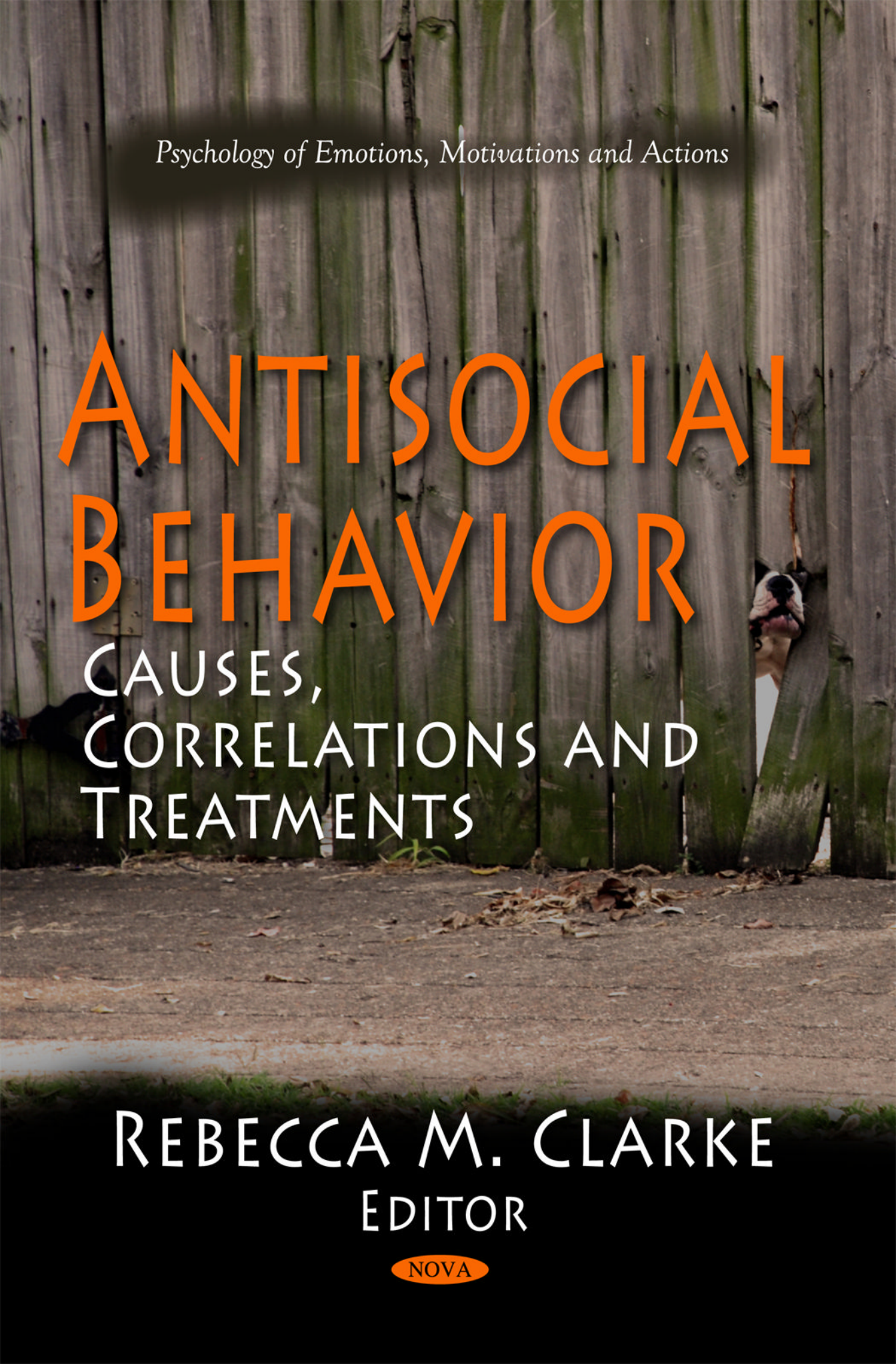
Psychology of Emotions, Motivations and Actions
Antisocial Behavior
Causes, Correlations and Treatments
Rebecca M. Clarke
Editor
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PSYCHOLOGY OF EMOTIONS, MOTIVATIONS AND ACTIONS

ANTISOCIAL BEHAVIOR: CAUSES, CORRELATIONS AND TREATMENTS

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REBECCA M. CLARKE
EDITOR

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PREFACE

This new book presents topical research in the study of antisocial behavior. Topics discussed include preventive and therapeutic interventions targeting antisociality; antisocial behavior in children with ADHD; vicious dog ownership and antisocial personality; cocaine-dependent patients with antisocial personality disorder and delinquency and antisocial behavior among at risk adolescents.

Chapter 1 - Antisocial personality disorder (ASPD) affects 3% to 5% of adults in the general population of the United States and Canada. It is associated with substantial burden on affected individuals, their families, and society, both in its own right and because of its high comorbidity with medical illnesses and injuries as well as a broad range of other psychiatric disorders, notably including substance use disorders. Diagnostic criteria for ASPD under the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (DSM-III), the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition - Revised* (DSM-III-R), and the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) require both conduct disorder (CD) with onset before age 15 years, and a persistent pattern of aggressive, irresponsible, impulsive, and remorseless behaviors thereafter. However, many individuals with syndromal antisocial behavior in adulthood do not report enough symptoms to meet criteria for CD before age 15 (adult antisocial behavioral syndrome, or AABS). AABS is not a codable DSM-IV diagnosis. Nevertheless, while individuals with AABS display fewer antisocial symptoms, and in particular fewer violent symptoms, in adulthood than those with ASPD, these 2 groups differ little on antisocial symptom profiles in adulthood, many forms of psychiatric and general medical comorbidity, and, among addiction treatment clients, substance use histories. This chapter reviews what is known about the comorbidity of antisocial behavioral syndromes in adulthood with other psychiatric disorders and general medical conditions, including similarities and differences between individuals with ASPD and those with AABS and the relationships of comorbid antisociality to the clinical presentation of co-occurring conditions. Gaps in current knowledge, including mechanisms underlying comorbidity and its associations with clinical presentation, implications for clinical care of comorbid individuals, and burdens on persons besides antisocial adults that are specifically attributable to antisocial syndromes, will be highlighted and directions for future research will be suggested. Implications for the development and prioritization of preventive and therapeutic interventions targeting antisociality across the lifespan will be discussed.

Chapter 2 - Attention Deficit/Hyperactivity Disorder (ADHD) is a prevalent disorder among school aged children and adolescents worldwide. Many children and adolescents with ADHD exhibit antisocial behavior that usually takes the form of aggression or conduct disorder. This chapter starts with definitions of ADHD and antisocial behaviors, while it reviews recent studies on the aetiology of this behavior. Since genes and physiology alone do not determine behavior, emphasis will be placed also on the role that the environment plays in creating and shaping certain antisocial behaviors. There will be reference to academic and social underachievement that may trigger antisocial behavior in children and young adults with ADHD, as well as other family factors. The last part of the chapter will focus on interventions that can effectively address the antisocial behavior of children and adolescents with ADHD and involve not only individuals, but also their families and their communities.

Chapter 3 - The concept of "thin slice" suggests that a person's personality can be predicted from just observing a fragment of his or her behavior. For instance, Fowler, Lilienfeld, and Patrick (2009) had 40 graduate and undergraduate students rate the degree to which individuals exhibited traits of psychopathy and other personality disorders in 5, 10, and 20 second video clips. Hare (2003) described psychopathy as having two key components: Factor 1 (e.g., superficial charm, callousness, remorselessness, grandiosity) and Factor 2 (e.g., parasitic lifestyle, lack of responsibility, impulsiveness, versatility in criminal acts). The construct of psychopathy has been found to be predictive of committing violent crimes upon release from prison (Porter, Birt, & Boer, 2001; Serin & Amos, 1995), committing disciplinary infractions in prison (Edens, Poythress, Lilienfeld, & Patrick, 2008), and a greater likelihood of recidivism (Hare, Clark, Grann, & Thornton, 2000). All the respondents for the Fowler et al. study used a Likert scale to provide "thin slice" ratings on the individual in the video. The researchers demonstrated that the "thin slice" ratings provided for the psychopathy items were significantly correlated with several measures of psychopathy (Psychopathy Checklist-Revised [PCL-R; Hare, 1991; 2003], Interpersonal Measure of Psychopathy [Kossen, Steuerwald, Forth, & Kirkhart, 1997]). Moreover, "thin slice" psychopathy ratings were significantly correlated with scores on the PCL-R when raters watched a five second video, but not when raters watched a 10 or 20 second video. Also, ratings provided by individuals that viewed videos without audio were more highly correlated with PCL-R scores than were audio only clips or clips that included both audio and picture video. In addition to predictions of psychopathy, thin slice behavior has been found to be predictive of intelligence scale scores (Borkenam, Mauer, Riemann, Spinath, & Angleitner, 2004), personality test scores (Borkenam et al., 2004), job performance evaluation ratings (Hecht & LaFrance, 1995), and teacher evaluation ratings (Babad, Avni-Babad, & Rosenthal, 2004). Could a "thin slice" of behavior, such as dog ownership, give us some clue about an individual's broader personality? Do certain individuals select to own dogs that are more likely to be aggressive?

Chapter 4 - Substance use disorder (SUD) among adolescents is a widespread, devastating public health problem, and is associated with the leading causes of death among youth under 21 (Becker & Curry, 2008). In addition, it is a major factor in delinquency with most of the $244.1 million spent by the federal government for juvenile detention and corrections, and for delinquency prevention, mentoring, and reentry programs, being spent on substance-involved youth (Califano, 2009). Despite these consequences, only 10% of adolescents with SUD receive treatment and more than 50% of those who are treated drop out or terminate with unsatisfactory progress (Becker & Curry, 2008). For example, in the largest

psychosocial treatment study to date of adolescents with SUD, the Cannabis Youth Treatment Study (CYT), only 25% were in recovery at a 1-year follow up, defined as no substance use or dependence problems and living in the community (Dennis et al., 2004; Perepletichikova, Krystal, & Kaufman, 2008). This review will propose that these bleak outcomes may be due in no small measure to the failure to identify and properly treat one of the unique needs of adolescents with SUD - comorbid Attention Deficit Hyperactivity Disorder (ADHD) [Volkow, 2009]. As the review will document, an astonishing 50% of adolescents in treatment for SUD are co-morbid for ADHD and this co-morbidity is associated with an earlier onset of SUD, more severe and longer duration of SUD, more difficulty remaining in treatment, and a greater likelihood of relapse after treatment (Chan, Dennis, & Funk, 2008; Hawkins, 2009; Wilens, 2008a; Wilens et al., 2007a). Hence it is critically important that practitioners understand the relationship between SUD and ADHD in adolescents since co-occuring disorders present serious challenges to traditional mental health and substance abuse treatments systems for adolescents (Hawkins, 2009). The purpose of this paper is to provide such an understanding with implications for treatment. It will do so by first establishing the prevalence of ADHD among adolescents in treatment for SUD. Second, it will discuss the mechanisms whereby ADHD increases the risk for SUD. Third, it will provide treatment recommendations that are informed by the prior discussion. Lastly, it should be noted that given the vastness of the literature on SUD and ADHD and given that the goal of the review is to be broadly synthetic, the paper will draw on findings of authoritative critical reviews as well as individual studies. Also, since substantial data indicate that substance abuse and substance dependence are best conceptualized as reflecting differences in substance-problem severity on a unidimensional continuum rather than distinct categories, SUD will be the nosological rubric employed to designate this conception (Martin, Chung, & Langenbucher, 2008).

Chapter 5 - This study explored the language used by offenders soliciting sexual activities with children within Internet chat-rooms. Relational content analysis classified the linguistic content by which offenders sought to engage young persons. Eight recurrent themes encompassed the cognitions of an on-line sexual offender: ‘implicit/explicit content’, ‘on-line solicitation’, ‘fixated discourse’, ‘use of colloquialisms’, ‘conscience’, ‘acknowledgement of illegal/immoral behaviour’, ‘minimising risk of detection’, and ‘preparing to meet offline’. The language indicated increased risk-taking behaviours of the offender, which countered the anonymity chat-rooms otherwise provide. Minimising risk of detection seemed unimportant and offenders arranged off-line meetings with little caution. Electronic anonymity may give offenders false confidence, and so encourage persons to extend on-line and virtual risk-taking into to the real world.

Chapter 6 - Initially, the “Reconstructive Therapy” of Dr. Jerome Schulte, focused on the treatment of the homicidal psychotic patient. After decades of treatment applying this model with a variety of offenses, Dr. Schulte believed that it could be applied to understand and treat the “Criminal Personality”, various offenses as well as treating non-clinical populations of children, adolescents and adults. The goal of therapy became one of promoting personal growth and humanness through the positive resolution of Ericksonian stages. The question remains if the successful resolution of Erickson’s Psychosocial stages is relevant to the functioning of a Person with an Intellectual Disability, and Criminal Offenses? A theoretical and initial exploratory analysis suggests that the Reconstructive Therapy model can be relevant to the treatment for Persons with Intellectual Disabilities (ID) and various offenses.

Chapter 7 - This study compared the efficacy of two commonly used treatment approaches (cognitive–behavioral treatment and contingency management) for the treatment of cocaine dependence among methadone-maintained patients with and without antisocial personality disorder (ASPD). This disorder is strongly associated with substance abuse and recent study findings provide a strong argument against the perception that substance abusers with ASPD are unresponsive to drug treatment.

Chapter 8 - This chapter presents an investigation of the patterns of offending and antisocial behaviour amongst young people from the age of 11-16 years who are categoried as high risk or vulnerable to delinquency and antisocial behaviour. The chapter will draw upon findings from the first five datasweeps of the Belfast Youth Development Study (BYDS), a longitudinal study of the onset and development of adolescent problem behaviour. Through a detailed exploration of the onset and development of delinquency and antisocial behaviour from the age of 11-16 years it will provide insights for targeting and development of appropriate interventions for school aged high risk young people who do not attend mainstream school in adolescence. The findings will form the empirical base for a discussion of the key issues around appropriate interventions and the development of conclusions in relation to young people who have received comparatively less attention in the delinquency literature but who are considered more likely to offend during adolescence.

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Chapter 1

BURDEN OF SYNDROMAL ANTISOCIAL BEHAVIOR IN ADULTHOOD

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ABSTRACT

Antisocial personality disorder (ASPD) affects 3% to 5% of adults in the general population of the United States and Canada. It is associated with substantial burden on affected individuals, their families, and society, both in its own right and because of its high comorbidity with medical illnesses and injuries as well as a broad range of other psychiatric disorders, notably including substance use disorders. Diagnostic criteria for ASPD under the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (DSM-III), the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition - Revised* (DSM-III-R), and the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV) require both conduct disorder (CD) with onset before age 15 years, and a persistent pattern of aggressive, irresponsible, impulsive, and remorseless

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behaviors thereafter. However, many individuals with syndromal antisocial behavior in adulthood do not report enough symptoms to meet criteria for CD before age 15 (adult antisocial behavioral syndrome, or AABS). AABS is not a codable DSM-IV diagnosis. Nevertheless, while individuals with AABS display fewer antisocial symptoms, and in particular fewer violent symptoms, in adulthood than those with ASPD, these 2 groups differ little on antisocial symptom profiles in adulthood, many forms of psychiatric and general medical comorbidity, and, among addiction treatment clients, substance use histories. This chapter reviews what is known about the comorbidity of antisocial behavioral syndromes in adulthood with other psychiatric disorders and general medical conditions, including similarities and differences between individuals with ASPD and those with AABS and the relationships of comorbid antisociality to the clinical presentation of co-occurring conditions. Gaps in current knowledge, including mechanisms underlying comorbidity and its associations with clinical presentation, implications for clinical care of comorbid individuals, and burdens on persons besides antisocial adults that are specifically attributable to antisocial syndromes, will be highlighted and directions for future research will be suggested. Implications for the development and prioritization of preventive and therapeutic interventions targeting antisociality across the lifespan will be discussed.

INTRODUCTION

Antisocial personality disorder (ASPD) affects 3% to 5% of adults in the general population of the United States and Canada (W. M. Compton, Conway, Stinson, Colliver, & Grant, 2005; Goodwin & Hamilton, 2003; L. N. Robins, Tipp, & Przybeck, 1991; Swanson, Bland, & Newman, 1994). According to the diagnostic criteria specified in the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition* (DSM-III; American Psychiatric Association, 1980), the *Diagnostic and Statistical Manual of Mental Disorders, Third Edition - Revised* (DSM-III-R; American Psychiatric Association, 1987), and *Diagnostic and Statistical Manual, Fourth Edition* (DSM-IV; American Psychiatric Association, 1994), ASPD requires both syndromal levels of aggressive, impulsive, irresponsible, and remorseless behavior since age 15 years, and evidence of conduct disorder (CD) with onset before age 15. The behaviors characteristic of ASPD, including violence against persons, destruction of property, dishonesty, irresponsibility, and recklessness, impose enormous psychological, social, legal, and economic costs in their own right on affected individuals, their families and social networks, and society as a whole (e.g., Black & Larson, 1999; L. N. Robins, Tipp, et al., 1991). Further sources of burden arise from the substantial comorbidity between ASPD and many other psychiatric and general medical disorders and associations of ASPD with premature mortality as well as elevated rates of suicidal ideation and behavior.

In addition, findings from clinical (Black & Braun, 1998; Brooner, Schmidt, Felch, & Bigelow, 1992; Cacciola, Alterman, Rutherford, & Snider, 1995; Cacciola, Rutherford, Alterman, & Snider, 1994; Cottler, Price, W. M. Compton, & Mager, 1995; Goldstein, Bigelow, et al., 2001; Goldstein, Powers, et al., 1998) and epidemiologic (W. M. Compton, Conway, et al., 2005; Tweed, George, Blazer, Swartz, & MacMillan, 1994) samples have clearly shown that many individuals with syndromal levels of antisocial behavior in adulthood do not demonstrate evidence of CD before age 15 years (adult antisocial behavioral syndrome or AABS). In many (e.g., Bollinger, Riggs, Blake, & Ruzek, 2000; W. M. Compton, Conway, et al., 2005; Crits-Cristoph et al., 1999; Mariani et al., 2008) samples, the

prevalence of AABS exceeds that of ASPD. Recent nationally representative data from the U.S. general population document a combined prevalence of ASPD plus AABS of 15.9% (22.0% among men and 10.4% among women; W. M. Compton, Conway, et al., 2005). AABS is likely a heterogeneous category, including both individuals with relatively late onsets of antisociality, with women overrepresented in this group, and an admixture of those who had but do not recall, or choose not to report, syndromal CD before age 15 years (e.g., Cottler, Price, et al., 1995; Goldstein, Powers, et al., 1998; Keenan, Loeber, & Green, 1999; Tweed et al., 1994). AABS is not a codable DSM diagnosis. However, while affected individuals report fewer antisocial symptoms, and in particular fewer violent symptoms, in adulthood than those with ASPD, these two groups are more similar than different in their adult antisocial behavior profiles (Black and Braun, 1998; Cottler, Price, et al., 1995; Goldstein, Powers, et al., 1998; Goldstein, Dawson, Saha, et al., 2007; Goldstein, W. M. Compton, Pulay, et al., 2007; Tweed et al., 1994). Moreover, as will be described in detail in this chapter, the available evidence suggests that the two groups differ little in psychiatric and general medical comorbidity, associations with clinical presentations and course of substance use disorders, and clinical course of antisociality.

Taken together, the clear phenomenologic similarity between ASPD and AABS, and their substantial combined prevalence in the general population, point to the need for an up-to-date synthesis of the evidence concerning the burden of antisocial behavioral syndromes in adulthood. In this chapter we review findings concerning burden, with respect to mortality and comorbidity, of ASPD and AABS, including associations with suicidality as well as mood, anxiety, substance use, and additional personality disorders (PDs), and medical illnesses. In addition to considering the implications for prevention and treatment of antisocial syndromes in adulthood, we highlight gaps in relevant knowledge and suggest directions for future research.

