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Sex Differences in Antisocial Personality Disorder: Results From the National Epidemiological Survey on Alcohol and Related Conditions

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Abstract

Despite the 3:1 prevalence ratio of men versus women with Antisocial Personality Disorder (ASPD), research on sex differences on correlates of ASPD in the general population is scarce. The purpose of this study was to examine sex differences in childhood and adult adverse events, lifetime psychiatric comorbidity, and clinical correlates of *DSM–IV* ASPD. The sample included 819 men and 407 women with *DSM-IV* ASPD diagnosis. Data were derived from the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) *(N* = 43,093). Compared to men, women with ASPD reported more frequent childhood emotional neglect (AOR = 2.25; 95% CI: 1.52–3.34) and sexual abuse (AOR = 4.20; 95% CI: 2.78–6.35), any parent-related adverse event during childhood (e.g., parental substance use disorder) (AOR = 2.47; 95% CI: 1.60–3.82), and adverse events during adulthood (AOR = 4.20; 95% CI: 2.78–6.35). Although women with ASPD present less violent antisocial behaviors and higher rates of aggressiveness and irritability (OR = 0.46; 95% CI: 0.31–0.67), they have higher rates of victimization, greater impairment, and

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lower social support. Our findings suggest increased mental health needs in women with ASPD, meriting development of different treatment programs for women and men.

Keywords

antisocial personality disorder; sex; gender; epidemiology

Antisocial personality disorder (ASPD) is characterized by disregard for, and violation of the rights of others that begins in childhood and continues into adulthood (American Psychiatric Association, 2000). ASPD has been associated with childhood abuse and neglect (Luntz & Widom, 1994), victimization and increased vulnerability for additional psychiatric and personality disorders (Compton, Conway, Stinson, Colliver, & Grant, 2005;Robins, Tipp, & Przybeck, 1991). One of the strongest findings in ASPD research is its male preponderance, with a 3:1 ratio of men to women (Compton et al., 2005).

Research on sex differences in early risk factors of antisocial behavior showed similar rates of neurocognitive deficits and family adversity in antisocial males and females (Moffitt, Caspi, Rutter, & Silva, 2001). However, much less is known about sex differences in childhood maltreatment among individuals with ASPD. Although higher rates of childhood maltreatment have been reported in women versus men in the general population (Keyes et al., 2012), it is unclear whether this is true in a general population sample of individuals with ASPD.

In data from the early 1980s (Robins et al., 1991) men with *DSM–III* ASPD were more likely to have a history of multiple traffic offenses and arrests, whereas females with ASPD were more likely to have had multiple sexual partners. Among more recent clinical (Goldstein et al., 1996) and community (Mikulich-Gilbertson, Salomonsen-Sautel, Sakai, & Booth, 2007) samples of individuals with ASPD and comorbid substance use disorders, data suggest that women are more likely to have run away from home, to be impulsive, and to lack remorse, whereas men are more likely to report aggressive behaviors such as initiating fights, using weapons, being cruel to animals, setting fires, and meeting the criterion of reckless disregard for safety of others. Since previous research has relied on localized and small samples of drug users limiting the generalization of its findings, examination of sex differences in antisocial behavior and ASPD criteria in a general population sample of ASPD individuals is warranted.

Goldstein et al. (1996) also found that women presented with greater psychiatric comorbidity than their male counterparts in the clinical sample of individuals with SUD and comorbid ASPD. In addition, two recent studies using a general population sample examined clinical characteristics of antisocial syndromes and reported sex by antisocial syndrome interactions for comorbid psychiatric disorders and family history of psychopathology among subsamples limited to those with drug use disorders (DUD; Goldstein, Compton et al., 2007) or alcohol use disorders (AUD; Goldstein, Dawson et al., 2007). Among those with DUD and comorbid ASPD, more women than men reported family history of DUD and higher prevalence of lifetime mood, anxiety, and additional personality disorders, but almost identical patterns of ASPD criteria (Goldstein, Compton et al., 2007). Among those with AUD and comorbid ASPD, no sex differences in ASPD symptomatology or psychiatric comorbidity patterns were observed (Goldstein, Dawson et al., 2007). Overall, existing information on sex differences on psychiatric comorbidity is limited by use of treatment-seeking samples (Goldstein et al., 1996) or subsamples of individuals with alcohol or drug use disorders (Goldstein, Compton et al., 2007; Goldstein, Dawson et al., 2007; Mikulich-Gilbertson et al., 2007). Finally, previous studies have failed

to examine important clinical correlates such as disability, stress levels, and social support in men and women with ASPD. Information regarding differential levels of impairment and need are relevant to the development and implementation of strategies in the management of ASPD in men and women.

