

83••. Mattingley S, Youssef GJ, Manning V, Graeme L, Hall K. Distress tolerance across substance use, eating, and borderline personality disorders: A meta-analysis. J Affect Disord. 2022 Mar 1;300:492–504. [PubMed: 34986376] Review and meta-analysis showing the transdiagnostic role of distress tolerance in substance use, BPD, and disordered eating.

84. Krueger RF, Tackett JL. Personality and Psychopathology: Working Toward the Bigger Picture. Journal of Personality Disorders. 2003 Apr;17(2):109–28. [PubMed: 12755325]

85•. Wojciechowski T Antisocial personality disorder as a predictor of polydrug use: a longitudinal study of the dual mediating roles of deviant peer association and self-control among juvenile offenders. J Ment Health. 2021 May 7;1–7. Longitudinal study with 1,354 juvenile offenders

showing that ASPD diagnosis predicted increased drug use variety, with self-control and deviant peer association as mediators.

86•. Wojciechowski T Borderline Personality Disorder as a Predictor of Drug Use Variety: Cognitive Vs. Affective Mechanisms. J Psychoactive Drugs. 2022 Dec;54(5):452–61. [PubMed: 34856887] Longitudinal study with 1,354 juvenile offenders showing that BPD symptom severity predicted increased drug use variety, with sensation-seeking as a mediator.

87. Wojciechowski T Antisocial Personality Disorder as a Risk Factor for Opioid Use: The Dual Mediating Roles of Antisocial Attitudes and Self-Control. Journal of Drug Issues. 2021 Apr 1;51(2):268–83.

88. Samek DR, Hicks BM, Iacono WG, McGue M. Personality, romantic relationships, and alcohol use disorder symptoms in adolescence and young adulthood: An evaluation of personality × social context interplay. Dev Psychopathol. 2020 Aug;32(3):1097–112. [PubMed: 31452479]

89. Wojciechowski T Borderline personality disorder symptoms and exposure to violence as risk factors for opioid use in adulthood. Psychiatry Res. 2019 Nov;281:112549. [PubMed: 31494451]

90. Walters GD. Does adolescent drug use belong on the antisocial spectrum? Mediating the drug-crime connection with cognitive impulsivity. Int J Law Psychiatry. 2022 Feb;80:101761. [PubMed: 34875448]

91•. Lee JY, Pahl K, Kim W. Latent triple trajectories of substance use as predictors for the onset of antisocial personality disorder among urban African American and Puerto Rican adults: A 22-year longitudinal study. Subst Abus. 2022;43(1):442–50. [PubMed: 35073243] A 22-year longitudinal study using a sample of urban African American and Puerto Rican adults, which showed that early use of alcohol, cigarettes, and cannabis in adolescence was associated with higher risk of adult ASPD onset.

92. Hasin D, Fenton MC, Skodol A, Krueger R, Keyes K, Geier T, et al. Personality Disorders and the 3-Year Course of Alcohol, Drug, and Nicotine Use Disorders. Archives of General Psychiatry. 2011 Nov 1;68(11):1158–67. [PubMed: 22065531]

93. Shah R, Zanarini MC. Comorbidity of Borderline Personality Disorder: Current Status and Future Directions. Psychiatr Clin North Am. 2018 Dec;41(4):583–93. [PubMed: 30447726]

94. Köck P, Walter M. Personality disorder and substance use disorder – An update. Mental Health & Prevention. 2018 Dec 1;12:82–9.

95. Edwards ER, Barnes S, Govindarajulu U, Geraci J, Tsai J. Mental health and substance use patterns associated with lifetime suicide attempt, incarceration, and homelessness: A latent class analysis of a nationally representative sample of U.S. veterans. Psychol Serv. 2021 Nov;18(4):619–31. [PubMed: 32852993]

96. Krasnova A, Eaton WW, Samuels JF. Antisocial personality and risks of cause-specific mortality: results from the Epidemiologic Catchment Area study with 27 years of follow-up. Soc Psychiatry Psychiatr Epidemiol. 2019 May 1;54(5):617–25. [PubMed: 30506390]

97. Villalobos-Gallegos L, Pérez-Matus S, Valdez-Santiago R, Marín-Navarrete R. Individual Contribution of Youth Antisocial Symptoms to Suicide Behavior in Adults with Substance Use Disorders. Arch Suicide Res. 2020;24(sup2):S126–35. [PubMed: 30856363]

98. Yen S, Peters JR, Nishar S, Grilo CM, Sanislow CA, Shea MT, et al. Association of Borderline Personality Disorder Criteria With Suicide Attempts: Findings From the Collaborative Longitudinal Study of Personality Disorders Over 10 Years of Follow-up. JAMA Psychiatry. 2021 Feb 1;78(2):187–94. [PubMed: 33206138]

99. Özdemir S, Tunç P. The effects of borderline personality and sociodemographic traits on self-harm and suicidal behavior in substance use disorder. Journal of Psychiatric Nursing. 2022;13(1):15–23.

100•. Ghinea D, Koenig J, Parzer P, Brunner R, Carli V, Hoven CW, et al. Longitudinal development of risk-taking and self-injurious behavior in association with late adolescent borderline personality disorder symptoms. Psychiatry Res. 2019 Mar;273:127–33. [PubMed: 30641342] Longitudinal study showing associations between the development of alcohol use, self-injurious behaviors, and BPD in adolescents.