MORTALITY

Studies based on diagnostic criteria that long predated DSM-IV demonstrated excess total mortality in antisocial syndromes. L. N. Robins' (1966) pioneering 30-year follow-up of a cohort ascertained from a child guidance clinic in St. Louis, Missouri, during the 1920s, identified 94 cases meeting criteria for sociopathic personality, based on face-to-face interviews and best estimate diagnoses incorporating all available information, in adulthood. In addition to encompassing criteria similar to those of Feighner et al. (1972) for ASPD, her criteria for sociopathic personality included symptoms of alcohol and drug use disorders, suicidality, schizoid traits, and somatoform manifestations. L. N. Robins (1966) and colleagues traced cohort members' vital status using information from sources including social service agency registries, government (including drivers' license, Social Security Administration, Selective Service, and Veterans Affairs) records, school and employment records, and credit bureaus. Mortality among cohort members with sociopathic personality, at 15%, was approximately double the parallel figures for former patients with other psychiatric diagnoses. L. N. Robins noted, however, that her cohort was still too young to yield enough deaths for statistically sophisticated analysis or interpretation.

Martin, Cloninger, Guze, and Clayton (1985a) prospectively followed a cohort of 500 randomly selected outpatients from a tertiary care psychiatric clinic in St. Louis, Missouri, of whom 35 had probable or definite clinically diagnosed ASPD according to criteria similar to those described by Feighner et al. (1972), for a mean of 7 years. They ascertained vital status and, where applicable, cause of death, from sources including informants, records, newspaper accounts, death certificates, and autopsy reports. They then compared observed mortality to expectation based on age- , sex- , and race-specific rates for the State of Missouri, adjusted for length of follow-up, obtained from 1970 vital statistics and census data. With six deaths identified among patients with ASPD in the cohort, total ASPD-associated mortality was highly significantly elevated (standardized mortality ratio [SMR]=8.57, $p < 0.01$). Similarly, Badawi, Eaton, Myllyluoma, Weimer, and Gallo (1999) found DSM-III ASPD significantly ($p < 0.05$) associated with attrition due to mortality in the 15-year follow-up of the Baltimore Epidemiologic Catchment Area sample (ECA; odds ratio [OR]=3.0, adjusted for sociodemographic characteristics).

Black, Baumgard, Bell, and Kao (1996) conducted a 16- to 45-year follow-up of 71 male patients hospitalized at a tertiary care psychiatric facility in Iowa between 1945 and 1970 for antisociality, whom they retrospectively diagnosed using DSM-III criteria for ASPD based on case notes. They traced vital status using information from informants and computer searches of Iowa and federal death records. In contrast to L. N. Robins (1966), Martin et al. (1985a), and Badawi et al. (1999), Black, Baumgard, Bell, and Kao (1996) did not find excess total mortality. They did, however, identify a striking elevation (SMR=33.33) in deaths occurring before age 40 years.

Considering cause-specific mortality, L. N. Robins (1966) did not find statistically significant associations with any cause of death. However, she noted that 43% (6/14) of the deaths among the subcohort with sociopathic personality could be reflections of their antisociality, including two individuals shot by police in the line of duty, one murdered, and two suicides. Martin, Cloninger, Guze, and Clayton (1985b) did not identify a significant elevation in "natural" (disease related, no external cause identified) deaths associated with ASPD (SMR=2.78). However, "unnatural" deaths (including suicides, homicides, unintentional injuries, and "open" or "undetermined" coroner's verdicts) did significantly exceed expectation (SMR=14.71, $p < 0.01$). Conversely, Black, Baumgard, Bell, and Kao (1996) demonstrated a significant elevation in only one subcategory of natural deaths, those due to diabetes mellitus (SMR=14.29, $p < 0.05$), and no excess of unnatural deaths: one suicide, no homicides, and two accidental deaths, with an additional individual executed for serial murder. They pointed out, however, that their sample of men with ASPD was small, and that, because not all death certificates could be collected, excessive mortality due either to natural or to unnatural causes might not have been properly classified. To our knowledge, no study has assessed cause-specific mortality associated with antisociality in an epidemiologic sample.

In summary, the available evidence suggests that antisociality, particularly ASPD, is associated with excess mortality, particularly at relatively young ages and from unnatural causes. Whether AABS carries similar associations remains unclear. In interpreting associations of ASPD and sociopathic personality with excess mortality, caution is warranted for several reasons. First, the reported measures of associations of mortality with antisociality (unadjusted rates, SMRs, sociodemographic-adjusted ORs) differed across studies and therefore are not directly comparable. Additionally, the sample reported on by Black,

Baumgard, Bell, and Kao (1996) excluded women altogether, while the subcohort with ASPD described by Martin et al. (1985a, 1985b) and the one with sociopathic personality described by L. N. Robins (1966) included very small numbers (each less than 15) of women. The number of women with ASPD from the Baltimore ECA cohort was not explicitly reported, but is likely also to be small. Therefore, the generalizability of these results to antisocial women is unclear. Moreover, most data on mortality in ASPD and related conditions (Black, Baumgard, Bell, & Kao, 1996; Martin et al., 1985a, 1985b; L. N. Robins, 1966) are based on clinically ascertained samples. Individuals with high severity of their presenting diagnoses, as well as multiple and severe comorbid conditions, including alcohol and drug use disorders and their medical consequences, are likely overrepresented in these settings. As a result, these patients may be at particularly high risk of mortality either from behavior related to severe antisociality, or from co-occurring conditions. A related concern is that analyses of excess mortality among antisocial individuals have not controlled for the potentially confounding effects of sociodemographic characteristics or psychiatric or general medical comorbidity. Therefore, the extent to which ASPD is uniquely associated with either total or cause-specific mortality remains to be determined. Further, the samples reported on by Martin et al. (1985a, 1985b), Badawi et al. (1999), Black, Baumgard, Bell, and Kao (1996), and L. N. Robins (1966) were ascertained from geographically restricted areas. To our knowledge, no nationally representative data are available concerning mortality associated with antisociality. As such, the possibility that geographically specific factors contribute to antisociality-related mortality cannot be ruled out.

SUICIDAL IDEATION AND BEHAVIOR

Associations of DSM-III-R- and DSM-IV-defined ASPD with suicidality have been identified in both clinical and epidemiologic samples. Among patients with DSM-III-R cocaine dependence ascertained from drug use disorder (DUD) treatment programs, comorbid DSM-III-R ASPD was associated with statistically significant 1.5- to 2-fold elevations in prevalences of suicidality (ideation and attempts combined; specific definitions of ideation and attempts were not reported) among men at baseline (26.8% among those with versus 18.4% among those without ASPD) and at 1-year (16.4% versus 8.4%) and 5-year (16.4% versus 10.0%) follow-ups (Grella, Joshi, & Hser, 2003). These associations were more modest and less consistent among women (baseline: 32.2% versus 21.6%; 1-year follow-up: 11.5% versus 13.2%; 5-year follow-up: 18.4% versus 16.2%). Similarly, among a combined sample of DUD treatment clients and street-recruited respondents with DSM-III-R-defined alcohol or other drug use disorders (Cottler, Campbell, Krishna, Cunningham-Williams, & Ben Abdallah, 2005), comorbid DSM-III-R ASPD was significantly associated with lifetime suicidal ideation (any of: thinking a lot about death, feeling like one wanted to die, or feeling so low one wanted to commit suicide) among men (OR=1.59). While the OR (1.90) was numerically higher among women, it failed to reach statistical significance, probably reflecting the smaller subgroup of female respondents (314 women versus 673 men). Conversely, among alcohol use disorder (AUD) treatment clients, DSM-III-R ASPD was not associated with current suicidal ideation (Morgenstern, Langenbucher, Labouvie, & K. J. Miller, 1997).

Soloff, Lis, Kelly, Cornelius, and Ulrich (1994) found only a trend suggestive of increased prevalence of comorbid Research Diagnostic Criteria (RDC; Spitzer, Endicott, & E. Robins, 1978)-defined ASPD among 84 inpatients with DSM-III-R borderline PD who reported histories of any (19.7%) versus no (4.3%) lifetime suicide attempts. However, the small size of this sample may have constrained the statistical power of the study to detect significant associations. In addition, RDC for ASPD require that antisocial symptomatology be clearly independent of substance use, which may have further limited the ability of this study to identify associations with antisociality. By contrast, among 113 respondents with DSM-III-R borderline PD with histories of any suicide attempts who were ascertained from inpatient and outpatient settings as well as the local community, comorbid DSM-III-R ASPD was significantly more prevalent among those with a score of 4 or more on the Medical Lethality Scale (38.6%), than among those with lower lethality (14.5%, OR=3.66 adjusted for sociodemographic and clinical characteristics; Soloff, Fabio, Kelly, Malone, & Mann, 2005).

Similarly, in an emergency department (ED)-based case-control study, DSM-III-R ASPD was significantly associated (OR=3.7) with suicide attempts requiring treatment in a specialty care unit (intensive care, hyperbaric oxygen, or burn unit), surgery under general anesthesia, or medical treatment beyond gastric lavage, activated charcoal, or routine neurologic observation (Beautrais et al., 1996). Suicide attempters meeting this seriousness criterion but unselected for psychiatric diagnoses were group-matched by age and sex to community controls ascertained from electoral rolls. Cases and controls, as well as one knowledgeable collateral informant for each, were interviewed. In age (younger than 30 versus 30 years or older)- and sex-stratified analyses, ASPD was significantly related to serious suicide attempts only in men (OR=8.8 for men younger than 30 and 5.0 for men 30 years or older, versus 2.3 for women younger than 30 and 1.2 for women 30 years or older).

In general epidemiologic samples, ASPD has also been significantly associated with lifetime suicidal ideation (ORs=2.2-4.2; Kessler, Borges, & Walters, 1999; Sareen, Houlahan, Cox, & Asmundson, 2005) and suicide attempts (DSM-III: unadjusted prevalence ratio=4.0; Dyck, Bland, Newman, & Orn, 1988; DSM-III-R and DSM-IV: ORs=2.3-5.7; Kessler, Borges, et al., 1999; Sareen, Houlahan, et al., 2005; Verona, Sachs-Ericsson, & Joiner, 2004), as well as with suicidal plans specifically among ideators (OR=2.1; Kessler, Borges, et al., 1999). Sex-specific associations of DSM-III ASPD with suicide attempts were similar among men and women (unadjusted prevalence ratios=6.9 and 6.7, respectively; Dyck et al., 1988), but only statistically significant among men. Cross-sectional associations of DSM-IV ASPD with lifetime suicide attempts were also identified specifically among both men (OR=1.9) and women (OR=2.7) with major depressive disorder (MDD) in a nationally representative general population sample after adjustment for sociodemographic characteristics and additional comorbidity (Bolton, Belik, Enns, Cox, & Sareen, 2008). ASPD was not, however, significantly associated with first-ever suicide attempts over 3 years of prospective follow-up among individuals with lifetime MDD (OR=1.4; Bolton, Pagura, Enns, Grant, & Sareen, 2010).

Data concerning associations of AABS with suicidality are much more limited. Kessler, Borges, et al. (1999) identified associations of DSM-III-R AABS with lifetime ideation and attempts overall, as well with plans among ideators, that were comparable to those observed among respondents with ASPD (ORs=4.2, 5.7, and 2.1, respectively, adjusted for sociodemographics and psychiatric comorbidity). Additionally, in the one prospective study of which we are aware, Borges, Angst, Nock, Ruscio, and Kessler (2008) found baseline

DSM-III-R ASPD and AABS to be associated, to similar degrees, with suicidal ideation overall (ORs=1.9 and 1.7, respectively, adjusted for sociodemographics and baseline suicidality) and with plans among ideators (ORs=1.7 and 1.6, respectively) over 10 years of follow-up.

The epidemiologic studies we have cited used varying definitions of ideation, and either did not specifically assess respondents' intent to die at the time, or the medical lethality, of their self-reported attempts (e.g., Bolton, Belik et al., 2008, Bolton, Pagura, et al., 2010; Sareen, Houlahan, et al., 2005; Verona et al., 2004), or considered all "attempts" regardless of intent (e.g., Kessler, Borges, et al., 1999). Using relatively rigorous definitions of suicidal behavior, Nock and Kessler (2006) classified as attempts only those acts reported by respondents as accompanied by nonzero intent to die, and categorizing those "attempts" reported by respondents as unaccompanied by intent to die as gestures. Based on this definition, they found ASPD positively associated with suicide attempts as compared with gestures (OR=2.3, adjusted for sociodemographics).

As is the case for mortality, the available evidence thus suggests that ASPD is associated with suicidal ideation and behavior, including more severe suicidality, both in the general population and among individuals with specific Axis I and Axis II disorders including cocaine dependence, MDD, and borderline PD ascertained in both clinical and nonclinical settings. Nevertheless, caution is warranted in the interpretation of these findings for several reasons. In addition to the differences in diagnostic criteria, widely varying definitions of ideation and attempts, approaches to assessment of suicidality and psychopathology, and sample composition across studies, some findings (Dyck et al., 1988; Grella et al., 2003; Verona et al., 2004) were based on unadjusted analyses. Adjusted analyses reported from other investigations (Beautrais et al., 1996; Bolton, Belik, et al., 2008; Bolton, Pagura, et al., 2010; Cottler, Campbell, et al., 2005; Kessler, Borges, et al., 1999; Sareen, Houlahan, et al., 2005; Soloff, Fabio, et al., 2005) varied in the extent and manner of their control for potential sociodemographic and psychiatric diagnostic confounders. As such, and as is the case for mortality, the findings cannot be directly compared across studies. Therefore, the nature and magnitudes of unique associations of antisociality with suicidality are not yet clearly defined.

PSYCHIATRIC COMORBIDITY

In both epidemiologically (L. N. Robins, Tipp, et al., 1991; Swanson et al., 1994; Goldstein, Dawson, Saha, et al., 2007; Goldstein, W. M. Compton, Pulay, et al., 2007) and clinically (Black, Baumgard, & Bell, 1995; Cottler, Price, et al., 1995; Goldstein, Powers, et al., 1998) ascertained samples, the overwhelming majority of individuals with DSM-III, DSM-III-R, or DSM-IV ASPD were diagnosable with at least one additional lifetime psychiatric disorder. Similarly, and as will be discussed in detail below, prevalences of ASPD among individuals with other "index" psychiatric disorders in epidemiologic samples, as well as among clients with substance use disorders ascertained in addiction treatment settings, were considerably greater than those in the general population as a whole. These findings held regardless of the diagnostic criteria, the time frames (lifetime, past year, past 6 months, or past month) considered, or the presentation of unadjusted versus adjusted measures of association, though adjusted associations were smaller than unadjusted ones. The limited

evidence base suggests similar but somewhat more modest associations of other psychiatric disorders with AABS. Conversely, in most clinical psychiatric inpatient and outpatient settings, prevalences of antisocial syndromes in adulthood, both among unselected (Fabrega et al., 1993; Flick, Roy-Byrne, Cowley, Shores, & Dunner, 1993; Stangl, Pfohl, Zimmerman, Bowers, & Corenthal, 1985; Zimmerman, Rothschild, & Chelminski, 2005; cf. Grilo et al., 1998, and Oldham et al., 1995) samples of patients and among those selected for most mood and anxiety disorders, appear not to exceed strikingly the rates observed in the general population. In this section we consider co-occurrence of ASPD and, to the limited extent that data are available, AABS, with specific mood, anxiety, substance use, and other personality disorders, based on samples in which all respondents were clinically diagnosed, given a structured or semistructured diagnostic interview, or completed a self-report diagnostic questionnaire that included antisocial symptomatology. Studies in which antisocial diagnoses were based on screening questionnaires, or statistically imputed, are not considered. Comorbid antisociality in psychotic and eating disorders will also not be considered herein because data on comorbidity of antisociality with these conditions, particularly in epidemiologic samples, are much more limited.

MOOD AND ANXIETY DISORDERS

Mood Disorders

Prevalences of Antisocial Syndromes in Patients with Mood Disorders

To our knowledge, comorbidity with AABS has not been examined in clinical samples of patients with mood disorders. As detailed in Table 1, most studies of patients with mood disorders that report prevalences of ASPD derived from structured or semistructured interviews or diagnostic questionnaires show rates less than, equal to, or not markedly greater than the 3% to 5% prevalence of ASPD in the general population as a whole. Specifically, in patients with nonbipolar DSM-III, DSM-III-R, and DSM-IV MDD, prevalences of comorbid ASPD ranged from 0.0% to 7.9%. It is unclear why the prevalence of ASPD reported by Zimmerman, Pfohl, Coryell, Stangl, & Corenthal (1988), derived from assessment methods similar to those reported by Zimmerman, Pfohl, Coryell, Corenthal, and Stangl (1991), Zimmerman, Rothschild, et al. (2005), and Zimmerman, Ruggero, Chelminski, and Young (2010) is so much higher (15.2%). Rates among patients with MDD that were derived from self-report diagnostic questionnaires, including the PDQ (Zimmerman, Pfohl, Coryell, Corenthal, et al., 1991) and the PDQ-R (Golomb, Fava, Abraham, & Rosenbaum, 1995), are somewhat higher than those based on interview assessments, reflecting the high sensitivity but considerably lower specificity of these questionnaires (Zimmerman, 1994). Among outpatients ascertained for DSM-III or DSM-III-R dysthymia, interview-derived rates of ASPD ranged from 0.0% to 4.1%.

Table 1. Associations of Antisocial Behavioral Syndromes in Adulthood With Mood Disorders in Clinical Samples

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
I. Major depressive disorder (MDD)				
Brieger, Ehrt, & Marneros (2003)	Psychiatric inpatients with MDD (n=117)	DSM-IV; SCID[a] (Axis I), SCID-II[b] (Axis II)	Prevalence of ASPD[c]: 3.4%	
Golomb, Fava, Abraham, & Rosenbaum (1995)	Psychiatric outpatients (n=316) participating in antidepressant treatment trials	DSM-III-R; SCID (MDD), SCID-II and PDQ-R[d] (Axis II)	Prevalence of ASPD: 5.2% (men) and 0.7% (women) per SCID-II 27.3% (men) and 9.0% (women) per PDQ-R	Exclusionary diagnoses for all treatment trials from which patients were recruited included substance use disorders within the past 12 months and "significant" ASPD
Mantere et al. (2006)	Psychiatric inpatients and outpatients with MDD (n=269)	DSM-IV; SCAN[e] (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 1.5%	
Mulder, Joyce, & Frampton (2010)	Patients with current MDD as principal presenting diagnosis at baseline (n=149) recruited for an antidepressant medication study from multiple clinical settings	DSM-III-R; clinical diagnoses (Axis I), SCID-II (Axis II)	Prevalence of ASPD (baseline): 1.3%	Current alcohol or drug dependence at baseline that would have required detoxification before patients could begin antidepressant treatment was exclusionary.
Oulis, Lykouras, Hatzimanolis, & Tomaras (1997)	Psychiatric inpatients and outpatients with remitted MDD (n=64)	DSM-III-R; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 6.2%	
Pepper et al. (1995)	Psychiatric outpatients with MDD (onset before age 35) and no dysthymia (n=45)	DSM-III-R; SCID (Axis I), PDE[f] (Axis II; both patient and informant interviews conducted)	Prevalence of ASPD: 0.0% by patient report 3.2% by informant report	

Table 1. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Rossi et al. (2001)	Consecutive admissions to an inpatient psychiatric research unit with MDD, following recovery from index episode (n=117)	DSM-III-R; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 5.1%	
Zimmerman, Pfohl, Coryell, Corenthal, & Stangl (1991)	Depressed inpatients with current MDD (n=114)	DSM-III; Hamilton Depression Rating Scale and Inventory to Diagnose Depression (depressive symptoms), and SIDP[g] (patient report only) and PDQ[h] (Axis II)	Prevalence of ASPD (patient report): 7.9% (SIDP), 9.6% (PDQ)	This sample partly overlaps with that reported by Zimmerman et al. (1988).
Zimmerman, Pfohl, Coryell, Stangl, & Corenthal (1988)	Consecutively admitted inpatients with current MDD (n=75)	DSM-III; clinical diagnoses (Axis I), SIDP (Axis II; both patient and informant interviews conducted)	Prevalence of ASPD (consensus based on patient and informant reports): 15.2%	
Zimmerman, Rothschild, & Chelminski (2005)	Psychiatric outpatients with current MDD (n=384)	DSM-IV; SCID (Axis I), SIDP-IV[i] (Axis II, patient report)	Prevalence of ASPD: 2.9%	
Zimmerman, Ruggero, Chelminski, & Young (2010)	Psychiatric outpatients with current MDD (n=40 previously "overdiagnosed"[j] with bipolar disorder and n=233 never diagnosed with bipolar disorder)	DSM-IV; SCID (Axis I), SIDP-IV (Axis II)	Prevalence of ASPD: 4.0% in the total sample 7.5% among patients previously diagnosed with bipolar disorder 3.4% among those never diagnosed with bipolar disorder	No significant difference in prevalence between patients with versus without prior diagnoses of bipolar disorder.