The present study aims to fill these gaps in our knowledge, and to respond to the American Psychiatric Association, which has called attention to the critical importance of sex in the presentation of psychiatric disorders (Narrow, First, Sirovatka, & Regier, 2007). We therefore present a comprehensive picture of sex differences in childhood adverse events (CAE) and adult adverse events (AAE), lifetime psychiatric comorbidity, clinical presentation, and other clinical correlates of *DSM–IV* ASPD. We investigated these sex differences in ASPD using data from a large, nationally representative sample of the U.S. adult population. Specifically, the goals of this study were: (1) to compare men and women in the general population with ASPD on the prevalence of childhood individual and parent-related adverse events and adulthood adverse events; (2) to compare lifetime comorbidity patterns in men and women with ASPD; (3) to identify sex differences in reported antisocial behaviors and *DSM–IV* ASPD criteria met among individuals diagnosed with ASPD; and (4) to investigate social support, disability, and stress levels in men and women with ASPD.

Method

Sample and Procedures

Study subjects were drawn from the 2004–2005 Wave 2 of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). Wave 1 of the NESARC was conducted in 2001 to 2002 and is described in detail elsewhere (Grant, Stinson, Dawson, Chou, Ruan et al., 2004). The target population was the civilian noninstitutionalized population 18 years and older residing in households and group quarters. Blacks, Hispanics, and adults aged 18–24 were oversampled. Adjustment for nonresponse across sociodemographic characteristics and the presence of any lifetime Wave 1 NESARC psychiatric disorder was performed at household and person levels (Grant et al., 2009). Weighted data were then adjusted to be representative of the adult U.S. civilian population based on the 2000 decennial census (Grant et al., 2009). The Wave 2 NESARC weights included a component that adjusted for nonresponse in order to ensure that the sample approximated the target population sample. After this nonresponse adjustment, no significant differences were found on Wave 1 measures of age, race-ethnicity, sex, socioeconomic status, or the presence of any lifetime substance (including alcohol and drug abuse/dependence and nicotine dependence), mood, anxiety, or personality disorders between Wave 2 respondents and the target population (Wave 2 respondents and eligible nonrespondents) (Grant et al., 2009). Face-to-face interviews were conducted with 43,093 individuals by experienced lay interviewers with extensive training and supervision. The response rate of Wave 1 was 81.0%. All procedures, including informed consent, received full ethical review and approval from the U.S. Census Bureau and U.S. Office of Management and Budget. Wave 2 of the NESARC included reinterviews with participants in Wave 1. After excluding ineligible individuals (e.g., deceased), the follow-up rate for Wave 2 was 86.7%, reflecting 34,653 interviews.

Diagnostic Interview

All lifetime psychiatric diagnoses were made according to *DSM–IV* criteria using the Alcohol Use Disorder and Associated Disabilities Interview Schedule-*DSM–IV* Version (AUDADIS-IV) (Grant, Dawson, & Hasin, 2001,2004), a valid and reliable fully structured diagnostic interview designed for use by professional interviewers who are not clinicians. Lifetime psychiatric disorders assessed in the AUDADIS-IV Waves 1 and 2 included: 1)

mood (i.e., major depressive disorder, dysthymia, and bipolar I and II disorders), 2) anxiety (i.e., panic disorder, social anxiety disorder, specific phobia and generalized anxiety disorder) and 3) substance use disorders (including alcohol use disorders [i.e., alcohol abuse and dependence], drug use disorders [i.e., drug abuse and dependence] and nicotine dependence). Lifetime disorders that were only ascertained at Wave 2 included posttraumatic stress disorder (PTSD), borderline, schizotypal, and narcissistic personality disorders and attention-deficit/hyperactivity disorder (ADHD). In the present study, a lifetime diagnosis of the aforementioned disorders was considered if the disorder was present at any time at respondent's life. Lifetime diagnoses of pathological gambling, and avoidant, dependent, obsessive-compulsive, paranoid, schizoid, and histrionic personality disorders were only ascertained at Wave 1. The test-retest reliability and validity of AUDADIS-IV measures of *DSM-IV* disorders ranges from fair to excellent as detailed elsewhere (Chatterji et al., 1997; Grant et al., 2003, 2009; Grant, Hasin, et al., 2004; Hasin et al., 1997; Hasin & Paykin, 1999; Nelson, Rehm, Ustun, Grant, & Chatterji, 1999; Ruan et al., 2008). Due to concerns about the validity of psychotic diagnoses in general population surveys as well as length of the interview, possible psychotic disorders were assessed at Wave 1 by asking the respondent if he or she was ever told by a doctor or other health professional that he or she had schizophrenia or a psychotic disorder.