Table 1. (Continued

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
II. Dysthymia				
Markowitz, Moran, Kocsis, & Frances (1992)	Psychiatric outpatients with dysthymia (n=34)	DSM-III; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 0.0%	
Pepper et al. (1995)	Psychiatric outpatients with primary, early-onset dysthymia (n=97)	DSM-III-R; SCID (Axis I) , PDE (Axis II; both patient and informant interviews conducted)	Prevalence of ASPD: 4.1% both by patient and by informant reports	
III. Bipolar I and II disorders				
Brieger, Ehrt, & Marneros (2003)	Psychiatric inpatients with bipolar disorders (n=60)	DSM-IV; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 5.0%	
Garno, Gunawardane, & Goldberg (2008)	Consecutively evaluated inpatients and outpatients with bipolar I (n=73) or bipolar II (n=27) disorder	DSM-IV; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD (bipolar I and II considered together): 6.0%	
Loftus & Jaeger (2006)	Psychiatric inpatients and outpatients with bipolar I disorder (n=51)	DSM-IV; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 4.0%	
Mantere et al. (2006)	Psychiatric inpatients and outpatients with bipolar I (n=90) and bipolar II (n=101) disorders	DSM-IV; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 4.4% among patients with bipolar I disorder 2.0% among patients with bipolar II disorder	

Table 1. (Continued

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Peselow, Sanfilipo, & Fieve (1995)	Psychiatric outpatients with lifetime bipolar disorder including hypomania (n=66)	DSM-III for bipolar disorder and personality disorders, RDC[k] for hypomania; SADS[l]-Change Version, SIDP (Axis II; both patient and informant interviews conducted)	Prevalence of ASPD among patients meeting RDC for hypomania (*baseline*): 12.8%-13.6% by patient report 14.9%-16.7% by informant report Prevalence of ASPD (*after successful treatment for hypomania*): 10.6% by patient report 14.9% by informant report	
Rossi et al. (2001)	Consecutive admissions to an inpatient psychiatric research unit with bipolar depression, following recovery from index episode (n=71)	DSM-III-R; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 5.6%	

[a] SCID: Structured Clinical Interview for Axis I disorders
[b] SCID-II: Structured Clinical Interview for Axis II disorders
[c] ASPD: Antisocial personality disorder
[d] PDQ-R: Personality Diagnostic Questionnaire-Revised
[e] SCAN: Schedules for Clinical Assessment in Neuropsychiatry
[f] PDE: Personality Disorder Examination
[g] SIDP: Structured Interview for DSM-III Personality Disorders
[h] PDQ: Personality Diagnostic Questionnaire
[i] SIDP-IV: Structured Interview for DSM-IV Personality Disorders
[j] Previous clinical diagnoses of bipolar disorder were not confirmed by the SCID at index presentation to the psychiatric practice from which patients were ascertained.
[k] RDC: Research Diagnostic Criteria
[l] SADS: Schedule for Affective Disorders and Schizophrenia

As is true in the case of patients with nonbipolar mood disorders, and except for the relatively high rates (12.8%-16.7%) reported by Peselow, Sanfilipo, & Fieve (1995) based on DSM-III criteria, rates of ASPD reported from most samples of patients ascertained for bipolar disorders are not markedly greater than those observed in the general population. Typical prevalences ranged from 2.0% to 6.0%.

Comorbidity of Antisocial Syndromes in Epidemiologically Ascertained Respondents with Mood Disorders

Rates of ASPD among epidemiologically ascertained individuals with MDD appear to be higher than those in the population overall and as compared with respondents without MDD. Spaner, Bland, and Newman (1994) found a prevalence of lifetime ASPD of 9.0% among adult household residents with lifetime MDD in Edmonton, Alberta, for a prevalence ratio of 2.8 compared with respondents without MDD, based on DSM-III criteria and the Diagnostic Interview Schedule (DIS). Similarly, Boyd et al. (1984) showed a strong, statistically significant ($p < 0.05$), positive past-month association (OR=5.1) between major depressive episode and DIS/DSM-III ASPD in the ECA sample. Hasin, Goodwin, Stinson, and Grant (2005), using DSM-IV criteria and the Alcohol Use Disorder and Associated Disabilities Interview Schedule - IV (AUDADIS-IV), found prevalences of lifetime ASPD of 6.3% among respondents to Wave 1 of the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) with lifetime MDD and 8.1% among respondents with 12-month MDD, yielding statistically significant ($p < 0.05$) ORs, adjusted for sociodemographic variables, of 2.3 associated with lifetime and 2.5 associated with current MDD.

To our knowledge, comorbidity of antisocial syndromes in epidemiologically ascertained respondents with lifetime dysthymia has not been reported. Grant, Hasin, Stinson, Dawson, Chou, et al. (2005) reported that, among NESARC respondents with past-year dysthymia, 13.5% met criteria for lifetime ASPD, for an unadjusted OR of 4.4 versus respondents without past-year dysthymia. With regard to bipolar disorders, Boyd et al. (1984), suspending the DSM-III diagnostic hierarchy under which mania pre-empted ASPD, reported an unadjusted past-month OR of 6.7 for co-occurrence of manic episode with ASPD among ECA respondents. Similarly, among adult household respondents in Edmonton, the lifetime prevalence of DSM-III ASPD among respondents with lifetime mania was 18.0, for an unadjusted prevalence ratio of 5.0 versus respondents who had no history of mania (Fogarty, Russell, Newman, & Bland, 1994). Kessler, Rubinow, Holmes, Abelson, and Zhao (1997) did not report the lifetime prevalence of DSM-III-R ASPD, assessed using the University of Michigan Composite International Diagnostic Interview (UM-CIDI), but did report that the rate of AABS was 29.0% among National Comorbidity Survey (NCS) respondents with lifetime bipolar I disorder, yielding an unadjusted OR of 7.3 ($p < 0.05$). Grant, Stinson, Hasin, et al. (2005) found a prevalence of lifetime ASPD of 21.6% among NESARC respondents with lifetime, and 21.7% among those with past-year, bipolar I disorder, yielding sociodemographic-adjusted ORs of 7.3 associated with lifetime and 6.8 associated with past-year bipolar I ($p < 0.05$). For past-year hypomania, Grant, Hasin, Stinson, Dawson, Chou, et al. (2005) reported an unadjusted OR of 4.6 ($p < 0.05$) from the NESARC.

Prevalences of Mood Disorders in Patients with Antisocial Syndromes

Data from patient samples ascertained for antisociality are extremely limited, as ASPD per se rarely constitutes a presenting complaint among patients seeking treatment (L. N. Robins, Tipp, et al., 1991). Black, Baumgard, and Bell (1995), based on the DIS administered to 21 consenting respondents, identified lifetime DSM-III MDD in 5 (23.8%) and current MDD in 4 (19.0%); mania in one (4.8%) for both lifetime and current time frames, and dysthymia in two (9.5%) formerly hospitalized antisocial men. Notwithstanding the limitations posed by small sample size and possible participation biases with respect to willingness to be interviewed with the DIS, all reported prevalences were considerably in excess of overall general population prevalences (cf. Weissman, Bruce, Leaf, Florio, & Holzer, 1991).

Prevalences of Mood Disorders in Epidemiologically Ascertained Respondents with Antisocial Syndromes

Unadjusted past-year prevalence ratios for DSM-III major depression among ECA respondents with "active" past-year ASPD were 3.2 for men and 3.5 for women (L. N. Robins, Tipp, et al., 1991); in the Edmonton survey, the lifetime prevalence ratio (both sexes combined) was 2.5, with a lifetime prevalence of MDD of 25.0% among respondents with lifetime ASPD (Swanson et al., 1994). Grant, Hasin, Stinson, Dawson, Chou, et al. (2005) reported a statistically significant ($p < 0.05$) unadjusted OR of 4.2 for associations of past-year MDD with lifetime ASPD in the NESARC.

Comparing lifetime ASPD versus AABS, Tweed et al. (1994) reported almost identical 6-month prevalences of MDD, 5.4% among the former and 5.6% among the latter subgroup of community-dwelling North Carolina ECA respondents, more than three times the overall past-year rates of MDD at that site (cf. Weissman et al., 1991). Marmorstein (2006) reported lifetime prevalences of MDD in the NCS sample of 30.3% among respondents with lifetime ASPD and 34.1% among those with AABS, this difference also being statistically nonsignificant, but both antisocial groups demonstrated higher rates than nonantisocial respondents.

Similar to what was observed for major depression, prevalence ratios for past-year dysthymia among ECA respondents with versus without past-year ASPD were 2.8 for men and 3.2 for women (L. N. Robins, Tipp, et al., 1991). The prevalence in Edmonton of lifetime dysthymia among household respondents with lifetime ASPD was 14.4, yielding an unadjusted ratio of 3.6 (Swanson et al., 1994). In the NESARC sample, as noted previously, the unadjusted association between lifetime ASPD and past-year dysthymia was similar to that with past-year MDD (OR=4.4; Grant, Hasin, Stinson, Dawson, Chou, et al., 2005). Again, no striking differences were observed between respondents with lifetime ASPD and those with AABS either at the North Carolina ECA site (Tweed et al., 1994) or in the NCS sample (Marmorstein, 2006). No community-dwelling ECA respondents with ASPD in North Carolina had 6-month dysthymia; the rate among those with AABS was 3.0%. Lifetime rates of dysthymia among antisocial respondents in the NCS were, as might be expected, much higher (17.9% among those with lifetime ASPD, 13.0% among those with AABS), not significantly different from one another, but both significantly greater than that among nonantisocial respondents.

Prevalence ratios for past-year bipolarity among ECA respondents with versus without active past-year ASPD were much higher than for nonbipolar mood disorders, 10.3 for men and 20.9 for women (L. N. Robins, Tipp, et al., 1991). In Edmonton, with a lifetime mania prevalence of 3.8%, the prevalence ratio of respondents with versus respondents without lifetime ASPD was 6.3 (Swanson et al., 1994). In the NESARC, unadjusted ORs for associations of lifetime ASPD with past-year mania and hypomania were 7.5 and 4.6, respectively (Grant, Hasin, Stinson, Dawson, Chou, et al., 2005).

Anxiety Disorders

Prevalences of Antisocial Syndromes Among Patients with Anxiety Disorders

Rates of comorbid antisociality among patients with anxiety disorders are shown in Table 2. Only in the case of posttraumatic stress disorder (PTSD) were rates of AABS reported by any study of which we are aware. Reported rates of ASPD among samples ascertained for all anxiety disorders except PTSD are less than, equal to, or only slightly greater than those in the general population as a whole, ranging from 0.0% to 4.9% among outpatients with panic disorder, 0.0% to 5.0% among those with social phobia, 0.0% to 3.3% among outpatients with generalized anxiety disorder (GAD), and 0.0% to 2.0% among those with obsessive-compulsive disorder (OCD). We identified no studies of patients with specific phobia that included assessment of antisocial syndromes. Rates of comorbid ASPD in PTSD ranged from 4.3% among general psychiatric outpatients to 15.0% among male veterans in inpatient treatment for PTSD. Comorbid AABS in PTSD was reported in 35.0% of a sample of inpatient male veterans.

Prevalences and ORs of Antisocial Syndromes in Epidemiologically Ascertained Respondents with Anxiety Disorders

Similar to what was observed with mood disorders, rates of ASPD among epidemiologically ascertained individuals with anxiety disorders, particularly those other than PTSD, appear to be higher than those in the population overall and as compared with respondents without anxiety disorders. Dick, Bland, and Newman (1994) found a lifetime prevalence of ASPD of 13.5% among adult household residents with lifetime panic disorder in Edmonton, for a prevalence ratio of 3.9 compared with respondents without panic disorder. Boyd et al. (1984) reported a much stronger unadjusted past-month association (OR=8.7) of ASPD and panic disorder from the ECA sample. Grant, Hasin, Stinson, Dawson, Goldstein, et al. (2006) examined comorbidity of lifetime ASPD separately in panic disorder with versus without agoraphobia, as well as any panic disorder, based on the NESARC. After adjustment for sociodemographic characteristics, ORs for comorbid ASPD in any past-year panic disorder, past-year panic disorder with agoraphobia, and past-year panic disorder without agoraphobia were 4.7, 4.0, and 6.0, respectively. Parallel ORs for lifetime panic disorders were similar: 4.7, 3.9, and 5.5. All ORs for both past-year and lifetime panic disorders and lifetime ASPD were statistically significant ($p < 0.05$); however, in neither past-year nor lifetime panic disorders were ORs for panic disorder with versus without agoraphobia and ASPD significantly different from one another.

Table 2. Associations of Antisocial Behavioral Syndromes in Adulthood With Anxiety Disorders in Clinical Samples

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
I. Panic disorder				
Crino & Andrews (1996)	Psychiatric outpatients with current panic disorder with agoraphobia (n=109)	DSM-III-R; PDE[a] (Axis II)	Prevalence of ASPD[b]: 0.0%	
Mavissakalian, Hamann, Haider, & de Groot (1993)	Psychiatric outpatients with current panic disorder with or without agoraphobia referred for evaluation regarding pharmacotherapy studies (n=187)	DSM-III; PDQ[c] (Axis II), Fear Questionnaire, Zung Anxiety Scale, Beck Depression Inventory	Prevalence of ASPD: 0.5%	
Pollack, Otto, Rosenbaum, & Sacks (1992)	Psychiatric outpatients treated for panic disorder with or without agoraphobia (n=100)	DSM-III-R; SCID[d] and items from the K-SADS[e] and DICA[f] (Axis I and childhood anxiety disorder history), PDQ-R[g] (Axis II)	Prevalence of ASPD: 4.0%	
Starcevic et al. (2008)	Consecutive outpatients with principal diagnosis of panic disorder with agoraphobia (n=157)	DSM-IV; SCID (Axis I), SCID-II[h] (Axis II)	Prevalence of ASPD: 1.9% in total sample 4.4% among men 0.9% among women	Sex differences in prevalences were not statistically significant. "Severe" personality disturbances and substance use disorders were exclusionary for treatment in study clinics
Zimmerman, Rothschild, & Chelminski (2005)	Psychiatric outpatients with current panic disorder (n=142)	DSM-IV; SCID (Axis I), SIDP-IV[i] (Axis II, patient report)	Prevalence of ASPD: 4.9%	

Table 2. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
II. Social phobia				
Crino & Andrews (1996)	Psychiatric outpatients with current social phobia (n=69)	DSM-III-R; PDE (Axis II)	Prevalence of ASPD: 0.0%	
Weinshenker et al. (1997)	Psychiatric outpatients with current social phobia (n=176)	DSM-III-R; Personality History of Depressive Disorders, SCID, and SADS-L[j] (Axis I); PDE (Axis II)	Prevalence of "current" ASPD: 1.1% in total sample 2.4% among respondents with specific social phobia 0.0% among respondents with generalized social phobia	Differences in prevalence between respondents with specific and generalized social phobia were not statistically significant.
Zimmerman, Rothschild, & Chelminski (2005)	Psychiatric outpatients with current social phobia (n=239)	DSM-IV; SCID (Axis I), SIDP-IV (Axis II, patient report)	Prevalence of ASPD: 5.0%	
III. Generalized anxiety disorder (GAD)				
Mavissakalian, Hamann, Haider, & de Groot (1993)	Psychiatric outpatients with current GAD referred for evaluation regarding pharmacotherapy studies (n=39)	DSM-III; PDQ (Axis II), Fear Questionnaire, Zung Anxiety Scale, Beck Depression Inventory	Prevalence of ASPD: 0.0%	
Zimmerman, Rothschild, & Chelminski (2005)	Psychiatric outpatients with current GAD (n=180)	DSM-IV; SCID (Axis I), SIDP-IV (Axis II, patient report)	Prevalence of ASPD: 3.3%	

Table 2. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
IV. Posttraumatic stress disorder (PTSD)				
Bollinger, Riggs, Blake, & Ruzek (2000)	Male veteransconsecutively admitted to specialized Veterans Affairs Medical Center PTSD treatment unit (n=107)	DSM-III-R; SCID-II (Axis II), Clinician-Administered PTSD Scale	Prevalence of ASPD: 15.0% Prevalence of AABS[k]: 35.0%	Comorbid substance use disorders were not exclusionary. Prevalence of AABS was obtained by subtracting the prevalence of ASPD from the 50.0% the authors stated would have been diagnosed as antisocial absent the DSM-III-R requirement of conduct disorder before age 15 years for ASPD.
Dunn et al. (2004)	Outpatient male veterans with current PTSD plus current MDD or dysthymia enrolled in Veterans Affairs Medical Center Trauma Recovery Program (n=115)	DSM-IV; Clinician-Administered PTSD Scale, SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 7.0%	Comorbid substance use disorders were not exclusionary, but program policy was to refer individuals with serious substance use disorders to addiction treatment program before undertaking PTSD treatment.
M. W. Miller, Kaloupek, Dillon, & Keane (2004)	Male veterans utilizing inpatient and outpatient services at 15 Veterans Affairs Medical Centers with a current PTSD diagnosis (n=736)	DSM-III-R; SCID (Axis I), SCID-II (ASPD)	Prevalence of "current" ASPD: 11.9%	

Table 2. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Orsillo et al. (1996)	Outpatient male Vietnam theater veterans with current PTSD who presented for clinical services or research participation within the National Center for PTSD at a Veterans Affairs Medical Center (n=311)	DSM-III-R; SCID (Axis I), Clinician-Administered PTSD Scale, SCID-II (borderline and antisocial personality disorders only)	Prevalence of ASPD: 11.8%	Comorbid substance use disorders were not exclusionary.
Southwick, Yehuda, & Giller (1993)	Inpatient and outpatient male Vietnam combat veterans with current PTSD (n=34)	DSM-III-R; SCID (Axis I), PDE (Axis II)	Prevalence of ASPD: 14.7%	
Zimmerman, Rothschild, & Chelminski (2005)	Psychiatric outpatients with current PTSD (n=180)	DSM-IV; SCID (Axis I), SIDP-IV (Axis II, patient report)	Prevalence of ASPD: 9.8%	
Zlotnick, Zimmerman, Wolfsdorf, & Mattia (2001)	Psychiatric outpatients with current PTSD (N=138)	DSM-IV; SCID (Axis I), SIDP-IV (Axis II, borderline and antisocial personality disorders only)	Prevalence of "current" ASPD: 4.3% in total sample 14.7% among men 1.1% among women	
V. Obsessive-compulsive disorder (OCD)				
Crino & Andrews (1996)	Psychiatric outpatients with current OCD (n=80)	DSM-III-R; PDE (Axis II)	Prevalence of ASPD: 0.0%	
Denys, Tenney, van Megen, de Geus, & Westenberg (2004)	Psychiatric outpatients with OCD (n=420)	DSM-IV; MINI[1] (Axis I), clinical diagnoses (Axis II)	Prevalence of ASPD: 0.5%	

Table 2. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Mavissakalian, Hamann, Abou Haidar, & de Groot (1993)	Psychiatric outpatients with current OCD referred for evaluation (n=51) regarding pharmacotherapy studies	DSM-III; PDQ (Axis II), Fear Questionnaire, Zung Anxiety Scale, Beck Depression Inventory	Prevalence of ASPD: 2.0%	
Pinto, Mancebo, Eisen, Pagano, & Rasmussen (2006)	Psychiatric inpatients and outpatients with current DSM-IV OCD as patient-appraised biggest overall lifetime problem (n=293)	DSM-IV; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 1.0%	
Wu, Clark, & Watson (2006)	Patients diagnosed by expert clinicians with, and treated for, OCD, ascertained from an OCD support group (n=52)	DSM-IV; SNAP-2[m] (Axis II)	Prevalence of ASPD: 2.0%	

[a] PDE: Personality Disorder Examination
[b] ASPD: Antisocial personality disorder
[c] PDQ: Personality Diagnostic Questionnaire
[d] SCID: Structured Clinical Interview for Axis I disorders
[e] K-SADS: Kiddie-Schedule for Affective Disorders and Schizophrenia
[f] DICA: Diagnostic Interview for Children and Adolescents
[g] PDQ-R: Personality Diagnostic Questionnaire-Revised
[h] SCID-II: Structured Clinical Interview for Axis II disorders
[i] SIDP-IV: Structured Interview for DSM-IV Personality Disorders
[j] SADS-L: Schedule for Affective Disorders and Schizophrenia - Lifetime Verison
[k] AABS: Adult antisocial behavioral syndrome
[l] MINI: Mini International Neuropsychiatric Interview
[m] SNAP-2: Schedule for Nonadaptive and Adaptive Personality-II

Among household residents with lifetime social phobia in Edmonton, the lifetime prevalence of ASPD was 10.4%, yielding an unadjusted prevalence ratio of 3.0 compared with respondents who had no lifetime social phobia (Dick, Sowa, Bland, & Newman, 1994). Kessler, Stein, and Berglund (1998) reported lower lifetime rates of comorbid ASPD in social phobia among NCS respondents than those found in Edmonton. However, they observed statistically significant differences ($p \leq 0.05$) in rates of comorbid ASPD both between NCS respondents with and without social phobia (OR=2.5, control variables not specified), and by social phobia subtype. Prevalence of ASPD among respondents with pure speaking fears overall was 3.3%, 1.1% among those with only fear of public speaking and 6.7% among those with other speaking fears. Among respondents with other social fears, rates of ASPD overall (9.5%) were significantly higher ($p \leq 0.05$) than among those with pure speaking fears, 7.7% among respondents with only one fear, 10.1% among those with two fears, and 9.7% among those with three or more fears. Grant, Hasin, Blanco, et al. (2005) reported prevalences of lifetime ASPD of 10.8% among Wave 1 NESARC respondents with 12-month, and 11.3% among those with lifetime, social phobia, strikingly similar to the rates reported from Edmonton, yielding sociodemographic-adjusted ORs of 3.4 and 3.7, respectively.

Epidemiologic findings concerning comorbidity of ASPD in simple or specific phobia are both more limited and less consistent than those for panic disorder and social phobia. In Edmonton, the prevalence of lifetime ASPD among respondents with lifetime simple phobia was 4.6%, yielding an unadjusted prevalence ratio of 1.3 compared with respondents without simple phobia (Dick, Sowa, et al., 1994). Conversely, in the NESARC, Stinson, Dawson, Chou, et al. (2007) reported sociodemographic-adjusted ORs for lifetime ASPD of 3.2 associated with 12-month, and 3.3 associated with lifetime, specific phobia (both statistically significant, $p < 0.05$). Stinson, Dawson, Chou, et al. (2007) further distinguished comorbidity of ASPD by number of fears among respondents with lifetime specific phobia. Rates of ASPD were 6.7% among individuals with only one fear, 7.8% among those with two or three fears, 11.4% among respondents with four or five fears, and 10.0% among those with six or more fears. Corresponding sociodemographic-adjusted ORs, compared with respondents reporting only one fear, were 1.3, 2.1, and 1.9, respectively, the ORs for four or five and six or more fears, but not two or three, being statistically significant ($p < 0.05$).

To our knowledge, the only reported epidemiologic data concerning comorbidity of ASPD among individuals with GAD come from Wave 1 of the NESARC (Grant, Hasin, Stinson, Dawson, Chou, et al., 2005; Grant, Hasin, Stinson, Dawson, Ruan, et al., 2005; Vesga-López et al., 2010). Prevalences of lifetime ASPD in 12-month GAD were 24.4% among men and 9.1% among women; in lifetime GAD; 19.1% among men and 7.2% among women (Vesga-López et al., 2010). Sociodemographic-adjusted ORs for ASPD associated with 12-month and lifetime GAD in the total sample were 4.6 and 4.1 (Grant, Hasin, Stinson, Dawson, Ruan, et al., 2005).

Epidemiologic data on comorbidity of antisocial syndromes in PTSD come both from the general population, including the ECA, the NCS, and the NESARC, and from nationally representative samples of veterans, including the Vietnam Experience Study (VES; Barrett et al., 1996). Among ECA respondents, the unadjusted prevalence ratio of DIS/DSM-III ASPD in the presence versus absence of PTSD was 3.4 in the total sample (5.7 in men and 3.8 in women; Helzer, L. N. Robins, & McEvoy, 1987). The prevalence of DIS/DSM-III ASPD in VES respondents with PTSD was 19.2% (Barrett et al., 1996). More recently, Goldstein, W.

M. Compton, and Grant (2010) found that the prevalence of DSM-IV ASPD was 7.5% and that of AABS was 26.2% among Wave 2 NESARC respondents with lifetime PTSD.

To our knowledge, the most recent data on associations of antisociality with OCD in epidemiologic samples come from studies using DSM-III criteria. In Edmonton, the lifetime prevalence of ASPD among respondents with lifetime OCD was 10.1% (unadjusted prevalence ratio compared with respondents without OCD=2.9; Kolada, Bland, & Newman, 1994). In the ECA (Boyd et al., 1984), the unadjusted past-month OR for comorbidity of ASPD with past-month OCD was 10.1.

Prevalences of Anxiety Disorders in Patients with Antisocial Syndromes

Among men previously hospitalized for antisociality and interviewed 16 to 45 years after index discharge, Black, Baumgard, and Bell (1995) found DSM-III panic disorder (both lifetime and current) in 4.8%. On a lifetime basis, 9.5%, and on a current basis, 4.8% met criteria for PTSD. The lifetime prevalence of social phobia was 9.5% but no respondent met current criteria. Parallel figures were 19.0% and 9.5% for simple phobia, 33.3% and 14.3% for GAD, and 14.3% on both lifetime and current bases for OCD. To our knowledge, general population prevalences of DSM-III GAD have not been reported. For the other anxiety disorders, however, as was the case with mood disorders, prevalences reported by Black, Baumgard, and Bell (1995) among men with lifetime DSM-III ASPD are substantially greater than those of DSM-III anxiety disorders observed in the ECA (cf. Eaton, Dryman, & Weissman, 1991; Helzer, L. N. Robins, et al., 1987; Myers et al., 1984; L. N. Robins, Helzer, et al., 1984).

Prevalences and ORs of Anxiety Disorders Among Epidemiologically Ascertained Respondents with Antisocial Syndromes

Unadjusted past-year prevalence ratios for DSM-III panic disorder among ECA respondents with past-year ASPD were 2.2 for men and 4.5 for women (L. N. Robins, Tipp, et al., 1991); in Edmonton, the lifetime prevalence ratio (both sexes combined) was 3.7, with a lifetime prevalence of 4.8% among respondents with ASPD (Swanson et al., 1994). As noted previously, Boyd et al. (1984) reported an unadjusted past-month OR of 8.7. Using more current diagnostic criteria, Grant, Hasin, Stinson, Dawson, Chou, et al. (2005) reported statistically significant ($p < 0.05$) unadjusted ORs of 5.7 for past-year panic disorder with agoraphobia, and 3.8 for past-year panic disorder without agoraphobia. Comparing ASPD versus AABS, Tweed et al. (1994) found 6-month panic disorder in no community-dwelling respondents with lifetime ASPD and in 1.5% of those with AABS. Marmorstein (2006) reported similar lifetime prevalences of any panic disorder in the NCS sample by antisocial syndrome, 6.2% among respondents with lifetime ASPD and 8.9% among those with AABS, both significantly greater than that among nonantisocial respondents.

Similar to findings for panic disorder, the lifetime prevalence of social phobia among Edmonton survey respondents with lifetime ASPD was 4.8%, yielding an unadjusted prevalence ratio in respondents with versus without ASPD of 2.6 (Swanson et al., 1994). In the NESARC the unadjusted OR for past-year social phobia associated with lifetime ASPD was 3.4 (Grant, Hasin, Stinson, Dawson, Chou, et al., 2005). As well, Goldstein, Grant, Ruan, Smith, and Saha (2006) found a statistically significant difference in lifetime prevalences of social phobia between NESARC respondents with lifetime ASPD who reported that their first

onset of CD occurred before (21.7%) and those who reported onset at or after (12.5%) age 10 years (sociodemographic-adjusted OR=2.0). Six-month social phobia was identified in 5.8% of North Carolina ECA respondents with lifetime ASPD as well as 5.8% of those with AABS (Tweed et al., 1994). Lifetime rates in the NCS sample were much higher, 30.8% among respondents with ASPD and 27.0% among those with AABS. The difference by antisocial syndrome was, once again, statistically nonsignificant, but prevalences in both antisocial groups were significantly greater than among respondents with no lifetime antisocial syndrome (Marmorstein, 2006).

In Edmonton, the prevalence (10.6%) and unadjusted prevalence ratio (1.4) for lifetime simple phobia among respondents with ASPD identified more modest associations than were found with most other comorbid disorders (Dick, Sowa, et al., 1994). In the NESARC, the unadjusted OR for past-year specific phobia and ASPD was 2.9 (Grant, Hasin, Stinson, Dawson, Chou, et al., 2005). For 6-month DSM-III simple phobia in community-dwelling North Carolina ECA respondents with ASPD and AABS, prevalences were 27.3% and 22.5%, respectively, and not statistically different (Tweed et al., 1994). However, among NCS respondents, the lifetime prevalences of specific phobia (17.9% in those with ASPD and 28.7% in those with AABS) did differ significantly, in addition to being significantly greater than that in nonantisocial respondents ($p < 0.05$; Marmorstein, 2006).

Among NCS respondents with ASPD, the lifetime prevalence of GAD was 14.6%, yielding a sociodemographic-adjusted OR of 3.5 compared with respondents who had neither ASPD nor CD (Goodwin & Hamilton, 2003). Among NESARC respondents with versus without ASPD, the unadjusted OR for past-year GAD was 4.4 (Grant, Hasin, Stinson, Dawson, Chou, et al., 2005). Statistically significant but modest differences were observed in rates of GAD when NESARC respondents with ASPD were subdivided by onset of CD earlier than, versus at or later than, age 10 years (15.5% versus 11.3%, sociodemographic-adjusted OR=1.6; Goldstein, Grant, et al., 2006). Comparing respondents with ASPD versus AABS, Marmorstein (2006) observed lifetime prevalences of GAD of 14.8% and 13.0%, which did not differ significantly but were both significantly greater than the lifetime prevalence among nonantisocial respondents.

To our knowledge, the only reported prevalence data for comorbid PTSD among antisocial respondents in an epidemiologic sample come from the NCS. Marmorstein (2006), comparing rates in ASPD versus AABS, reported lifetime prevalences of 21.0% and 20.3%, respectively; these were not significantly different, but both were significantly greater than that observed in respondents with no antisocial syndrome.

As noted previously, the most recent data on associations of antisociality with OCD in epidemiologic samples come from studies using DSM-III criteria. In Edmonton, the lifetime prevalence of OCD among respondents with lifetime ASPD was 10.6% (unadjusted prevalence ratio versus respondents without ASPD=3.7; Swanson et al., 1994). In the ECA (L. N. Robins, Tipp, et al., 1991), the unadjusted past-year prevalence ratios were 5.3 for men and 3.5 for women with versus without ASPD.

Differences in Prevalences of Comorbid Antisociality between Clinical and Epidemiologic Samples Ascertained for Internalizing Disorders

With the exception of PTSD, most studies that have assessed comorbid antisociality among patients currently in treatment for mood and anxiety disorders have found rates less

than, equal to, or only slightly higher than those observed in epidemiologic samples overall. Prevalences in clinical samples with internalizing disorders are also, in general, lower than rates of comorbid antisociality among epidemiologically ascertained respondents with internalizing disorders. These findings appear inconsistent with the expectation of greater, not less, comorbidity in clinical samples (cf. Berkson, 1946).

Several potential contributors to relatively low rates of antisociality among patients with most internalizing disorders warrant consideration. First, whereas ASPD and, to a lesser extent, AABS, are more prevalent in men than in women (e.g., W. M. Compton, Conway, et al., 2005; L. N. Robins, Tipp, et al., 1991), the reverse is true for most mood and anxiety disorders (Hasin et al., 2005; Grant et al., 2006; Grant, Hasin, Blanco, et al., 2005; Grant, Hasin, Stinson, Dawson, & Ruan, 2005; Stinson, Dawson, Chou, et al., 2007; Breslau, 2009). To the extent that women tend to utilize many forms of health services at higher rates than men (see review by Owens, 2008), women may be overrepresented in treatment settings even beyond their preponderance among individuals affected with some specific disorders. These sex-based disparities may lead to low prevalence estimates for antisocial syndromes in mixed-sex analyses.

Additional factors may select antisocial patients out of some treatment settings. In particular, the studies from which data on Axis II comorbidity, including antisociality, have been reported generally reflect tertiary care settings and often clinical trials. Some clinical trials (e.g., Golomb et al., 1995), or treatment programs more generally (e.g., Starcevic et al., 2008), explicitly exclude antisocial individuals, or those with "severe" or "significant" ASPD or other personality disturbances. Others exclude or defer patients with current substance use disorders, especially if they are clinically severe or present urgent requirements for detoxification (e.g., Blanco et al., 2008; Dunn et al., 2004; Golomb et al., 1995; Mulder, Joyce, & Frampton, 2010; Starcevic et al., 2008; Zimmerman, Chelminski, & Posternak, 2004). Because antisocial syndromes are particularly prevalent among patients who have substance use disorders, these exclusions may also lower prevalence estimates for ASPD and AABS obtained from mood and anxiety disorder treatment settings. Finally, mood disorders, particularly nonpsychotic and nonbipolar conditions, and anxiety disorders, are unlikely to contribute to involuntary treatment (e.g., Craw & M. T. Compton, 2006; Sanguineti, Samuel, Schwartz, & Robeson, 1996; Swartz et al., 2001). Antisocial individuals may choose not to present for treatment of comorbid internalizing disorders, either because they do not perceive a problem that needs treatment (e.g., Kessler, Olfson, & Berglund, 1998; Mojtabai, Olfson, & Mechanic, 2002) or because the disdain for norms and rules that is a hallmark of antisocial syndromes includes negativity toward the structure and expectations of clinical settings (e.g., Black, Baumgard, & Bell, 1995; Black & Larson, 1999; Gabbard & Coyne, 1987). In addition, those who obtain health services through systems that require referrals by clinical gatekeepers such as primary care providers may find gatekeepers reluctant to refer them for specialty care, perhaps because of therapeutic nihilism and pessimism regarding the treatability of antisocial patients (e.g., Frosch, 1983; Gabbard & Coyne, 1987; Reid & Gacono, 2000).

In view of these potential selection biases, it should be noted that most studies that assessed comorbid antisociality among patients in treatment for PTSD consisted of male veterans ascertained from Veterans Affairs Medical Center programs in which substance use disorders were not exclusionary. In addition, the vast majority of these patients were utilizing services for combat-related PTSD. Many of the characteristics of antisocial individuals,

including propensities toward aggression and rule breaking as well as deficits in executive function, may also be factors selecting individuals into military service generally, into combat in particular, and, within the combat setting, into situations posing the highest risks for traumatic exposures and PTSD (e.g., Fu et al., 2007; Koenen, 2006; Koenen, Fu, et al., 2005; Koenen, Moffitt, Poulton, Martin, & Caspi, 2007). Despite documented problems with treatment accessibility and utilization for combat-related PTSD within the Veterans Affairs medical system (Seal et al., 2010; Spoont, Murdoch, Hodges, & Nugent, 2010), veterans, including those with antisocial syndromes, may have greater access, at least at present, to PTSD services than other affected individuals, particularly those who are also antisocial. Nevertheless, whether this was the case at the time the studies of comorbid antisociality reviewed herein were conducted is unclear. Generalizability of these findings to patients in other treatment settings for PTSD associated with other types of traumatic exposures is also unclear.

Associations of Antisociality with Clinical Presentation, Course, and Outcomes of Mood and Anxiety Disorders

Numerous clinical studies that have examined Axis II comorbidity in patients with mood and anxiety disorders have found greater clinical severity, including more adverse history (e.g., childhood abuse) and increased Axis I comorbidity, associated with any PD (e.g., Flick et al., 1993; Kay, Altshuler, Ventura, & Mitz, 2002; Klass, DiNardo, & Barlow, 1989; Langs et al., 1998; Noyes et al., 1990; Pfohl, Stangl, & Zimmerman, 1984; Pollack, Otto, Rosenbaum, & Sachs, 1992; Russell, Kornstein, et al., 2003; Skodol et al., 1995), any Cluster B PD (e.g., Garno, Goldberg, Ramirez, & Ritzler, 2005), and various specific PDs (e.g., Harley et al., 2006; Rothschild & Zimmerman, 2002; Van Velzen, Emmelkamp, & Scholing, 1997). To our knowledge, only one clinical study has specifically examined associations of comorbid antisociality with any aspect of the phenomenology of any internalizing disorder. Rothschild and Zimmerman (2002) found comorbid ASPD to be associated with significantly ($p < 0.05$) greater duration of index (current) major depressive episode at intake among a sample of outpatients (93.3% with nonbipolar MDD), as well as increased likelihood of chronicity, defined according to the DSM-IV specifier as a duration of 2 years or longer (OR=14.2 adjusted for age and borderline and avoidant PDs).

Similarly, except as discussed earlier in this chapter with regard to suicidality among individuals with MDD, only one epidemiologic study of which we are aware has examined associations of comorbid antisociality with the clinical presentation of any internalizing disorder. Goldstein, W. M. Compton and Grant (2010) compared additional psychiatric comorbidity associated with ASPD, AABS, and no antisocial syndrome among Wave 2 NESARC respondents with lifetime PTSD. This study found extremely high rates of additional lifetime Axis I and II disorders and very large numbers of total (Axis I plus Axis II) comorbid lifetime diagnoses. After adjustment for sociodemographic variables, ORs for two or three, four or five, and more than 5 comorbid diagnoses (versus none or one) among respondents with PTSD plus ASPD compared with nonantisocial respondents were 2.2, 8.1, and 40.5, of which the latter two were statistically significant ($p < 0.05$). Parallel ORs associated with AABS were 3.1, 6.2, and 20.1, all statistically significant, but none significantly different from the respective ORs associated with ASPD. After adjustment for

sociodemographic variables plus additional psychiatric comorbidity, associations of many specific comorbid disorders with ASPD (versus no antisocial syndrome) among respondents with PTSD remained statistically significant, including bipolar I, alcohol abuse or dependence, drug abuse or dependence, nicotine dependence, attention-deficit/hyperactivity disorder (ADHD), and paranoid, schizoid, avoidant, dependent, and obsessive-compulsive PDs (ORs=1.9-7.7). Similarly, associations with AABS remained statistically significant in fully adjusted analyses for bipolar I, alcohol abuse or dependence, drug abuse or dependence, nicotine dependence, ADHD, and paranoid, schizoid, histrionic, and obsessive-compulsive PDs (ORs=1.5-3.3). However, no OR for any specific disorder associated with AABS differed significantly from that associated with ASPD.