DSM-IV Lifetime Antisocial Personality Disorder (ASPD)

The diagnosis of lifetime ASPD was ascertained at Waves 1 and 2 of the NESARC. Seventy-two cases that did not qualified for the diagnosis at Wave 1 but evolved into ASPD by Wave 2 were included in this study. To operationalize *DSM-IV* ASPD, the AUDADIS used 33 items to assess the criteria indicated in *DSM-IV* including those for the diagnosis of conduct disorder (CD) before age 15. Furthermore, it was required that at least one symptom of CD has caused social, academic, or occupational impairment. Consistent with *DSM-IV* diagnosis of lifetime ASPD we excluded substance-induced cases and those related to manic or hypomanic episodes (Grant, Hasin et al., 2004). The reliability of AUDADIS-IV categorical diagnoses and dimensional scales of each personality disorder was assessed in a test—retest study as part of the NESARC survey proper (Grant et al., 2003). The reliability of the ASPD diagnosis was good ($k = 0.67$).

Childhood Adverse Events (CAEs)

Ten CAEs were ascertained at Wave 2 of the NESARC. Consistent with previous research on risk factors for psychopathology in men and women (Kendler, Gardner, & Prescott, 2002), we organized CAEs in two groups: (1) Individual CAEs (Keyes et al., 2012), which included a) emotional, b) physical, and c) sexual abuse, and d) physical and e) emotional neglect (Luntz & Widom, 1994), and (2) parent-related CAEs, which included parental history of a) mood disorders (Offord, Abrams, Allen, & Poushinsky, 1979), b) drug or alcohol use disorders (Rutter, Giller, & Hagell, 1998), c) antisocial behavior (Mandel, 1997), and having a parent or other adult with whom they lived before the individual was 18 years old, who had a d) substance use disorder (Pollock et al., 1990), or e) was incarcerated (West & Farrington, 1973). All questions about CAE referred to the events occurring before the individual was 18 years old. All CAEs, individual and parent-related, were adapted from the Adverse Childhood Events study (Dube et al., 2003), the Conflict Tactics Scale (Straus, 1979), or the Childhood Trauma Questionnaire (Bernstein et al., 1994). Reliability for CAE measures fell within the good to excellent range (Ruan et al., 2008).

Adult Adverse Events (AAEs)

Four AAEs were ascertained in Wave 2, including a) having been ever sexually assaulted, molested, or raped, b) having been ever physically attacked or badly beaten up by an intimate partner or c) by someone else, and d) having been ever married or lived with an

alcoholic or problem drinker. All respondents reporting an AAE (except having ever been married or lived with an alcoholic or problem drinker) were further asked the age of the only/most recent time the specific AAE happened, and were considered positive in the present study only if the respondent was 18 years or older at the earliest occurrence (Ruan et al., 2008).

Clinical Correlates

Respondents were also queried about social support, previously found to be negatively associated with antisocial behavior (Carlson, McNutt, Choi, & Rose, 2002). The Social Network Index (SNI) assesses participation in 12 types of social relationships, yielding information of the reported engagement of the individual in social interactions (Ruan et al., 2008).

The Perceived Stress Scale-4 (PSS4) (Ruan et al., 2008) is a 4-item scale; with each item allowing 5-point ratings designed for use in community samples to assess cognitively mediated emotional responses to objectively stressful life events, rather than objective life events themselves, in the last 12 months. Items were designed to detect how frequently individuals perceive their lives as unpredictable, uncontrollable, and overloaded. Additionally, all NESARC respondents were assessed with the Short Form 12v2 (SF-12) (Ware, Kosinski, Turner-Bowker, & Gandek, 2002) to generate measures of disability and well-being in the 4 weeks previous to the interview. Each SF-12 norm-based score is a continuous variable with a mean score of 50 in the general population. Lower scores on the SF-12 scales indicate greater disability. For the present study, we used scores of the physical component summary, mental component summary, mental health scale, social functioning scale, and role emotional functioning scale.

Statistical Analyses

The analysis sample included 819 men and 407 women meeting *DSM–IV* ASPD diagnosis at Wave 1. Percentages and means were computed to derive sociodemographic and clinical characteristics of respondents. Logistic regression analyses yielded odds ratios (ORs) indicating measures of association with being female and ASPD symptoms, CAEs, AAEs, lifetime comorbid psychiatric disorders and clinical characteristics. Similar to previous NESARC papers with major findings on ASPD (e.g., Goldstein, Compton et al., 2007; Grant et al., 2009), ORs were adjusted (AORs) for sociodemographic characteristics (i.e., race, nativity [U.S. born vs. non-U.S. born], age, education, individual income, family income, marital status) and number of additional psychiatric disorders. Because different types of childhood maltreatment commonly co-occur, other individual childhood risk factors were included as covariates when the relationship between sex and individual childhood risk factors was examined. Men were considered the reference group in all analyses. Standard errors and 95% confidence intervals (CI) for all analyses were estimated using SUDAAN (Research Triangle Institute, 2004), to adjust for the design effects of the NESARC. Because the combined standard error of two means (or percents) is always equal or less than the sum of the standard errors of those two means, we conservatively consider two CIs that do not overlap to be significantly different from one another (Agresti, 2002). We consider significant ORs those whose CI does not include 1. All estimates are based on Wave 2 data, except when information was only available in Wave 1 (e.g., presence of comorbid pathological gambling).