As with severity of clinical presentation, many (e.g., Berger et al., 2004; Bock, Buch, Vinberg, Gether, & Kessing, 2010; Dunayevich et al., 2000; Loftus & Jaeger, 2006; Noyes et al., 1990; Reich, 1988; Sareen, Enns, & Guertin, 2000; Zimmerman, Coryell, Pfohl, Corenthal, & Stangl, 1986) , but not all (cf., for example, Dreessen, Hoekstra, & Arntz, 1997; Fricke et al., 2006; Maddux et al., 2009; Mulder, Joyce, Frampton, Luty, & P. F. Sullivan, 2006; Russell, Kornstein, et al., 2003; Van Velzen et al., 1997), clinical studies that have examined Axis II comorbidity in patients with mood and anxiety disorders have documented poorer outcomes of pharmacologic as well as psychosocial treatment associated with any PD, specific PD clusters, and various specific PDs in patients with mood and anxiety disorders. Study outcomes have included clinical global improvement, symptomatic remission, psychosocial functioning, and quality of life measures. PD comorbidity has also been associated with poorer psychosocial functioning, chronicity, lower rates of remission, and increased propensity for recurrence of MDD in naturalistic follow-up studies (e.g., Agosti, Hellerstein, & Stewart, 2009; Grilo et al., 2010; Markowitz, Skodol, et al., 2007; Melartin et al., 2004). Again, however, no study has, to our knowledge, examined clinical outcomes of internalizing disorders specifically associated with syndromal antisociality.

Associations of Internalizing Comorbidity with Clinical Characteristics and Outcomes of Antisociality

Data addressing the extent to which comorbid internalizing disorders, particularly mood disorders, are associated with clinical presentation and outcomes of antisocial syndromes are scarce. Concerning clinical characteristics, lifetime prevalences and sociodemographic-adjusted ORs of MDD, alcohol and other drug dependence, and suicidal ideation and attempts were numerically greater in among respondents who had ASPD plus comorbid anxiety disorders than among those who had ASPD but no anxiety disorders, though the differences were not statistically significant (Goodwin & Hamilton, 2003). Sareen, Stein, Cox, and Hassard (2004) examined psychiatric comorbidity, impairment, and distress among respondents to the NCS and the Ontario Health Survey who were classified into four diagnostic groups: those with no lifetime antisocial diagnosis, "any antisocial diagnosis" (ASPD, AABS, or CD that did not progress to ASPD) without any lifetime anxiety disorder, any lifetime anxiety disorder but no antisocial diagnosis, and comorbid antisocial plus anxiety diagnoses. The consideration of all antisocial classifications within a single group, and the inclusion of respondents with nonprogressive CD, may have yielded findings different from those that would have been obtained had this group of respondents been excluded, or if

specific antisocial syndromes had been analyzed separately. Nevertheless, NCS respondents in the antisocial plus anxiety group had significantly greater odds than those in the antisocial-only group of "high" emotional distress (ORs=9.1 versus 2.2, compared with respondents who had neither an anxiety disorder nor ASPD). Sociodemographic-adjusted ORs versus respondents with neither an antisocial syndrome nor an anxiety disorder in the NCS sample for current perception of emotional status as poor or fair (versus good or excellent), one or more of the past 30 days lost from major social role due to emotional problems or substance use, past-year suicidal ideation or attempt, and high versus low neuroticism were numerically but not statistically greater in the comorbid than in the antisocial-only group. Similar but generally more modest results were obtained from the Ontario sample.

Concerning treatment outcomes, Gabbard and Coyne (1987) reported that the presence of anxiety or depression predicted greater likelihood that the treating psychiatrist would rate antisocial inpatients' clinical goals as at least partially met. However, their findings were based on a small sample (n=33), of whom all but two were male, constraining statistical power precluding analysis of potentially confounding or effect-modifying characteristics as well as possible sex-specific factors.

ALCOHOL AND OTHER DRUG USE DISORDERS

Prevalences of Antisocial Syndromes in Patients with Substance Use Disorders

Alcohol Use Disorders

As detailed in Table 3, prevalences of lifetime ASPD among AUD treatment clients ranged from 14.2% to 42.1%. Only two studies of patients in treatment for AUDs reported rates of AABS. Verheul, van den Brink, Koeter, and Hartgers (1999) classified 16.2% of their combined sample of inpatients and outpatients with AABS, similar to the prevalence of ASPD they observed (14.6%). By contrast, V. M. Hesselbrock and M. N. Hesselbrock (1994) found a much lower rate of AABS (15.0%) than of ASPD (42.1%) in their sample of inpatients.

Drug Use Disorders

Rates of antisocial syndromes in DUD treatment clients, depicted in Table 3, were generally higher than those in AUD treatment clients, but also more variable. Prevalences of ASPD in mixed-sex samples ranged from 7.7% to 51.0%. Among the studies that also examined AABS, Brooner, Schmidt, et al. (1992) found it less prevalent than ASPD (23.6% versus 43.8%), Cottler, Price, et al. (1995) found the two syndromes similarly prevalent in their total sample (ASPD: 37.6%; AABS: 36.3%), but not when men (ASPD: 44.0%; AABS: 33.0%) and women (ASPD: 27.0%; AABS: 42.0%) were considered separately. Crits-Cristoph et al. (1999) found higher rates of AABS (31.8%) than of ASPD (14.0%), as did Mariani et al. (2008), the latter both among patients with cocaine dependence (ASPD: 15.2%; AABS: 30.3%) and among those with cannabis dependence (ASPD: 19.0%; AABS: 31.4%).

Table 3. Associations of Antisocial Behavioral Syndromes in Adulthood With Substance Use Disorders in Clinical Samples

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
I. Alcohol use disorders (AUDs)				
V. M. Hesselbrock & M. N. Hesselbrock (1994)	Inpatients admitted to 3 AUD treatment facilities (n=321)	DSM-III; DIS[a] (Axis I plus ASPD)	Prevalence of ASPD[b]: 42.1% Prevalence of AABS[c]: 15.0%	
Morgenstern, Langenbucher, Labouvie, & K. J. Miller (1997)	Inpatients and outpatients enrolled in 8 AUD treatment programs (n=366)	DSM-III-R; CIDI-SAM[d] (substance use disorder diagnoses); SCID[e] (other Axis I); Tarter Hyperactivity/Minimal Brain Dysfunction Questionnaire Hyperactivity/Impulsivity, Attentional/Socialization Problems, and Antisocial Behaviors subscales (childhood behavior problems); and SCID-II[f] (Axis II)	Prevalence of ASPD: 22.7% in total sample 25.7% among men 9.1% among women	
V. H. Thomas, Melchert, & Banken (1999)	Inpatients admitted to a substance dependence treatment unit whose primary problem substance was alcohol (n=148)	DSM-III-R; SCID (Axis I, substance use disorders only), SCID-II (Axis II)	Prevalence of ASPD: 14.2%	
Verheul, van den Brink, Koeter, & Hartgers (1999)	Inpatients and outpatients in AUD treatment (n=309)	DSM-III-R; WHO-CIDI[g] (mood disorders plus ASPD)	Prevalence of ASPD: 14.6% Prevalence of AABS: 16.2%	

Table 3. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
II. Drug use disorders (DUDs)				
Abbott, Weller, & Walker (1994)	Methadone-maintained, opioid-dependent outpatients consecutively entering a clinical trial of behavioral treatments (n=144)	DSM-III-R; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 31.3% (both "lifetime" and "current")	
Alterman, Rutherford, Cacciola, McKay, & Woody (1996)	Outpatients in methadone maintenance treatment for opioid dependence (n=212)	DSM-III-R; SCID (Axis I), PDE[h] (Axis II)	Prevalence of ASPD: 29.7%	
Broome, Flynn, & Simpson (1999)	Patients enrolled in 16 outpatient drug-free (n=1,896), 13 outpatient methadone (n=1,011), and 18 long-term residential treatment programs (n=2,362)	DSM-III-R; DIS-III-R (Axis I plus ASPD)	Prevalence of ASPD: 35.0% (outpatient drug-free) 34.0% (outpatient methadone) 51.0% (long-term residential)	Prevalences of ASPD did not differ between outpatient drug-free and outpatient methadone, but did differ between both outpatient programs and long-term residential.
Brooner, King, Kidorf, Schmidt, & Bigelow (2001)	Outpatients seeking methadone treatment for opioid dependence (n=716)	DSM-III-R; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 25.1% in total sample 33.9% among men 15.4% among women	
Brooner, Schmidt, Felch, & Bigelow (1992)	Outpatients in methadone treatment for opioid dependence and out-of-treatment respondents with opioid or cocaine use disorders (total n=237)	DSM-III-R; modified Alcohol Research Center Intake Interview (Axis I plus ASPD)	Prevalence of ASPD: 43.8% Prevalence of AABS: 23.6%	

Table 3. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Cacciola, Alterman, Rutherford, McKay, & Snider (1996)	Methadone-maintained, opioid-dependent male outpatients (n=210)	DSM-III-R; SCID (Axis I), SIDP-R (Axis II)	Prevalence of ASPD: 37.6%	
W. M. Compton et al. (2000)	Inpatients, outpatients, and residents of a recovery shelter in treatment for drug dependence (n=425)	DSM-III-R; DIS-III-R[1] (Axis I plus ASPD)	Prevalence of ASPD: 44.0%	
Cottler, Price, W. M. Compton, & Mager (1995)	Inpatients, outpatients, and residents of recovery shelters for drug use disorders (n=545)	DSM-III-R; DIS-III-R (Axis I plus ASPD)	Prevalence of ASPD: 37.6% in total sample 44.0% among men 27.0% among women Prevalence of AABS: 36.3% in total sample 33.0% among men 42.0% among women	
Crits-Cristoph et al. (1999)	Patients whose most severe diagnosis was cocaine dependence (current or in early partial remission) participating in a clinical trial of 4 psychosocial treatments for that disorder (n=487)	DSM-IV; Structured Interview for Axis I and II (not specified further)	Prevalence of ASPD: 14.0% Prevalence of AABS: 31.8%	Exclusionary conditions included: unstable living situations; principal (most severe) diagnoses of alcohol, opioid, or polysubstance dependence; histories of bipolar I disorder; imminent suicidality or homicidality; pending incarceration or mandate for treatment by law enforcement or child protective authorities; and inability to meet requirements of study participation.

Table 3. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Grella, Joshi, & Hser (2003)	Patients receiving services in any of 96 residential, inpatient, or outpatient addiction treatment programs for cocaine dependence (n=707)	DSM-III-R; WHO-CIDI (MDD, GAD, and substance use disorders), DIS-III-R (ASPD)	Prevalence of ASPD: 42.6% in total sample 47.2% among men 34.3% among women	
King, Kidorf, Stoller, Carter, & Brooner (2001)	Patients newly enrolled in methadone maintenance treatment for opioid dependence (n=513)	DSM-III-R; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 23.8%	
Ladd & Petry (2003)	Consecutive patients seeking outpatient treatment for cocaine use disorders (n=174)	DSM-IV; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 35.1%	Exclusion criteria included suicidality.
Magura, Kang, Rosenblum, Handelsman, & Foote (1998)	Methadone-maintained, opioid-dependent outpatients in a research treatment program that provided supplemental treatment for comorbid cocaine dependence (n=212)	DSM-III-R; SCID (Axis I), SCID-II (ASPD only)	Prevalence of ASPD: 32.0% among men 17.2% among women	
Mariani et al. (2008)	Outpatients participating in clinical trials of pharmacotherapy for either cocaine dependence or cannabis dependence (n=241)	DSM-IV; SCID (Axis I), unspecified structured interview for ASPD	Prevalence of ASPD: 15.2% among patients with cocaine dependence 19.0% among patients with cannabis dependence Prevalence of AABS: 30.3% among patients with cocaine dependence 31.4% among patients with cannabis dependence	Criminal justice system involvement was not exclusionary. Diagnostic criteria for ASPD were not counted as met if the target behaviors occurred only in relation to substance use. Differences in prevalences between patients with different target drug use disorders were not significant.

Table 3. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Mason et al. (1998)	Methadone-maintained, opioid-dependent patients with at least 30 days in treatment (n=75)	DSM-III-R; Computerized Diagnostic Interview Schedule (Axis I plus ASPD)	Prevalence of ASPD: 36.5% ("current") 17.8% ("past")	
McKay, Alterman, Cacciola, Mulvaney, & O'Brien (2000)	Male veterans with lifetime cocaine dependence and cocaine use in past 6 months who were referred to a Veterans Affairs Medical Center continuing care program (n=127)	DSM-III-R; SCID (Axis I), PDE (Axis II)	Prevalence of ASPD: 36.2%	Most patients were graduates of a 4-week VAMC intensive outpatient program. Opiate use disorder diagnoses were exclusionary.
S. Ross, Dermatis, Levounis, & Galanter (2003)	Inpatients admitted to a specialized dual diagnosis unit at a public hospital (n=100)	DSM-III-R; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 35.0%	
Rounsaville, Anton, et al. (1991)	Individuals seeking inpatient or outpatient treatment for cocaine use disorders (n=298)	RDC; SADS-L[J] (Axis I plus ASPD)	Prevalence of ASPD: 7.7% in total sample 8.3% among men 6.5% among women	RDC for ASPD require independence of antisocial symptomatology from substance use. Heroin use disorders predating the onset of cocaine use disorders were exclusionary
Rounsaville, Kranzler, et al. (1998)	Inpatients and outpatients in addiction treatment (n=370, 17% of whom sought help primarily for AUDs)	DSM-III-R; SCID (Axis I), SCID-II (Axis II)	Prevalence of ASPD: 46.2% (substance-related symptoms counted) 27.0% (substance-related symptoms not counted)	Test-retest reliability was strikingly lower for substance-independent diagnoses: κ=0.32 for substance-independent versus κ=0.65 for substance-independent plus substance-related diagnoses; ICCs for DSM-III-R symptom counts=0.73 versus 0.84, respectively.

Table 3. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Rounsaville, Weissman, Kleber, & Wilber (1982)	Patients ascertained from multiple treatment modalities for opioid use disorders (n=533)	RDC; SADS-L (Axis I plus ASPD)	Prevalence of ASPD: 26.5% in total sample 29.5% among men 16.9% among women	RDC for ASPD require independence of antisocial symptomatology from substance use.
V. H. Thomas, Melchert, & Banken (1999)	Inpatients admitted to a substance dependence treatment unit whose primary problem substance was a drug other than alcohol (n=104)	DSM-III-R; SCID (Axis I, substance use disorders only), SCID-II (Axis II)	Prevalence of ASPD: 23.1%	
Woody, McLellan, Luborsky, & O'Brien (1985)	Methadone-maintained male patients participating in a randomized trial of psychosocial treatments for opioid dependence (n=110)	RDC and DSM-III; SADS-L (Axis I plus ASPD),	Prevalence of ASPD: 19.1% (RDC) 45.5% (DSM-III)	RDC for ASPD require independence of antisocial symptomatology from substance use.

[a] DIS: Diagnostic Interview Schedule (DSM-III)
[b] ASPD: Antisocial personality disorder
[c] AABS: Adult antisocial behavioral syndrome
[d] CIDI-SAM: Composite International Diagnostic Interview - Substance Abuse Module
[e] SCID: Structured Clinical Interview for Axis I disorders
[f] SCID-II: Structured Clinical Interview for Axis II disorders
[g] WHO-CIDI: World Health Organization Composite International Diagnostic Interview
[h] PDE: Personality Disorder Examination
[i] DIS-III-R: Diagnostic Interview Schedule Version III-Revised
[j] SADS-L: Schedule for Affective Disorders and Schizophrenia - Lifetime Version

Table 4. Associations of Antisocial Behavioral Syndromes in Adulthood With Substance Use Disorders in Epidemiologic Samples

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
I. Alcohol use disorders (AUDs)				
Boyd et al. (1984)	Epidemiologic Catchment Area Survey sample, New Haven (n=5,034), Baltimore (n=3,481), and St. Louis (n=3,004) sites	DSM-III; DIS[a] (Axis I plus ASPD[b])	Unadjusted OR, ASPD and any past-month AUD: 15.5	
W. M. Compton, Conway, Stinson, Colliver, & Grant (2005)	Respondents to Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (total n=43,093)	DSM-IV; AUDADIS-IV[c] (Axis I plus 7 personality disorders including ASPD	Unadjusted ORs, ASPD and LT[d] AUDs: 8.0 in total sample, 5.7 among men, 9.3 among women (any LT AUD) 1.7 in total sample, 1.1 among men, 2.9 among women (LT EtOH[e] abuse) 7.8 in total sample, 6.0 among men, 8.9 among women (LT EtOH dependence) Unadjusted ORs, AABS[f] and LT AUDs: 7.6 in total sample, 6.3 among men, 8.3 among women (any LT AUD) 2.5 in total sample, 1.9 among men, 3.1 among women (LT EtOH abuse) 6.8 in total sample, 5.0 among men, 9.2 among women (LT EtOH dependence)	All ORs were statistically significant ($p < 0.05$) except that for ASPD associated with EtOH abuse among men. Sex-specific ORs were significantly ($p < 0.05$) greater for women than for men except in the case of ASPD associated with EtOH dependence.

Table 4. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Goldstein, Dawson, Saha, et al. (2007)	Respondents with any LT AUD in Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (n=11,843)	DSM-IV; AUDADIS-IV (Axis I plus 7 personality disorders including ASPD)	Prevalence of ASPD: 9.1% in total sample 10.4% among men 6.6% among women Prevalence of AABS: 29.0% in total sample 30.3% among men 26.4% among women	
Grant, Stinson, Dawson, Chou, Ruan, & Pickering (2004)	Respondents to Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (total n=43,093)	DSM-IV; AUDADIS-IV (Axis I plus 7 personality disorders including ASPD	Prevalence of ASPD (both sexes combined): 12.3% (any 12-month AUD) 7.4% (12-month EtOH abuse) 13.8% (12-month EtOH dependence) Unadjusted ORs, ASPD and any 12-month AUD: 4.8 (total sample), 3.5 (men), 6.2 (women) Unadjusted ORs, ASPD and 12-month EtOH abuse: 2.2 (total sample), 1.6 (men), 2.7 (women) Unadjusted ORs, ASPD and 12-month EtOH dependence 7.1 (total sample), 5.3 (men), 9.4 (women)	ORs were significantly ($p < 0.05$) greater for women than for men for any 12-month AUD and 12-month EtOH dependence.

Table 4. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Hasin, Stinson, Ogburn, & Grant (2007)	Respondents to Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (total n=43,093)	DSM-IV; AUDADIS-IV (Axis I plus 7 personality disorders including ASPD	ORs, ASPD and LT AUDs, adjusted for sociodemographic variables: 6.5 (any LT AUD) 1.5 (LT EtOH abuse) 5.4 (LT EtOH dependence) ORs, ASPD and LT AUDs, adjusted for sociodemographic variables and other psychiatric disorders: 2.2 (any LT AUD) 1.0 (LT EtOH abuse) 1.7 (LT EtOH dependence) ORs, ASPD and 12-month AUDs, adjusted for sociodemographic variables: 2.9 (any 12-month AUD) 1.5 (12-month EtOH abuse) 4.1 (12-month EtOH dependence) ORs, ASPD and 12-month AUDs, adjusted for sociodemographic variables and other psychiatric disorders: 1.5 (any 12-month AUD) 1.1 (12-month EtOH abuse) 1.7 (12-month EtOH dependence)	All LT and 12-month ORs were statistically significant ($p < 0.01$) except for those associated with EtOH abuse after adjustment for both sociodemographic variables and additional comorbidity.

Table 4. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Kessler, Crum, et al. (1997)	National Comorbidity Survey Sample (n=8098)	DSM-III-R; UM-CIDI[g] (Axis I plus ASPD)	Prevalence of ASPD, respondents with LT EtOH abuse: 6.1% among men 2.1% among women Prevalence of AABS, respondents with LT EtOH abuse: 8.8% among men 8.0% among women Prevalence of ASPD, respondents with LT EtOH dependence: 16.9% among men 7.8% among women Prevalence of AABS, respondents with LT EtOH dependence: 24.5% among men 13.9% among women Unadjusted ORs, ASPD and LT EtOH abuse: 1.2 (men), 2.1 (women) Unadjusted ORs, AABS and LT EtOH abuse: 1.0 (men), 4.2 (women) Unadjusted ORs, ASPD and LT EtOH dependence: 8.3 (men), 17.0 (women) Unadjusted ORs, AABS and LT EtOH dependence: 7.2 (men), 12.0 (women)	ORs for ASPD associated with EtOH abuse were not statistically significant for either sex. OR for AABS associated with EtOH abuse was statistically significant ($p < 0.05$) for women but not men. ORs for ASPD and AABS associated with EtOH dependence were statistically significant ($p < 0.05$) for both sexes. Sex-specific ORs did not differ significantly for either antisocial syndrome associated with either EtOH abuse or EtOH dependence.

Table 4. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Lewis, Bucholz, Spitznagel, & Shayka (1996)	St. Louis Epidemiologic Catchment Area Survey respondents with LT AUDs (n=1289)	DSM-III; DIS (Axis I plus ASPD)	Prevalence of ASPD: 15.3% among men 11.8% among women Prevalence of AABS: 19.3% among men 21.8% among women	Sex differences in prevalences were not statistically significant.
Regier et al. (1990).	Epidemiologic Catchment Area Survey sample (all sites, n=20,291)	DSM-III; DIS (Axis I plus ASPD)	Prevalence of ASPD among respondents with any LT AUD: 14.3% OR, ASPD and any LT AUD: 21.0	OR adjusted for sociodemographic variables
II. Drug use disorders (DUDs)				
Agosti, Nunes, & Levin (2002)	National Comorbidity Survey sample (n=8098)	DSM-III-R; UM-CIDI (Axis I plus ASPD)	Prevalence of ASPD among respondents with LT cannabis dependence: 21.4% Unadjusted OR (ASPD in respondents with vs. without LT cannabis dependence): 11.2	OR was statistically significant ($p < 0.001$). Other drug use disorders were not considered.
Boyd et al. (1984)	Epidemiologic Catchment Area Survey sample, New Haven (n=5,034), Baltimore (n=3,481), and St. Louis (n=3,004) sites	DSM-III; DIS (Axis I plus ASPD)	Unadjusted past-month OR, ASPD and any DUD: 24.2	

Table 4. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
W. M. Compton, Conway, Stinson, Colliver, & Grant (2005)	Respondents to Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (total n=43,093)	DSM-IV; AUDADIS-IV (Axis I plus 7 personality disorders including ASPD	Unadjusted ORs, ASPD and LT DUDs: 11.3 (total sample), 8.1 (men), 17.1 among women (any LT DUD) 5.4 in total sample, 4.2 among men, 6.2 among women (any LT drug abuse) 16.7 in total sample, 11.9 among men, 28.3 among women (any LT drug dependence) Unadjusted ORs, AABS and LT DUDs: 7.6 in total sample, 6.3 among men, 8.3 among women (any LT DUD) 2.5 in total sample, 1.9 among men, 3.1 among women (any LT drug abuse) 6.8 in total sample, 5.0 among men, 9.2 among women (any LT drug dependence)	All ORs were statistically significant ($p < 0.05$). Sex-specific ORs for any drug were significantly ($p < 0.05$) greater in women than men except in the case of ASPD and any drug abuse. Total-sample ORs for specific DUDs ranged from 4.4 for AABS with sedative dependence and inhalant abuse, to 23.0 for ASPD and tranquilizer dependence. Sex-specific ORs for specific drugs were significantly ($p < 0.05$) greater for women than men in the cases of ASPD with any amphetamine use disorder, amphetamine dependence, marijuana use disorders, any cocaine use disorder, and cocaine dependence; and AABS with any sedative use disorder, any tranquilizer use disorder and tranquilizer abuse, any opioid use disorder, amphetamine use disorders, any hallucinogen use disorder and hallucinogen abuse, any marijuana use disorder and marijuana abuse, any cocaine use disorder, and cocaine abuse.

Table 4. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
W. M. Compton, Y. F. Thomas, Stinson, & Grant (2007)	Respondents to Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (total n=43,093)	DSM-IV; AUDADIS-IV (Axis I plus 7 personality disorders including ASPD)	ORs, ASPD and LT DUDs, adjusted for sociodemographic variables: 7.8 (any LT DUD) 3.5 (any LT drug abuse) 11.1 (any LT drug dependence) ORs, ASPD and LT DUDs, adjusted for sociodemographic variables and other psychiatric disorders: 3.0 (any LT DUD) 1.6 (any LT drug abuse) 3.1 (any LT drug dependence) ORs, ASPD and 12-month DUDs, adjusted for sociodemographic variables: 6.4 (any 12-month DUD) 4.3 (any 12-month drug abuse) 9.7 (any 12-month drug dependence) ORs, ASPD and 12-month DUDs, adjusted for sociodemographic variables and other psychiatric disorders: 2.9 (any 12-month DUD) 2.5 (any 12-month drug abuse) 2.6 (any 12-month drug dependence)	All LT and 12-month ORs were statistically significant ($p < 0.01$)
Goldstein, W. M. Compton, Pulay, et al. (2007)	Respondents with any LT DUD in Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (n=4,068)	DSM-IV; AUDADIS-IV (Axis I plus 7 personality disorders including ASPD)	Prevalence of ASPD: 18.3% in total sample 20.7% among men 14.1% among women Prevalence of AABS: 42.4% in total sample 44.0% among men 39.4% among women	

Table 4. (Continued)

Study	Sample Ascertainment	Diagnostic Criteria and Assessment	Findings	Comment
Grant, Stinson, Dawson, Chou, Ruan, & Pickering (2004)	Respondents to Wave 1 National Epidemiologic Survey on Alcohol and Related Conditions (total n=43,093)	DSM-IV; AUDADIS-IV (Axis I plus 7 personality disorders including ASPD)	Prevalence of ASPD (both sexes combined): 22.7% (any 12-month DUD) 22.3% (any 12-month drug abuse) 39.5% (any 12-month drug dependence) Unadjusted ORs, ASPD and any 12-month DUD: 11.8 (total sample), 8.5 (men), 17.9 (women) Unadjusted ORs, ASPD and any 12-month drug abuse: 8.2 (total sample), 5.6 (men), 14.0 (women) Unadjusted ORs, any 12-month drug dependence: 18.5 (total sample), 14.8 (men), 22.6 (women)	OR for women significantly greater ($p < 0.05$) than OR for men associated with any 12-month DUD and 12-month drug abuse.
Regier et al. (1990)	Epidemiologic Catchment Area Survey sample (total n=20,291)	DSM-III; DIS (Axis I plus ASPD)	Prevalence of ASPD among respondents with any LT DUD: 7.8% OR, ASPD and any LT DUD: 13.4	OR adjusted for sociodemographic variables.
Russell, Newman, & Bland (1994)	Representative sample of household residents 18 years and older in Edmonton, Alberta (total n=3,258)	DSM-III; DIS (Axis I plus ASPD)	Prevalence of ASPD among respondents with any LT DUD: 17.6% Unadjusted OR (ASPD in respondents with vs. without any LT DUD: 19.7	

[a] DIS: Diagnostic Interview Schedule (DSM-III)
[b] ASPD: Antisocial personality disorder
[c] AUDADIS-IV: Alcohol Use Disorder and Associated Disabilities Interview Schedule - DSM-IV Version (Wave 1)
[d] LT: Lifetime
[e] EtOH: Alcohol
[f] AABS: Adult antisocial behavioral syndrome
[g] UM-CIDI: University of Michigan Composite International Diagnostic Interview

Variability in Prevalences of Comorbid Antisociality Among Clinical Samples Ascertained for Substance Use Disorders

The wide variability in rates of antisocial syndromes among patients in addiction treatment settings may in part reflect differences in assessment methodology as well as in source populations from which patients enrolled in treatment. As well, the study by Crits-Cristoph et al. (1999), in which relatively low rates of ASPD were observed, excluded patients with characteristics highly likely to be related to syndromal antisociality, including those with unstable living situations, imminent suicidality or homicidality, and pending incarceration or mandate for treatment by law enforcement or child protective authorities. In addition to these factors, however, an important methodologic consideration that may be reflected in the observed rates of antisocial syndromes among patients with DUDs is the inclusion versus exclusion of antisocial symptomatology not clearly separable from substance involvement. The RDC, employed by several of the studies reviewed herein (Rounsaville, Weissman, Kleber, & Wilber, 1982; Rounsaville, Anton, et al., 1991; Woody, McLellan, Luborsky, & O'Brien, 1985) count toward the ASPD diagnosis only antisocial symptomatology that is independent of substance use. Though Rounsaville, Kranzler, et al. (1998) and Mariani et al. (2008) used DSM-III-R and DSM-IV criteria, respectively, they also required independence of antisocial symptomatology from substance involvement. While the prevalence of antisocial syndromes increases substantially when substance-related symptomatology is counted toward diagnoses, the clinical profiles of patients with antisocial diagnoses are generally similar whether or not independence of antisociality from substance-related problems is required (Dinwiddie & Reich, 1993; Carroll, Ball, & Rounsaville, 1993; Rounsaville, Kranzler, et al., 1998). However, the reliability of narrowly defined diagnoses that require independence of antisocial behavior from substance involvement is considerably poorer than that of broadly defined diagnoses that count substance-related symptoms toward the diagnostic criteria (Carroll et al., 1993; Rounsaville, Kranzler, et al., 1998).

Prevalences and ORs of Antisocial Syndromes among Epidemiologically Ascertained Respondents with Substance Use Disorders

Alcohol Use Disorders

As detailed in Table 4, lifetime prevalences of ASPD among respondents in epidemiologic samples with any lifetime AUD, combined over both sexes, were lower than in many clinical samples, 14.3% in the ECA (Regier et al., 1990) and 9.1% in the NESARC (Goldstein, Dawson, Saha, et al., 2007). In the NESARC, an additional 29.0% of respondents with any lifetime AUD were classified with AABS. Sex-specific prevalences of ASPD among respondents with any lifetime AUD were 15.3% among men and 11.8% among women at the St. Louis ECA site (Lewis, Bucholz, Spitznagel, & Shayka, 1996) and 10.4% among men and 6.6% among women in the NESARC (Goldstein, Dawson, Saha, et al., 2007); for both male and female respondents in both surveys, particularly the NESARC, rates of AABS were higher than those of ASPD (Lewis et al., 1996; Goldstein, Dawson, Saha, et al., 2007).

When comorbidity of antisocial syndromes was considered separately in alcohol abuse and alcohol dependence, lifetime prevalences of both ASPD and AABS were higher in NCS respondents of both sexes who had lifetime dependence than in those with lifetime abuse

(Kessler, Crum, et al., 1997). The same pattern was found in mixed-sex analyses of ASPD among NESARC respondents with past-year alcohol abuse and dependence (Grant, Stinson, Dawson, Chou, Ruan, & Pickering, 2004).

Unadjusted comorbid associations of lifetime AUDs with lifetime antisocial syndromes were statistically significant and larger for dependence than for abuse in the NESARC (W. M. Compton, Conway, et al., 2005; Grant, Stinson, Dawson, Chou, Ruan, & Pickering, 2004), both for the total sample and in sex-specific analyses; similarly, in sex-specific analyses of the NCS (Kessler, Crum, et al., 1997). In the NESARC, but not the NCS, unadjusted ORs in the total sample and among men were significantly greater for AABS than for ASPD associated with lifetime alcohol abuse. In addition, sex-specific ORs among women tended to be significantly larger than those for men in the NESARC. In the ECA, the unadjusted past-month OR for ASPD associated with any AUD was 15.5 (Boyd et al., 1984); the sociodemographic-adjusted lifetime OR for ASPD associated with any AUD was 21.0 (Regier et al., 1990). In the NESARC, sociodemographic-adjusted ORs for lifetime and past-year AUDs were more modest than in the ECA but remained statistically significant ($p < 0.01$) and were numerically larger for dependence than for abuse. Those associated with lifetime and past-year dependence, but not abuse, remained significant, though further reduced, when additional comorbidity was also controlled (Hasin, Stinson, Ogburn, & Grant, 2007).

Drug Use Disorders

As shown in Table 4, rates of antisocial syndromes among epidemiologically ascertained respondents with lifetime DUDs overlapped with, but were generally lower than, those in DUD treatment samples. In analyses considering men and women together, lifetime prevalences of ASPD ranged from 17.8% to 27.6% (Agosti, Nunes, & Levin, 2002; Goldstein, W. M. Compton, Pulay, et al., 2007; Regier et al., 1990; Russell, Newman, & Bland, 1994). Similarly, among NESARC respondents with any 12-month DUD, the prevalence of lifetime ASPD was 22.7%; the parallel figures for 12-month drug abuse and 12-month dependence were 22.3% and 39.5%, respectively (Grant, Stinson, Dawson, Chou, Ruan, & Pickering, 2004). In the only epidemiologic study of which we are aware that considered AABS, lifetime rates were considerably higher than those of ASPD in the total sample and in both sexes with any lifetime DUD (Goldstein, W. M. Compton, Pulay et al., 2007).

As was the case with AUDs, unadjusted comorbid lifetime associations of DUDs with ASPD and AABS were statistically significant and larger for dependence than for abuse in the NESARC (W. M. Compton, Conway, et al., 2005; Grant, Stinson, Dawson, Chou, Ruan, & Pickering, 2004), both for the total sample and in sex-specific analyses. In the total NESARC sample and among men and women separately, unadjusted ORs for lifetime associations of ASPD with any DUD and drug dependence were significantly larger than the same ORs for AABS. As well, sex-specific unadjusted ORs for women tended to be significantly larger than those for men (W. M. Compton, Conway, et al., 2005). In the Edmonton survey, the unadjusted OR for lifetime ASPD and any lifetime DUD was 19.7 (Russell, Newman, et al., 1994); in the ECA, the parallel past-month figure for any DUD was 24.2 (Boyd et al., 1984). The sociodemographic-adjusted OR for lifetime ASPD associated with any lifetime DUD in the ECA was 13.4 (Regier et al., 1990). Sociodemographic-adjusted ORs for lifetime and past-year DUDs in the NESARC were more modest than in the ECA but statistically

significant ($p < 0.01$) and numerically larger for dependence than for abuse. After further adjustment for additional comorbidity, ORs for ASPD associated with lifetime and past-year DUDs remained significant but further reduced in magnitude (W. M. Compton, Y. F. Thomas, Stinson, & Grant, 2007).

Prevalences and ORs of Substance Use Disorders among Clinical and Epidemiologic Samples with Antisocial Syndromes

As with comorbidity of internalizing disorders, data on comorbidity of substance use disorders in antisocial patients are scarce. Among male former inpatients with ASPD followed up by Black, Baumgard, and Bell (1995), 66.7% met lifetime and 14.3% met current criteria for any DSM-III AUD; 14.3% met lifetime but none met current criteria for any DSM-III DUD.

Reported prevalences and measures of association of substance use disorders in epidemiologic samples with antisocial syndromes vary widely. Among ECA respondents with versus without active past-year ASPD, unadjusted prevalence ratios for past-year AUDs were 3.2 among men and 13.1 among women; for DUDs, 5.3 among men and 11.9 among women (L. N. Robins, Tipp, et al., 1991). In Edmonton, the lifetime prevalence (both sexes combined) of any AUD was 85.6%, and of any DUD, 34.6%, among respondents with ASPD, yielding unadjusted lifetime prevalence ratios of 6.0 and 6.5, in respondents with versus without ASPD (Swanson et al., 1994). As noted previously, Boyd et al. (1984) reported unadjusted past-month ORs of 15.5 and 24.2 for ASPD associated with any AUD and any DUD, respectively. Among NESARC respondents with lifetime ASPD, past-year prevalences of any AUD, alcohol abuse, and alcohol dependence were 28.7%, 9.5%, and 19.2%; past-year rates of any DUD, drug abuse, and drug dependence were 15.2%, 8.4%, and 6.8% (Grant, Stinson, Dawson, Chou, Ruan, & Pickering, 2004). Unadjusted ORs for ASPD associated with past-year AUDs were 4.8 (any), 2.2 (abuse), and 7.1 (dependence); for DUDs, 11.8 (any), 8.2 (abuse), and 18.5 (dependence; Grant, Stinson, Dawson, Chou, Ruan, & Pickering, 2004).

Comparing ASPD with AABS, Tweed et al. (1994) found a 6-month prevalence of any AUD of 32.9% in community-dwelling North Carolina ECA respondents with lifetime ASPD and 20.9% among those with AABS; these rates did not differ significantly. No community-dwelling North Carolina ECA respondent with either ASPD or AABS met 6-month criteria for any DUD. Taking a lifetime perspective in the NCS sample, Marmorstein (2006) reported prevalences of alcohol abuse of 75.0% in NCS respondents with ASPD and 66.4% among those with AABS (not significantly different); prevalences of alcohol dependence were 62.8% and 52.0% (significantly different, $p < 0.05$). Among NCS respondents with ASPD the lifetime prevalence of drug abuse was 56.1%; among those with AABS, 47.2% (not significantly different). As was the case with alcohol dependence, rates of drug dependence differed significantly ($p < 0.05$) between respondents with ASPD (47.7%) and those with AABS (36.6%)

Associations of Antisocial Syndromes in Adulthood with Clinical Presentation of Substance Use Disorders

Clinical Samples

In AUD and DUD treatment settings, ASPD and, based on more limited evidence, AABS, are associated with more severe clinical presentations. In particular, antisociality has been associated with earlier age at first use of substances (e.g., V. M. Hesselbrock & M. N. Hesselbrock, 1994; Liskow, B. J. Powell, Nickel, & Penick, 1991; Mariani et al., 2008; Morgenstern et al., 1997) and earlier onset of substance use disorders (Galen et al., 2000). Antisocial syndromes have also shown relationships to greater addiction severity (Galen et al., 2000; V. M. Hesselbrock & M. N. Hesselbrock, 1994; King, Kidorf, Stoller, Carter, & Brooner, 2001; Ladd & Petry, 2003; Liskow et al., 1991; Morgenstern et al., 1997; Westermeyer & Thuras, 2005), higher numbers of problem substances (e.g., Darke, Williamson, J. Ross, Teesson, & Lynskey, 2004; Grella et al., 2003; King et al., 2001; Morgenstern et al., 1997), and additional psychiatric comorbidity, including mood (Galen et al., 2000; Grella et al., 2003) and anxiety (Grella et al., 2003) disorders. Increased levels of both sexual (Broome, Joe, & Simpson, 1999; W. M. Compton, Cottler, Spitznagel, Ben Abdallah, & Gallagher, 1998; Ladd & Petry, 2003) and drug-related (Brooner, Bigelow, Strain, & Schmidt, 1990; Darke et al., 2004) HIV risk behaviors have also been reported in DUD treatment clients with ASPD.

Comparisons between addiction treatment clients with ASPD and those with AABS in clinical presentation of substance use disorders suggest that clients with AABS are more similar to than different from those with ASPD on most indicators of substance use history, addiction severity, and additional psychiatric comorbidity including mood and anxiety disorders (Cacciola, Rutherford, et al., 1994; Cacciola, Alterman, et al., 1995; Cecero, Ball, Tennen, Kranzler, & Rounsaville, 1999; Cottler, Price, et al., 1995; Goldstein, Powers, et al., 1998; V. M. Hesselbrock & M. N. Hesselbrock, 1994; Mariani et al., 2008). Notable exceptions included significantly earlier ages at first drink (V. M. Hesselbrock & M. N. Hesselbrock, 1994), first alcohol to intoxication (Goldstein, Powers, et al., 1998; V. M. Hesselbrock & M. N. Hesselbrock, 1994), first use of any drugs other than alcohol (Goldstein, Powers, et al., 1998) and many specific classes of drugs (Cottler, Price, et al., 1995), more years of lifetime regular use of any drug, alcohol to intoxication, cannabis, hallucinogens, and sedatives (Goldstein, Powers, et al., 1998), and lifetime arrest history (Cacciola, Alterman, et al., 1994) among respondents with ASPD.