Results

Childhood Adverse Events (CAE) and Adult Adverse Events (AAE) (Table 1)

Only AORs are shown in Table 1 as these resemble unadjusted ORs. After adjusting for sociodemographic characteristics and additional comorbid psychiatric disorders, women with ASPD were more likely to report any individual CAE, physical neglect, verbal abuse, physical abuse, emotional neglect and sexual abuse. However, when the presence of other individual CAEs was included in the model, only emotional neglect and sexual abuse results remained significant (data not shown).

Women were also more likely to report any parent-related CAE, parental history of mood disorder and parental history of antisocial behavior. Women with ASPD were also more likely than their male counterparts to have experienced any AAEs, including having been sexually assaulted, molested, or raped; having been physically attacked or badly beaten up by an intimate partner; and having been married or lived with an alcoholic or problem drinker.

Lifetime Prevalence of Psychiatric Disorders (Table 2)

Only AORs are shown in Table 2 as these largely resemble unadjusted ORs. Women with ASPD were less likely than men with ASPD to have any alcohol use disorder, alcohol dependence, and any drug use disorder, drug abuse and narcissistic PD. Women were more likely to have any mood disorder, major depressive disorder, dysthymia, any anxiety disorder, panic disorder, specific phobia, posttraumatic stress disorder and generalized anxiety disorder. Men and women with ASPD were equally likely to have “any psychiatric disorder,” “any axis I disorder,” bipolar disorders (I and II), social anxiety disorder, pathological gambling, ADHD, “any personality disorder,” and all PDs assessed except for narcissistic PD.

Antisocial Behaviors (Table 3)

Adjusted and unadjusted ORs are presented in Table 3. In the unadjusted analysis, women with ASPD were more likely than men to have run away from home overnight, missed work/school, lied a lot, forged someone’s signature, gotten into a fight that came to swapping blows with an intimate partner, lived with others for at least one month, and harassed/threatened/blackmailed someone. Run away from home overnight, missed work or school and gotten into a fight that came to swapping blows with an intimate partner remained significant after adjusting for sociodemographic characteristics and psychiatric comorbidity. In the unadjusted and adjusted models, women with ASPD were less likely than men with ASPD to have done something that could have easily hurt them or others, gotten three or more traffic tickets for recklessness/causing accidents, had a driver’s license suspended/revoked, destroyed other’s property, started a fire on purpose, made money illegally, done something they could have been arrested for, hit someone so hard they injured them, and hurt an animal on purpose. In the adjusted model, women also were less likely to scam someone for money and to use a weapon in a fight when compared to males.

Clinical Correlates (Table 4)

In the upper section of this table, rates of ASPD criteria in men and women with the diagnosis are shown along with adjusted and unadjusted ORs. Men and women with ASPD did not differ on the mean number of criteria met, although the specific ASPD criteria endorsed differed significantly by sex. Women with ASPD were significantly more likely than men to report deceitfulness and impulsivity in the unadjusted (but not the adjusted) model. Women were less likely to report irritability or aggressiveness and reckless disregard for safety of self or others in the adjusted and unadjusted models. Moreover, the mean age of

onset of ASPD was about 1 year later and significantly different in women than in men (13.49 vs. 12.35 years old).

Additional clinical correlates are shown in the lower section of Table 4. Women with ASPD had significantly lower scores than their male counterparts on the SF-12 mental component summary, mental health, role emotional functioning, and social functioning scales. Furthermore, women with ASPD reported greater perceived stress and a lower score on the social network index than their male counterparts.

Discussion

In a large, nationally representative sample of the general population, we found greater rates of adverse events during childhood and adulthood, and greater disability and disturbance among women than men with ASPD. Furthermore, the patterns of antisocial behaviors and ASPD criteria endorsed differed by sex among individuals with ASPD.

Our results on higher rates of childhood emotional neglect, sexual abuse, and parent-related CAEs are similar to studies reporting a stronger association in females than males between familial dysfunction and antisocial deviance (Mulder, Wells, Joyce, & Bushnell, 1994), and between early victimization and substance use disorders (McClellan, Farabee, & Crouch, 1997). Moreover, family studies of substance use disorders have found greater familial loading in women than men (Merikangas et al., 1998). Our findings also showed higher rates of AAEs in women than men. Although the underlying mechanisms of the link between these AAEs and female sex is yet not well understood, these results may be partly attributable to the contribution or maintenance of antisocial behaviors by these AAEs or in some cases, by an increased exposure or vulnerability to suffer AAEs due to a greater likelihood to have deviant peers and romantic partners as well as less physical strength to defend themselves from victim-izers. Prospective studies will aid in disentangling the role of adversity and victimization in female antisocial deviance and ASPD.