Epidemiologic Samples

To our knowledge, only two epidemiologic studies, both based on the NESARC, have examined associations of antisocial syndromes with the clinical presentation of substance use disorders: Goldstein, Dawson, Saha, et al. (2007) with respect to lifetime AUDs, and Goldstein, W. M. Compton, Pulay, et al. (2007) with respect to lifetime DUDs. In both AUDs and DUDs, antisociality was significantly associated with clinical presentation, particularly ASPD with the most severe manifestations. Associations of AABS with phenomenology of both AUDs and DUDs were similar to, but generally somewhat more modest than, those of ASPD. Among respondents with AUDs, those with ASPD and AABS each reported earlier ages at first drink and onset of weekly drinking than those without any antisocial syndrome;

similarly, respondents with DUDs plus an antisocial syndrome in adulthood reported earlier first use of drugs and earlier onset of heaviest lifetime use of their most frequently used drug. In both studies, respondents with ASPD as well as those with AABS reported earlier first onsets of their substance use disorders than did never-antisocial respondents. Respondents with DUDs who had ASPD and those who had AABS reported lifetime use of more categories of drugs, and those with ASPD and men with AABS identified more categories of drugs associated with DUD diagnoses, than did those with no lifetime antisocial diagnosis. Both AUDs and DUDs were more polysymptomatic among respondents who were syndromally antisocial in adulthood than in those who were never antisocial. AUDs were also more persistent among both respondents with ASPD and those with AABS, but DUDs demonstrated increased persistence only among those with ASPD. Among respondents with AUDs, frequency of consumption of five or more drinks per day during respondents' heaviest lifetime drinking episode, and average volume of ethanol intake per day and per drinking day, were elevated among both groups who were syndromally antisocial in adulthood. However, overall frequency of consumption of largest quantity of drinks was elevated only among those with ASPD. Conversely, among respondents with DUDs, frequency of heaviest use of their most frequently used drug during the period of maximum lifetime use, and duration of heaviest use of the most frequently used drug, were elevated in association with both ASPD and AABS. Both among respondents with AUDs and among those with DUDs, ASPD and AABS were each associated with significantly greater lifetime prevalences of any additional PD, as well as any mood, any anxiety, and nicotine dependence disorders. Both antisocial syndromes in adulthood were also associated with significantly elevated prevalences of DUDs among respondents with lifetime AUDs, and similarly with elevated prevalences of AUDs among respondents with lifetime DUDs (Goldstein, W. M. Compton, Pulay, et al., 2007; Goldstein, Dawson, Saha, et al., 2007). By contrast, both among respondents with AUDs and among those with DUDs, pathological gambling was significantly more prevalent only among respondents who had ASPD.

Antisociality and Addiction Treatment: Utilization and Outcomes

Consistent with the generally greater prevalences of syndromal adult antisociality observed among addiction treatment clients than among general population respondents with substance use disorders, cross-sectional and retrospective studies suggest increased propensity of antisocial individuals with substance use disorders to utilize treatment or help for those disorders (Ford et al., 2009; Glanz et al., 2002; Goldstein, W. M. Compton, Pulay, et al., 2007; Goldstein, Dawson, Saha, et al., 2007; Murray, Anthenelli, & Maxwell, 2000). These findings appear compatible with greater and more impairing comorbidity in clinical samples (e.g., Berkson, 1946; Cohen, Feinn, Arias, & Kranzler, 2007). As well, behaviors symptomatic of antisocial syndromes, including criminal offenses and irresponsibility toward significant others that may be partly related to problematic substance use, may lead to treatment enrollment that is coerced by significant others, the criminal justice system, or other sources of influence (e.g., Polcin & Weisner, 1999; Gregoire & Burke, 2004; M. A. Sullivan et al., 2008).

Of note, however, a recent 3-year prospective study of 3,875 NESARC respondents with prevalent AUDs (Goldstein, Dawson, & Grant, 2010) found that neither ASPD nor AABS predicted AUD treatment after adjustment for predisposing, enabling, and need factors related

to treatment utilization. This discrepancy between cross-sectional and longitudinal results could reflect recall or reporting biases, or residual confounding, in cross-sectional investigations. Alternatively, associations of syndromal antisociality with AUD treatment might depend on age, developmental phase, or stage in the clinical trajectory of AUDs. The lack of prospective prediction of AUD treatment by ASPD and AABS could also reflect the relatively constrained length of the follow-up period and the need for longer time on study over multiple developmental phases (e.g., adolescence, early adulthood, middle adulthood) to observe significant antisociality effects.

For reasons that remain unclear, prediction of addiction treatment outcomes by antisocial syndromes has been inconsistent. With regard to AUD treatment, ASPD predicted poorer drinking-related outcomes (Hunter et al., 2000; Kranzler, Del Boca, & Rounsaville, 1996; Rounsaville, Dolinsky, Babor, & Meyer, 1987), as well as more psychosocial (Rounsaville, Dolinsky, et al., 1987) and medical (Rounsaville, Dolinsky, et al., 1987) problems at posttreatment follow-up assessments 1 (Rounsaville, Dolinsky, et al., 1987), 3 (Kranzler et al., 1996), and 10 to 14 years (Hunter et al., 2000) postdischarge across a range of modalities. However, more recent studies found no differences between antisocial and nonantisocial alcoholic clients (Ralevski, Ball, Nich, Limoncelli, & Petrakis, 2007; Verheul et al., 1999), in any drinking or addiction severity outcomes, nor between antisocial clients with ASPD and those with AABS (Verheul et al., 1999) in any domain of addiction severity except co-occurring drug problems. By contrast, Longabaugh et al. (1994) found that AUD treatment clients with DSM-III ASPD achieved a greater percentage of days abstinent than those without ASPD at 12 to 18 months after treatment initiation, irrespective of whether they were randomized to a cognitive-behavioral or a relationship enhancement treatment condition. Further, clients with ASPD who were randomized to cognitive-behavioral treatment consumed, on average, fewer drinks per drinking day during the first 6 months of follow-up than both clients with ASPD who were randomized to relationship enhancement treatment and those without ASPD who were assigned to cognitive-behavioral treatment. However, Kadden, Litt, Cooney, Kabela, and Getter (2001) were unable to replicate this matching effect of antisociality with cognitive-behavioral treatment in a subsequent study.

Similarly, DUD treatment clients with ASPD have shown poorer within- (Leal, Ziedonis, & Kosten, 1994) and posttreatment outcomes at follow-ups ranging from 7 months to 5 years with respect to substance use (Basu, Ball, Feinn, Gelernter, & Kranzler, 2004; W. M. Compton, Cottler, Jacobs, Ben Abdallah, & Spitznagel, 2003; Fridell, Hesse, & E. Johnson, 2006; Grella et al., 2003; King et al., 2001; Woody, McLellan, et al., 1985), psychosocial functioning (Basu et al., 2004; Rounsaville, Kosten, Weissman, & Kleber, 1986), and medical, employment, legal, and psychiatric problems (Alterman, Rutherford, Cacciola, McKay, & Woody, 1996; Basu et al., 2004; Fridell et al., 2006; Grella et al., 2003; McKay, Alterman, Cacciola, Mulvaney, & O'Brien, 2000; Woody, McLellan, et al., 1985), as well as poorer response to HIV risk reduction interventions (W. M. Compton, Cottler, Ben Abdallah, Cunningham-Williams, & Spitznagel, 2000); among clients with ASPD. Cocaine-dependent clients with ASPD were also more likely to utilize additional addiction and mental health treatment over a 5-year follow-up than those without ASPD (Grella et al., 2003). Some studies have noted better addiction treatment outcomes among clients with both ASPD and MDD than among those with ASPD and no MDD (Alterman et al., 1996; Cecero et al., 1999; Woody, McLellan, et al., 1985), possibly reflecting heightened client motivation for change due to painful affects (Cecero et al., 1999). Other studies have shown no deleterious effect of

ASPD on response to addiction treatment, including interventions for HIV risk reduction (e.g., Brooner, Kidorf, King, & Stoller, 1998; Marlowe, Kirby, Festinger, Husband, & Platt, 1997; Schottenfeld, Pakes, & Kosten, 1998; Woody, Gallop, et al., 2003). Of note, Messina, Farabee, and Rawson (2003) found methadone maintained, opioid-dependent clients with cocaine dependence and comorbid ASPD more likely to achieve and sustain abstinence from cocaine, as determined by urine toxicology, than those without ASPD, particularly when randomized to a contingency management condition.

Few studies have compared addiction treatment outcomes between clients with ASPD and those with AABS. In a sample combining inpatients and outpatients, Cecero et al. (1999) found that those with ASPD reported more days in the past 30 of psychiatric problems than those with AABS. However, they identified no differences in other outcomes, including those related to substance consumption. Similarly, Cacciola, Alterman, et al. (1995) reported that no substance use or addiction severity outcome they assessed differed significantly between respondents with ASPD and those with AABS in a combined sample of inpatients and day hospital patients treated for cocaine or alcohol dependence. Goldstein, Bigelow, et al. (2001) examined time to and severity of first use of substances among clients discharged from residential relapse prevention/health education treatment for DUDs. In that study, respondents with ASPD were at most modestly more likely than those with AABS to self-report use of drugs other than alcohol by 210 days after treatment entry. The majority of respondents returned at their first slip to their primary problem drug identified at treatment entry, and reported a median of 2 days of use of either drugs other than alcohol, or alcohol to intoxication, following the first lapse, regardless of antisocial classification.

Associations of Substance Use Disorders with Clinical Characteristics and Course of Antisociality

We could identify no studies of associations of substance use disorders with clinical presentation of antisocial syndromes, and only three that prospectively addressed the course of antisocial syndromes in relation to substance use disorders. Among clinically ascertained samples, L. N. Robins (1966) did not find alcohol problems associated with remission or improvement of antisociality among former child guidance patients with sociopathic personality disorder; she did not report data concerning problems related to other drugs. Conversely, Black, Monahan, Baumgard, and Bell (1997) noted that men formerly hospitalized with ASPD who had current AUDs at follow-up were less likely to have achieved remission from ASPD. In a recent prospective study based on the NESARC, Goldstein and Grant (2009) found that lifetime DUDs assessed at Wave 1 predicted persistent antisocial symptomatology over 3-year follow-up among respondents with ASPD or AABS after adjustment for sociodemographic variables, additional comorbidity, and count of antisocial symptoms from age 15 years to the Wave 1 (baseline) interview.

OTHER PERSONALITY DISORDERS

No data have been reported concerning Axis II comorbidity involving AABS. Among clinical samples, borderline PD is the Axis II diagnosis for which the most data are available

concerning comorbid ASPD. Based on DSM-III-R criteria, prevalences of ASPD in mixed-sex analyses were 22.7% (Zanarini, Frankenburg, Dubo, et al., 1998) and 26.0% (Becker, Grilo, Edell, & McGlashan, 2000) among inpatients with borderline PD. McGlashan et al. (2000), using DSM-IV criteria, found a prevalence of ASPD of 15.4% among outpatients ascertained for borderline PD. Sex-specific prevalences of DSM-III-R ASPD among men and women with borderline PD were 48.0% and 15.5%, respectively (Zanarini, Frankenburg, Dubo, et al., 1998); according to DSM-IV criteria, rates of ASPD were 29.7%-57.1% among men and 10.3%-25.5% among women (D. M. Johnson et al., 2003; McCormick et al., 2007; Tadić et al., 2009). In all studies reporting sex-specific prevalences of ASPD, rates were significantly different between men and women.

Considering the comorbidity of ASPD in other PDs, the only information that has been reported from clinical samples comes from the Collaborative Longitudinal Study of Personality Disorders (McGlashan et al., 2000). This study found prevalences of DSM-IV ASPD among respondents ascertained for schizotypal, avoidant, and obsessive-compulsive PDs of 12.8%, 5.2%, and 2.0%, respectively.

Epidemiologic data on comorbidity between ASPD and other PDs to date are only available from the NESARC (Grant, Chou, Goldstein, et al., 2008; Grant, Stinson, Dawson, Chou, & Ruan, 2005; Stinson, Dawson, Goldstein, et al., 2008; Pulay et al., 2009). Unadjusted ORs for associations of ASPD with paranoid, schizoid, histrionic, avoidant, dependent, and obsessive-compulsive PDs were statistically significant ($p < 0.05$), ranging from 4.9 (obsessive-compulsive) to 10.7 (dependent; Grant, Stinson, Dawson, Chou, & Ruan, 2005). Prevalence of ASPD among respondents with borderline PD was 13.7% (19.4% among men, 9.0% among women); conversely, among respondents with ASPD, 21.0% (18.3% of men, 28.7% of women) were comorbid for borderline PD. Sociodemographic-adjusted ORs were statistically significant (3.5 in the total sample, 3.3 among men, and 3.9 among women, $p < 0.01$ in each case). However, after further adjustment for additional psychiatric comorbidity, associations of borderline PD with ASPD were no longer significant either in the total sample (OR=1.0) or separately by sex (ORs=0.9 in men and 1.0 in women; Grant, Chou, Goldstein, et al., 2008).

Similarly, among respondents with narcissistic PD, 11.8% (14.4% of men, 7.9% of women) had comorbid ASPD. Conversely, 18.9% of respondents (18.7% of men, 19.8% of women) with ASPD also had narcissistic PD. As with borderline PD, sociodemographic-adjusted ORs for comorbidity of narcissistic PD and ASPD were statistically significant ($p < 0.01$) in the total sample (3.0) and separately for men (2.7) and women (4.0). Again, however, after further adjustment for additional comorbidity, these comorbid associations were no longer significant (ORs=1.2 in the total sample, 1.1 among men, and 1.5 among women; Stinson, Dawson, Goldstein, et al., 2008).

Comorbid ASPD was observed in 16.1% (22.1% of men, 9.7% of women) of respondents with schizotypal PD. Conversely, schizotypal PD was found in 16.5% (15.8% of men, 18.4% of women) with ASPD. Sociodemographic-adjusted ORs for comorbidity of schizotypal PD and ASPD were statistically significant ($p < 0.01$) in the total sample (4.3) and separately for men (4.2) and women (4.7). After further adjustment for additional psychopathology, ORs remained statistically significant, but at reduced magnitude, in the total sample (1.5) and among men (1.5), but not among women (1.4; Pulay et al., 2009).

To our knowledge, the only clinical studies examining Axis II comorbidity as a factor in the course and outcome of PDs have been conducted among samples ascertained for

borderline PD (Stone, 1990; Zanarini, Frankenburg, Vujanovic, et al., 2004). In addition to findings reviewed earlier in this chapter concerning associations of comorbid ASPD with higher levels of lethality of suicide attempts among patients with borderline PD, Stone (1990) found poorer clinical outcomes associated with co-occurring ASPD. Zanarini, Frankenburg, Vujanovic, et al. (2004), however, found that comorbid ASPD was not associated with remission of borderline PD.

Conversely, we are aware of only one study examining co-occurring PDs as related to the course of syndromal antisociality in adults. Goldstein and Grant (2009) found that the presence of any additional PD diagnosis independently predicted persistence of antisocial behavior over 3-year follow-up among NESARC respondents with ASPD and AABS after adjustment for sociodemographic characteristics, additional comorbidity, and ASPD symptom count from age 15 years to baseline (Wave 1) interview.

PHYSICAL HEALTH AND MEDICAL CARE UTILIZATION

Comorbid ASPD in Medical Patients

We were able to identify no studies addressing comorbidity of AABS in medical patients. In a random sample of adult patients recruited from the offices of 64 primary care physicians, 4.9% (8.0% of men, 3.1% of women) were diagnosed with DIS-III-R/DSM-III-R ASPD (Barry, Fleming, Manwell, & Copeland, 1997), somewhat higher than the rates of DSM-III-R ASPD reported from the general population in the NCS (5.8% among men and 1.2% among women; cf. Kessler, McGonagle, et al., 1994). Considering antisociality in patients with specific medical diagnoses, data obtained from clinical diagnoses, structured interviews, or diagnostic questionnaires are once again scarce. Popkin and colleagues (Popkin, Callies, Colon, Lentz, & Sutherland, 1993; Popkin, Callies, Lentz, Colon, & Sutherland, 1988) found lifetime rates of DIS/DSM-III ASPD of 6.1% (14.8% of men, 2.1% of women) to 7.9% among patients with diabetes mellitus being evaluated for pancreatic transplantation. These rates are somewhat greater, particularly for men, than those reported in the ECA of 3.4% (5.8% among men, 1.2% among women; L. N. Robins, Tipp, et al., 1991). Interestingly, these elevated prevalences of ASPD were unlikely to be explained by rates of substance use disorders, which were not markedly greater than those reported in the general population from the ECA (cf. Helzer, Burnam, & McEvoy, 1991; Anthony & Helzer, 1991). Elevations in rates of DSM-III-R and DSM-IV ASPD were more striking among sexually transmitted disease clinic patients, including 15.0%-29.4% of men and 6.1% of women (Ellis, Collis, & King, 1995; Erbelding, Hutton, Zenilman, Hunt, & Lyketsos, 2004). Of note, in both these studies, rates of alcohol and other drug use disorders were considerably greater than those observed in the general population under parallel diagnostic systems (Kessler, McGonagle, et al., 1994; W. M. Compton, Conway, et al., 2005). Rates of DSM-III-R ASPD among patients with traumatic injuries were also elevated, with 28.3% of trauma center patients who had intentional injuries (excluding suicide attempts) and 9.5% of those who had unintentional injuries meeting lifetime diagnostic criteria (Poole et al.., 1997).

Comorbid Antisocial Syndromes among Epidemiologically Ascertained Respondents with General Medical Conditions

Among NESARC respondents reporting that a health care professional had told them within the past 12 months that they had arthritis, the prevalence of ASPD was significantly ($p < 0.05$) greater (4.1%) than that among respondents with no past-year diagnosis by a health care provider of arthritis (3.5%, OR for ASPD versus no ASPD adjusted for sociodemographic characteristics and psychiatric and additional general medical comorbidity=2.1; McWilliams, Clara, Murphy, Cox, & Sareen, 2008). Antisociality was significantly ($p < 0.05$) associated with body mass index (BMI) status, measured as kilograms of weight (kg) per meter squared (m^2) of height, among female but not among male NESARC respondents. After adjustment for sociodemographic variables, tobacco, alcohol, and drug use, and psychiatric comorbidity, and with those pregnant at interview excluded, the OR for ASPD versus no ASPD (respondents with AABS and histories of nonprogressive CD included in the comparison group) with overweight (BMI=25.0-29.9 kg/m^2) versus healthy weight (BMI=18.5-24.9 kg/m^2) was 1.5 and that associated with extreme obesity (BMI $\geq$ 40 kg/m^2) versus healthy weight was 1.9 (Pickering, Grant, Chou, & W. M. Compton, 2007). Associations were similar but ORs were slightly greater when women with ASPD were compared to women with no lifetime antisocial syndrome (1.7 for overweight and 3.2 for extreme obesity; Goldstein, Dawson, Stinson, et al., 2008). AABS was associated with obesity (BMI=30.0-39.9 kg/m^2) (OR=1.2) and extreme obesity (OR=1.7; Goldstein, Dawson, Stinson, et al., 2008).

General Medical Comorbidity in Antisocial Syndromes

To our knowledge, no data have been reported on general medical conditions in patients ascertained for antisocial syndromes. Among NESARC respondents, prevalences and odds of several chronic conditions diagnosed by health care providers during the 12 months preceding the Wave 1 NESARC interview were significantly ($p < 0.05$) but modestly elevated among antisocial respondents (Goldstein, Dawson, Chou, et al., 2008). After adjustment for sociodemographic characteristics, psychiatric comorbidity, BMI, and tobacco, alcohol, and drug use, ASPD (versus no lifetime antisocial syndrome) was associated with increased odds of coronary heart disease (angina pectoris, arteriosclerosis, or myocardial infarction, OR=1.5), liver disease (OR=2.9), gastrointestinal disease (stomach ulcer or gastritis, OR=1.5), and injuries severe enough to require medical care or restricted activity for more than half a day (ORs=1.6 for one versus none, and 2.0 for two or more versus none), as well as one, two, or three or more total past-year medical diagnoses versus none (ORs=1.3-2.0). AABS was associated with coronary (OR=1.3) and noncoronary (tachycardia or "any other," OR=1.3) heart disease, gastrointestinal disease (OR=1.4), and clinically significant injuries (ORs=1.5 for one versus none, and 2.0 for two or more versus none), as well as total past-year diagnoses (ORs=1.3-1.6). A statistically significant ($p < 0.05$) sex by antisocial syndrome interaction identified associations of ASPD with arthritis in both men (OR=2.2) and women (OR=1.4), but with AABS only in men (OR=1.4).