Although women and men with ASPD were equally likely to present with any additional psychiatric disorder, women with ASPD had considerably lower scores in all the mental health scales of the SF-12, suggesting increased mental health needs. The lower scores on the SNI in females found in this study may be due to a number of potential mechanisms including: 1) higher levels of rejection because of failure to conform with stereotypical gender-specific behavioral norms; 2) greater likelihood of relational aggression targeting people in their own social network (e.g., family, friends and acquaintances); and, 3) higher expectations regarding social ties with family and friends. In addition to higher rates of the previously mentioned AAEs, our results on the lower scores on social support and social functioning in women are in agreement with conclusions reached by Goldstein and colleagues (Goldstein et al., 1996) in that the interpersonal and family context might be a major focus of women's mental health problems. Also, our findings are consistent with the threshold of risk hypothesis (also known as sex paradox or group resistance hypothesis) that states that women need a higher loading of risk factors to manifest ASPD (Yang & Coid, 2007). A higher threshold for women could help explain the lower prevalence of ASPD among women as well as the apparent greater impairment in women with ASPD. Examination of neurobiological abnormalities (Raine, Yang, Narr, & Toga, 2011) and the interaction of genetic influences (Beach, Brody, Todorov, Gunter, & Philibert, 2011) and risk and protective factors in men and women over time may help clarify sex differences in the pathways to ASPD, and develop sex-specific prevention strategies.

In line with previous research (Goldstein et al., 1996; Mikulich-Gilbertson et al., 2007; Robins et al., 1991), men with ASPD were more likely to be involved in illegal and violent

actions, whereas women with ASPD were more likely to commit nonviolent antisocial behaviors (e.g., miss work/school). The nonviolent nature of antisocial manifestations endorsed among women with ASPD may lead to underrecognition or misdiagnosis of ASPD in women in clinical settings. Emphasis on the phenomenological differences on symptom manifestation in *DSM-5* may assist clinicians in the identification of ASPD, especially among women. Based on studies on sex differences in psychopathy (Patrick, 2007) it is likely that, in general, the sex differences in the manifestations of ASPD observed in our study will remain even with the inclusion of psychopathic traits in *DSM-5* ASPD criteria.

Also consistent with results in ASPD samples in individuals with substance use disorders (Goldstein et al., 1996), we found that in the unadjusted model, women with ASPD were more likely than men to report impulsiveness/failure to plan ahead, but less likely to endorse the irritability/aggressiveness and the reckless disregard for safety of self or others criteria. These differences in ASPD manifestations may be due, at least in part, to personality traits such as extraversion and sensation seeking more frequently found among men (Costa, Terracciano, & McCrae, 2001), or socialization factors attenuating aggressive behaviors among women. Some reports have been published regarding the psychosocial treatment of ASPD (Bateman & Fonagy, 2008; Davidson et al., 2009; Reid & Gacono, 2000; National Collaborating Centre for Mental Health (UK), 2010), but none focused on sex differences. If replicated, the distinct behavioral pattern and needs found in our study may help guide selection of sex-specific treatment targets in future clinical trials for ASPD. Interventions aimed at improving impulse control may be especially indicated for women, whereas anger management may be more appropriate for men with ASPD. Furthermore, due to their effects on reduction of aggression (Coccaro & Kavoussi, 1997; Kavoussi & Coccaro, 1998) and irritability (Hollander et al., 2001; Hollander et al., 2003) fluoxetine, lamotrigine, and divalproate sodium may be more appropriate for men with ASPD. Treatment studies that include sex as a moderator of outcome may be able to start answering these questions.

The findings of this study should be interpreted in light of several limitations common to most large-scale surveys. First, the NESARC does not provide information on individuals in custody. Therefore, the results of our study cannot be generalized to incarcerated individuals. However, repeated attempts to interview designated members of the sample who were incarcerated at any given time reduced this problem to some degree. Second, due to the cross-sectional design of the study and the use of retrospective recall it is not possible to draw conclusions regarding the causal relationship between adverse events and ASPD. Third, the assessment of ASPD and other disorders and behaviors was based on self-report during lay-administered interviews and was not subject to verification by collateral informants. Lastly, in this study, antisocial behaviors were considered with a lifetime timeframe. As some antisocial behaviors are more relevant in specific developmental stages than others, longitudinal studies can provide insights on any sex difference on age-appropriate antisocial behaviors at different life stages (Lahey et al., 2006).

Despite these limitations, our study contributes to improving the understanding of the differences between men and women with ASPD in a range of adverse events, antisocial behaviors, ASPD criteria and disability measures by examining a comprehensive set of variables in a manner that has not been done previously. In a large nationally representative sample of the general population, this study identified greater rates of CAEs and AAEs, lower social support and functioning, and greater impairment in women than men with ASPD. Our study found important differences in the phenomenology of ASPD in men and women. Among men, the study found greater severity of ASPD as measured by their more illegal and violent behavior pattern. As ASPD will continue to affect millions of men and women in the U.S., findings from this study may help inform gender-specific needs and

services planning, as well as stimulate the development of sex-based treatment and preventive interventions.

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Table 1

Childhood Adverse Events and Adulthood Adverse Events Among Individuals With ASPD by Sex

	Men[1] *N*= 819		Female *N*= 407				
Childhood and adult adverse events	**%**	***SE***	**%**	***SE***	**AOR[2]**	**95% CI**	
Any individual CAE	50.66	2.00	70.17	3.24	**2.25**	1.52	3.34
Physical neglect	15.05	1.63	24.23	2.47	**1.66**	1.05	2.65
Verbal abuse	38.01	2.14	52.54	3.40	**1.69**	1.17	2.46
Physical abuse	23.99	1.74	35.49	3.10	**1.54**	1.06	2.26
Emotional neglect	13.52	1.40	28.36	2.90	**2.49**	1.59	3.91
Sexual abuse	15.12	1.53	45.71	3.35	**4.20**	2.78	6.35
Any parent-related CAE	75.12	1.79	88.19	2.01	**2.01**	1.25	3.24
Parental history of mood disorder*	43.03	2.22	62.77	3.15	**1.92**	1.37	2.69
Parental history of drug or alcohol use disorder*	47.79	2.13	57.49	3.17	1.31	0.93	1.85
Parent with drug or alcohol use disorder during respondent's childhood	40.08	2.06	48.95	3.17	1.35	0.96	1.90
Parental history of antisocial behavior*	29.65	2.04	49.29	3.47	**2.02**	1.41	2.87
Parent incarcerated during respondent's childhood	16.93	1.57	18.94	2.54	0.92	0.62	1.36
Any AAE	28.29	2.07	64.90	2.84	**4.28**	3.05	6.02
Ever sexually assaulted/molested/raped	0.51	0.21	9.01	2.03	**18.77**	6.31	55.78
Ever physically attacked/badly beaten up by somebody else	9.44	1.27	7.95	1.77	0.56	0.29	1.07
Ever physically attacked/badly beaten up by intimate partner	6.62	1.02	34.87	2.88	**6.84**	4.26	10.98
Ever married/lived as married with an alcoholic or problem drinker	20.25	1.84	56.44	3.07	**5.17**	3.59	7.46

[1]Reference group

[2]AOR is adjusted for nativity, race, age, education, individual income, family income, and marital status and psychiatric comorbidity.

*Ascertained at wave 1 of the NESARC.

Table 2

Lifetime Prevalence of Axis I and Axis II Disorders Among Individuals With ASPD by Sex

	Men[1] *N*= 819		Women *N*= 407				
Psychiatric disorders	**%**	***SE***	**%**	***SE***	**AOR[2]**	**95% CI**	
Any other psychiatric disorder	98.07	0.58	98.15	0.69	0.73	0.24	2.23
Any Axis I disorder	96.93	0.69	97.34	0.80	0.77	0.33	1.80
Any substance use disorder	89.98	1.21	86.26	2.10	0.66	0.40	1.10
Any alcohol use disorder	82.73	1.53	69.80	3.09	**0.44**	0.28	0.70
Alcohol abuse	27.44	1.84	26.78	2.90	1.37	0.94	2.02
Alcohol dependence	55.29	2.04	43.03	3.33	**0.48**	0.33	0.70
Any drug use disorder	54.83	2.38	52.01	3.11	**0.60**	0.41	0.86
Drug abuse	45.09	2.17	34.48	2.87	**0.52**	0.38	0.73
Drug dependence	24.81	1.99	31.85	2.94	0.97	0.64	1.47
Nicotine dependence	57.34	2.24	64.75	3.16	1.10	0.78	1.55
Any mood disorder	46.49	2.09	75.24	2.55	**2.90**	1.98	4.25
Major depressive disorder	19.24	1.57	34.62	3.24	**2.56**	1.70	3.86
Dysthymia	5.09	0.94	12.35	2.22	**2.45**	1.23	4.88
Bipolar I	21.59	1.72	29.92	2.70	0.91	0.61	1.35
Bipolar II	4.44	0.88	9.15	1.70	1.60	0.84	3.04
Bipolar disorders (I and II)	26.03	1.80	39.06	3.06	1.06	0.73	1.54
Any anxiety disorder	46.23	2.22	70.86	2.86	**3.29**	2.21	4.90
Panic disorder	15.55	1.70	33.85	3.04	**2.68**	1.66	4.32
Social anxiety disorder	17.29	1.66	24.43	2.59	1.18	0.79	1.76
Specific phobia	23.20	1.98	45.08	3.31	**2.48**	1.71	3.59
Posttraumatic stress disorder	9.62	1.20	20.76	2.68	**2.25**	1.42	3.58
Generalized anxiety disorder	12.89	1.53	34.13	2.92	**3.42**	2.23	5.24
ADHD	12.44	1.37	11.92	2.10	0.72	0.41	1.25
Pathological gambling *	2.65	0.72	1.77	0.48	0.56	0.26	1.21
Psychotic disorder	6.73	1.11	8.50	1.68	0.80	0.41	1.56
Any personality disorder	54.01	2.18	63.14	3.06	0.79	0.55	1.15

Psychiatric disorders	Men[1] N= 819 %	Men[1] N= 819 SE	Women N= 407 %	Women N= 407 SE	AOR[2]	95% CI	
Schizotypical	15.84	1.58	18.39	2.29	0.61	0.36	1.03
Schizoid *	11.79	1.44	16.80	1.96	0.92	0.58	1.44
Paranoid *	19.43	1.96	29.52	3.00	0.89	0.55	1.43
Borderline	18.28	1.62	28.70	2.79	1.01	0.66	1.54
Narcissistic	18.65	1.53	19.79	2.39	**0.63**	0.41	0.95
Histrionic *	11.19	1.53	14.32	2.08	0.63	0.37	1.08
Obsessive-compulsive *	26.00	2.02	26.97	2.80	0.69	0.46	1.05
Avoidant *	8.65	1.51	15.59	2.57	1.01	0.51	2.00
Dependant *	2.80	0.83	5.80	1.42	0.88	0.39	2.02

[1] Reference group

[2] AOR is adjusted for nativity, race, age, education, individual income, family income and marital status and psychiatric comorbidity.

* Lifetime diagnosis ascertained only at wave 1 of the NESARC.

Table 3

Lifetime Prevalence of Antisocial Behaviors Among Individuals With ASPD by Sex

	Men[1] *N*= 819		Women *N*= 407							
Antisocial behaviors	**%**	***SE***	**%**	***SE***	**OR**	**95% CI**		**AOR[2]**	**95% CI**	
Cut class and leave without permission	72.32	1.78	77.94	2.54	1.35	0.98	1.87	1.24	0.86	1.79
Stay out late at night	75.26	1.90	72.40	2.92	0.86	0.60	1.24	0.71	0.47	1.07
Bulled/ pushed people	50.32	2.13	51.63	3.07	1.05	0.78	1.43	0.94	0.66	1.34
Run away from home overnight	31.23	2.02	53.92	3.09	**2.58**	1.86	3.56	**2.43**	1.68	3.51
Absent from work/school a lot	37.40	2.34	54.35	3.04	**1.99**	1.44	2.76	**1.49**	1.01	2.20
Quit a job without knowing where to find another	50.10	2.17	54.02	3.05	1.17	0.85	1.60	0.83	0.58	1.19
Quit school program without know what to do next	25.07	1.94	31.10	2.91	1.35	0.98	1.86	1.05	0.75	1.47
Travel around more than one month without plans	24.11	1.84	23.01	2.52	0.94	0.66	1.35	0.67	0.42	1.06
No regular place to live at least 1 month	21.67	1.99	23.02	2.81	1.08	0.75	1.56	0.68	0.43	1.05
Lived with others at least 1 month	47.78	2.41	59.26	3.03	**1.59**	1.17	2.17	1.18	0.84	1.66
Lied a lot	41.69	2.01	56.98	3.22	**1.85**	1.37	2.51	1.34	0.94	1.92
Using a false or made-up name/alias	19.03	1.77	25.02	2.85	1.42	0.96	2.11	0.98	0.61	1.59
Scam/con someone for money	19.76	1.86	17.15	2.39	0.84	0.55	1.28	**0.58**	0.36	0.91
Doing things that could have easily hurt you/others	67.57	2.01	42.90	3.38	**0.36**	0.27	0.49	**0.35**	0.24	0.51
Getting 3 + traffic tickets for reckless/causing accidents	38.65	2.08	22.85	2.95	**0.47**	0.33	0.68	**0.40**	0.27	0.59
Driver licenses suspended/revoked	36.27	1.96	23.83	2.71	**0.55**	0.39	0.77	**0.35**	0.24	0.52
Destroy others' property	49.31	2.02	32.44	3.24	**0.49**	0.35	0.70	**0.44**	0.29	0.68
Start a fire on purpose	18.65	1.81	9.12	1.67	**0.44**	0.27	0.71	**0.40**	0.23	0.69
Fail to pay off your debts	28.57	2.02	32.92	2.68	1.23	0.90	1.66	0.90	0.61	1.31
Stealing anything from others	60.91	2.22	58.08	3.19	0.89	0.65	1.22	0.95	0.66	1.35
Forge someone's signature	14.95	1.48	21.65	2.67	**1.57**	1.06	2.34	1.50	0.99	2.27
Shoplifting	65.48	2.10	68.53	2.84	1.15	0.84	1.56	1.16	0.83	1.63
Rob/mug someone or snatch a purse	4.81	0.86	2.85	0.91	0.58	0.27	1.26	0.40	0.15	1.09
Making money illegally	29.93	1.80	19.43	2.56	**0.56**	0.39	0.81	**0.44**	0.28	0.68
Doing anything that you could have been arrested for	79.99	1.63	65.30	2.94	**0.47**	0.34	0.65	**0.41**	0.28	0.60
Forcing someone to have sex	1.05	0.32	1.42	0.63	1.36	0.47	3.89	1.36	0.49	3.77
Getting into lots of fights that you started	33.91	2.25	32.73	3.02	0.95	0.68	1.33	0.84	0.59	1.20

Antisocial behaviors	Men[1] N= 819 %	*SE*	Women N= 407 %	*SE*	OR	95% CI		AOR[2]	95% CI	
Getting into a fight that came to swapping blows with an intimate partner	25.80	1.76	53.29	3.11	**3.28**	2.36	4.55	**2.77**	1.98	3.87
Using a weapon in a fight	25.06	1.92	21.97	2.42	0.84	0.59	1.20	**0.57**	0.37	0.87
Hitting someone so hard that you injured them	47.69	2.13	30.60	2.69	**0.48**	0.35	0.67	**0.41**	0.29	0.59
Harass/ threaten/blackmail someone	19.48	1.82	30.13	3.11	**1.78**	1.19	2.67	1.46	0.93	2.28
Physically hurt others on purpose	38.09	2.16	35.66	2.96	0.90	0.66	1.23	0.77	0.55	1.07
Hurting an animal on purpose	22.60	1.73	6.34	1.44	**0.23**	0.14	0.40	**0.18**	0.10	0.34

[1] Reference group

[2] AOR is adjusted for nativity, race, age, education, individual income, family income, marital status and psychiatric comorbidity.

Table 4

Clinical Correlates of Men and Women With ASPD

	Men[1] *N*= 819		Women *N*= 407							
DSM-IV ASPD Criteria	**%**	***SE***	**%**	***SE***	**OR**	**95% CI**		**AOR[2]**	**95% CI**	
Failure to conform to social norms w/respect to lawful behavior	99.71	0.18	99.87	0.13	2.18	0.20	23.50	4.53	0.76	26.81
Deceitfulness	53.23	2.17	65.10	2.96	1.**64**	1.19	2.26	1.19	0.82	1.71
Impulsivity/Failure to plan ahead	62.80	2.18	70.60	2.87	1.**42**	1.04	1.94	1.09	0.77	1.55
Irritability or aggressiveness	87.52	1.38	76.31	2.48	0.**46**	0.31	0.67	**0.42**	0.26	0.67
Reckless disregard for safety of self or others	83.01	1.80	60.14	3.28	0.**31**	0.22	0.44	**0.35**	0.22	0.53
Consistent irresponsibility	58.17	2.12	61.93	3.13	1.17	0.85	1.62	0.92	0.63	1.34
Lack of remorse	59.39	2.05	54.68	3.06	0.83	0.60	1.13	0.81	0.56	1.18
	Mean	95% CI	Mean	95% CI		*T-test*			*P-value*	
Mean number of ASPD criteria	5.04	4.93 5.14	4.89	4.72 5.05		−1.60			0.1152	
Mean age of onset (years)	12.35	12.01 12.69	13.49	12.71 14.27		2.79			**0.0069**	
Perceived Stress Scale score	4.63	4.38 4.87	6.20	5.72 6.68		6.00			< **0.0001**	
Social Network Index score	21.08	19.08 23.09	16.69	14.80 18.57		−3.20			**0.0021**	
SF-12 measures										
Physical component summary	49.47	48.42 50.52	47.83	46.21 49.45		−1.75			0.0848	
Mental component summary	49.34	48.38 50.30	44.43	42.78 46.07		−5.02			< **0.0001**	
Mental Health scale	49.44	48.53 50.36	45.20	43.70 46.71		−4.87			< **0.0001**	
Social Functioning scale	49.98	49.02 50.94	45.38	43.77 46.98		−4.88			< **0.0001**	
Role Functioning scale	47.81	46.83 48.79	43.75	42.08 45.42		−4.13			**0.0001**	

[1] Reference group

[2] AOR is adjusted for nativity, race, age, education, individual income, family income and marital status and psychiatric comorbidity.