Associations of Antisociality with Medical Care Utilization and Outcomes

In the total NESARC sample (Goldstein, Dawson, Chou, et al., 2008), respondents with ASPD and AABS were significantly ($p < 0.05$) more likely than nonantisocial respondents to report both a single ED encounter (OR=1.3 in both groups) and two or more such visits (OR=2.2 for ASPD, 1.7 for AABS). Similarly, respondents with ASPD and those with AABS were significantly more likely than nonantisocial respondents to report both one (ORs=1.6 and 1.3, respectively) and two or more (OR=1.6 and 1.4) inpatient admissions. With regard to total number of inpatient days, ASPD was significantly associated with three or more (OR=1.9) versus none, but not one or two, whereas AABS was associated with both categories (ORs=1.3).

Within the subgroup of NESARC respondents reporting that a health care professional told them within the past 12 months that they had hypertension, prevalences of lifetime ASPD were significantly higher among those with any ED visits than among those with none in the past year (OR adjusted for sociodemographic characteristics and additional comorbidity=1.7). Similar associations were observed between ASPD and any past-year inpatient hospital treatment among NESARC respondents reporting health care provider-diagnosed hypertension in the past year (OR =1.9; Wagner, Pietrzak, & Petry, 2008).

Associations between antisocial syndromes and outcomes of general medical care have received little attention. However, patients with chronic, disabling occupational spinal disorders plus ASPD were significantly more likely than those without ASPD to fail to complete an interdisciplinary rehabilitation program (OR for noncompletion=2.4, adjusted for psychiatric comorbidity; Dersh et al., 2007). Considering other outcomes of medical care, recent reports concluded that caution may be warranted in listing patients for cardiothoracic (e.g., Stilley et al., 2005) and hepatic (e.g., Kotlyar, Burke, Campbell, & Weinrieb, 2008) transplantation, based on considerations including compliance with postoperative lifestyle and medical regimen requirements and substance-related recidivism (Bunzel & Laederach-Hofmann, 2000). However, we could not identify studies specifically reporting associations of ASPD or AABS with suboptimal outcomes of any organ transplantation.

CONCLUSIONS AND IMPLICATIONS

It is clear that ASPD is associated with excess health burden, including mortality, suicidality, general medical morbidity and psychiatric comorbidity, and potentially avoidable utilization of costly hospital care resources. Considerable evidence suggests that ASPD is also associated with greater clinical severity of substance use disorders and, less consistently, poorer addiction treatment outcomes. Data are more limited concerning AABS. However, while more modest in magnitude, patterns of associations are in general similar to those observed with ASPD. Findings concerning the similarities between AABS and ASPD indicate the clinical and public health importance of AABS, calling into question the requirement under DSM criteria of CD with onset before age 15 years for the diagnosis of clinically serious antisociality in adults (Black & Braun, 1998; Cottler, Price, et al., 1995; Goldstein & Grant, 2009).

While some associations, particularly those reported as unadjusted ORs or prevalence ratios, are strikingly large, many other relationships between antisocial syndromes and co-occurring diagnoses, particularly general medical conditions, are small to moderate. Nevertheless, both syndromal antisociality and many co-occurring conditions are common (W. M. Compton, Conway, et al., 2005; Goldstein, Dawson, Chou, et al., 2008; Grant, Stinson, Dawson, Chou, Ruan, & Pickering, 2004; Grant, Hasin, Stinson, Dawson, Chou, et al., 2005). Moreover, they are associated with sufficient morbidity, mortality, and cost (Cave et al., 2007; Garstang & Stitik, 2006; Joish et al., 2005; Reuben, 2006; Sandler et al., 2002; Watkins, 2004; Wiebe, Nance, & Branas, 2006; Williams & Iredale, 1998) that any increases associated with antisociality may be important from clinical, public health, and economic perspectives.

Many relationships between antisociality and morbidity, mortality, and patterns of medical care utilization identified by investigations reviewed herein are plausible in light of the defining characteristics of antisocial syndromes in adulthood. For example, the associations of syndromal antisociality with suicidality could reflect deficits in executive functioning, including increased impulsivity and reduced ability to anticipate negative consequences (e.g., Dinn & Harris, 2000; Dolan & Park, 2002). These associations could also reflect increased propensities toward interpersonal problems or difficulties in obtaining adequate social support (Nock et al., 2008), as the behaviors characteristic of this disorder may alienate spouses or partners, family members, and other potentially important support people (e.g., Black, Baumgard, & Bell, 1995; L. N. Robins, 1966). Similarly, excesses of clinically significant injuries, and of some forms of arthritis, particularly ones like osteoarthritis that can be sequelae of injuries, might be expected in light of the propensities toward aggressive and violent behavior that are characteristics of DSM-defined antisocial syndromes (e.g., Coid et al., 2006; Goldstein, Dawson, Chou, et al., 2008). The impulsivity and disregard for norms and rules that are characteristic of antisocial adults could be expected to limit their willingness or ability to form effective partnerships with community-based care providers, thereby compromising their ability to manage their health needs as outpatients and leading to disproportionate utilization of more costly resources such as inpatient and ED services (Goldstein, Dawson, Chou, et al., 2008; Ward, 2004). Then, too, the greater clinical severity of substance use disorders among syndromally antisocial adults is compatible with higher loading, and greater severity, of these comorbid individuals along the spectrum of externalizing conditions (W. M. Compton, Conway, et al., 2005; Kendler, Prescott, Myers, & Neale, 2003; Kirisci, Vanukov, Dunn, & Tarter, 2002; Krueger et al., 2002; Markon & Krueger, 2005).

Nevertheless, the actual mechanisms underlying these associations, and potential sources of heterogeneity therein, are incompletely understood and warrant more definitive characterization in prospective studies. Ideally these studies would span respondents' childhood, adolescent, and at least early adult development to allow observation of the evolution of antisociality, its antecedents, and its correlates and potential consequences. In addition, potentially confounding and effect-modifying characteristics, both individual-level variables such as sociodemographics and additional psychiatric comorbidity, and multiple levels of contextual factors, such as developmental phase-specific family environment and neighborhood and community features, require careful assessment across waves of data collection and appropriate consideration in statistical analyses.

While many sources of burden related to antisocial behavioral syndromes in affected adults have been identified, albeit not fully elucidated, other potential domains remain unexplored. Specific associations of antisociality, as opposed to Axis II pathology in general or specific clusters of PDs, with clinical presentation and course of common general medical conditions remain to be characterized. Similarly, with regard to most internalizing disorders. As discussed earlier in this chapter, antisocial adults may be less likely than nonantisocial ones to seek treatment for most internalizing disorders, whether by their own design or because clinicians or treatment programs exclude them, either directly or indirectly (e.g., by excluding individuals with substance use disorders or unstable life circumstances disproportionately associated with antisociality). As was also discussed earlier in this chapter, while differences between antisocial individuals comorbid versus noncomorbid for anxiety disorders did not reach statistical significance even in large epidemiologic samples, some evidence suggests the possibility that comorbid individuals may be more impaired or distressed than those who are antisocial but without anxiety disorders. Therefore, it is important to determine the extent and nature of, and the mechanisms underlying, any selection biases against treatment entry for anxiety disorders among affected individuals who are also antisocial, in order to develop appropriate strategies for mitigating these. Similar investigations concerning comorbidity of antisociality with mood disorders are also indicated.

The evidence reviewed in this chapter has addressed many aspects of burden specifically on individuals with antisocial syndromes. However, the characteristic features of antisociality, including aggressive and violent behavior, impulsivity, recklessness, irresponsibility, and lack of remorse over violating the rights of others, inevitably have substantial adverse impacts on people other than the antisocial individuals themselves (e.g., Black & Larson, 1999). Nevertheless, to our knowledge, no studies have yet attempted to characterize or quantify specific adverse impacts of antisociality, whether in the domains of physical or mental health, economic losses, or legal or social consequences, on other persons. In addition to identifying the nature, magnitude, and unique relationships to antisociality of these impacts, future research should attempt to quantify the number of identifiable others who are affected by each antisocial individual and identify the nature of the relationships between antisocial individuals and the other persons affected by their antisociality (e.g., intimate partners, family members, friends, coworkers, acquaintances, with some other social connection, or random, unconnected individuals). Findings of such investigations may help inform the development of services to address the general medical, mental health, and social and legal service needs of those affected by antisocial individuals.

To our knowledge, no study to date has attempted to estimate either direct or indirect costs related specifically to syndromal antisociality for individuals with these syndromes, family members and others socially connected to those individuals, systems providing medical care, social services, or law enforcement, or other aspects of the larger society. Nevertheless, the studies reviewed herein make it reasonable to conclude that these costs are likely to be substantial. Among the implications of both the economic and the noneconomic burdens associated with ASPD and AABS is the need to expand the range of effective, culturally appropriate prevention strategies against antisocial syndromes over the life course. Several prevention curricula have demonstrated effectiveness against conduct problems among children and adolescents (see review by N. R. Powell, Lochman, & Boxmeyer, 2007). However, these programs are typically resource intensive and demand sustained, active participation on the part of targeted youth and their families, whereas the ability of these

families to participate at the requisite level may be challenged by life problems in multiple domains (e.g., Dodge & Pettit, 2003; Nix et al., 2009). Moreover, we are aware of no prevention curricula specifically targeting, or with demonstrated effectiveness against, later onsets of antisociality such as AABS, or the progression of CD to ASPD among adolescents or young adults.

Eventual remission of ASPD, at least as measured by symptom resolution, appears to be the rule (Black, Baumgard, & Bell, 1995; L. N. Robins, 1966; L. N. Robins, Tipp, et al., 1991; Swanson et al., 1994); recent epidemiologic data suggest that this may also be the case for AABS (Goldstein & Grant, 2009). Whether symptomatic remission translates to favorable outcomes in domains of psychosocial functioning and quality of life remains unclear. Regardless of the relationship between symptomatic remission and functional status, however, ASPD symptom resolution typically begins in the fourth or fifth decade (Black, Baumgard, & Bell, 1995; Bland, Newman, & Orn, 1997; L. N. Robins, 1966), indicating considerable persistence of antisocial behavior through early and middle adulthood. As noted earlier in this chapter, few individuals with ASPD seek treatment specifically for that disorder (L. N. Robins, Tipp, et al., 1991). No study to date has examined treatment utilization specifically for AABS, in part because it is not a codable DSM diagnosis. ASPD, however, is poorly responsive to existing treatments (e.g., Gibbon et al., 2010); the similarity of AABS to ASPD in most other domains suggests that AABS is unlikely to respond markedly better than ASPD. The high burden on affected individuals, their families, and society, combined with the poor response of ASPD to existing treatments, and resulting pessimism, nihilism, and lack of desire on the part of clinicians to work with these individuals (e.g., Reid & Gacono, 2000), thus argues forcefully for continued research aimed at identifying and disseminating effective therapeutic interventions for antisocial adults. One strategy that may warrant investigation involves addressing specific antisocial symptoms, such as violence against persons or property, through narrowly targeted approaches such as anger management.

Given the apparent similarities between ASPD and AABS, treatment research targeting antisociality in adults needs to examine whether modalities being developed and tested are differentially effective in ways associated with age or developmental phase of onset of antisociality. In addition, future studies should investigate appropriate prioritization and sequencing of treatments for antisociality relative to those for co-occurring mood, anxiety, and substance use disorders, as well as general medical problems. Research should also examine possible approaches to working around antisociality-related challenges to engagement of patients in treatment either for antisocial syndromes or for comorbid conditions, including those posed by disregard for rules, dishonesty, impulsivity, and recklessness. Strategies potentially meriting exploration might include the identification of ways for antisocial patients to maximize their near-term gratification through outcomes valued by them that also promote improvements in their clinical status, including symptomatology and comorbidity of other mental disorders, as well as more desirable behaviors in their interactions with other people.

Moreover, the finding by Goldstein and Grant (2009) that comorbid lifetime DUDs, additional PDs, and attention-deficit/ hyperactivity disorder independently predicted persistence of antisocial symptomatology over a 3-year follow-up among NESARC respondents with ASPD and AABS suggests the value of investigating the effectiveness of available evidence-based treatments for these comorbid conditions in hastening the desistance of antisociality. The relationship of symptomatic desistance to improvements in functional

status and quality of life, as well as to reductions in other sources of health- and mental health-related, legal, economic, and social burden on antisocial individuals and those around them, should also be examined.

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Chapter 2

ANTISOCIAL BEHAVIOR IN CHILDREN WITH ADHD: CAUSES AND TREATMENT

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ABSTRACT

Attention Deficit/Hyperactivity Disorder (ADHD) is a prevalent disorder among school aged children and adolescents worldwide. Many children and adolescents with ADHD exhibit antisocial behavior that usually takes the form of aggression or conduct disorder. This chapter starts with definitions of ADHD and antisocial behaviors, while it reviews recent studies on the aetiology of this behavior. Since genes and physiology alone do not determine behavior, emphasis will be placed also on the role that the environment plays in creating and shaping certain antisocial behaviors. There will be reference to academic and social underachievement that may trigger antisocial behavior in children and young adults with ADHD, as well as other family factors. The last part of the chapter will focus on interventions that can effectively address the antisocial behavior of children and adolescents with ADHD and involve not only individuals, but also their families and their communities.

1. DEFINING ADHD

Attention-deficit/hyperactivity disorder (ADHD) is one of the most common childhood neurodevelopmental disorders that is characterized by severe inattention, overactivity, and impulsiveness (Castellanos & Tannock, 2002). The symptoms of ADHD appear before the age of 7 with higher prevalence for boys than girls (American Psychiatric Association, 1994). Data from community samples reveal that the ratio of boys to girls range from 1:1 to 3:1, with ADHD being more prevalent among males for all the subtypes. The predominantly inattentive type is the most prevalent among the three subtypes for females (Skounti, Philalithis, & Galanakis, 2007). Children with ADHD are likely to face problems in adolescence and adulthood with academic achievement, interpersonal conflict resolution skills (Kalyva &

Agaliotis, in press), cigarette smoking (Kalyva, 2007), drug and alcohol misuse (Wilson, 2007), as well as involvement in criminal activities (Harpin, 2005; Mannuzza & Klein, 2000). One of the characteristic features of ADHD is its heterogeneity, since it presents a variety of clinical features and outcomes (Hechtman, 1999). Among the three types of ADHD, studies using DSM-IV criteria show that the predominantly inattentive type is the most common, followed by the combined type and the hyperactive-impulsive type (Skounti et al., 2007).

ADHD affects approximately 2% of children from 3 to 5 years old (Lavigne et al., 1996) and can lead to chronic behavioral/academic impairment (Pierce, Ewing, & Campbell, 1999). Data reveals that 30–50% of ADHD symptoms persist well into adulthood and this means that 11–31% of children with ADHD still meet the full criteria for ADHD diagnosis as adults (Weiss, Hechtman, & Weiss, 1999). Young children with ADHD attending preschool/day-care settings prefer to engage in sensorimotor play and to get involved constantly in different play activities, while they also avoid interacting with peers (Alessandri, 1992). Use of medical services is quite common among children with ADHD either because of physical injuries resulting from impulsive and overactive behavior (Lahey et al., 1998) or because of monitoring of pharmacotherapeutic intervention (Zito et al., 2000). When children with ADHD enter school, they usually possess less prereading, maths, and fine motor skills than their typically developing peers (Lahey et al., 1998; Mariani & Barkley, 1997; Shelton et al., 1998), while minimal research has been conducted on the skills of preschoolers with ADHD (DuPaul et al., 2001).

The prevalence of ADHD varies worldwide with percentages ranging from 2.2 to 17.8% (Skounti et al., 2007) and with the worldwide-pooled prevalence being 5.29% but including significant variance (Polanczyk, de Lima, Horta, Biederman, & Rohde, 2007). This variance in prevalence rates over the world is attributed to differences in 'diagnostic criteria, source of information, requirement of impairment for diagnosis, and geographic origin of the studies' (Doepfner et al., 2008, p. 60). It should be pointed out that there are differences in prevalence rates according to the diagnostic criteria used. More specifically, studies using DSM-IV criteria reported higher rates than studies using DSM-III-R criteria (Skounti et al., 2007) and ICD-10 criteria (Polanczyk et al., 2007; Swanson et al., 1998).

Children and youth with ADHD are at a higher risk for school, family and social problems than their typically developing peers (Barkley, 1998; Guevremont & Dumas, 1994; Mannuzza et al., 2000), anxiety (Mancini et al., 1999), psychopathology (Biederman et al., 1993; Cuffe et al., 2001), behavioral problems (Papageorgiou, Kalyva, Dafoulis, & Vostanis, 2008), as well as alcohol and drug abuse (Barkley, Fischer, Smallish, & Fletcher, 2004; Disney et al., 1999; Flory & Lynam, 2003). They also face problems with their social interactions with peers and difficulties in their relationships with the opposite sex (Weiss & Hechtman, 1993), mainly because they fail to interpret social cues (Hodgens et al., 2000) or because they are often involved in bullying incidences at school (Smith & Brain, 2000). Actually, there is some evidence that ADHD constitutes a risk factor for bullying or being bullied (Bacchini, Affusi, & Trotta, 2008; Kumpulainen & Rasanen, 2000; Salmon et al., 2000; Unnever & Cornell, 2003), since there are some common underlying factors, such as poor social skills, anxiety, and depression (Barkley, 1998; Brown et al., 2001).

Why Do Children and Young People Develop ADHD?

Family is one of the factors that seem to cause ADHD, although evidence is not conclusive (Frick, 1994; Johnston & Mash, 2001; Peris & Hinshaw, 2003). Some studies show that inattention and lack of control that constitute core symptoms of ADHD are strongly heritable (e.g., Epstein et al., 2000), but there is limited evidence that parenting practices as such can cause ADHD (Barkley, 1998; Johnston et al., 2001). On the other hand, the severity and the developmental course of ADHD seem to be influenced by the way that family members interact with each other (Marshall, Longwell, Goldstein, & Swanson, 1990; Woodward, Taylor, & Dowdney, 1998). Parents of children with ADHD tend to report high levels of parenting stress and dissatisfaction with their parenting role (Baker & Heller, 1996), they are more likely to use dysfunctional parenting techniques (Kendziora & O'Leary, 1993; Winsler, 1998), and to express negative attitudes and feelings towards their offsprings (Heller & Baker, 2000; Woodward et al., 1998). There seems to be a bi-directionality in these behaviors with the difficult child temperament creating poor parenting (Barkley, 1989) which in turn causes more inappropriate behaviors during the preschool years (Campbell, 1990).

Findings from neuropsychological research do not support the hypothesis that children with ADHD have deficits in executive inhibitory control, but they do stress that they face difficulties in regulating their behavior under motivational inhibitory conditions (van Goozen et al., 2004). There is also evidence that maternal prenatal smoking is consistently associated with ADHD, even after controlling for potential confounding variables, such as maternal age and psychopathology or birth weight. A likely explanation is that nicotine influences the fetus directly, while there is also the possibility of genetic mediation (Button, Thapar, & McGuffin, 2005). Psychophysiological studies conducted with children and adolescents with ADHD have shown that they have decreased electrodermal responses and faster habituation in orienting paradigms, while the evidence is not conclusive and very few studies have used the startle paradigm with those children (Herpertz et al., 2001). Academic self-concept is an important construct that contributes directly to the development of antisocial behaviors, but not to the development of ADHD as supported by Pisecco, Wristers, Swank, Silva, and Baker (2001).

2. DEFINING ANTISOCIAL BEHAVIOR

Antisocial behavior is characterized usually by continuous violations of socially acceptable patterns of behavior that are expressed in aggression, hostility, defiance of authority and of social norms, and other undesirable behaviors (Simcha-Fagan, Langner, Gersten, & Eisenberg, 1975). Serious antisocial behavior usually occurs either in children in the context of conduct disorders or in adults as a prominent feature of personality disorders (Herpertz et al., 2008). As many as 1/3 to ½ of adolescents who engage in antisocial and aggressive behavior attend mental health clinics (Rogers, Johansen, Chang, & Salekin, 1997), while the prevalence of antisocial behavior in the general population is high (ranging between 2-6% - Walker, Colvin, & Ramsey, 1995). Antisocial behavior is associated with the individual's inability to deal with emotions (Herpertz et al., 2008), since evidence shows that individuals experiencing intense emotions of anger or fear are at higher risk of manifesting

antisocial behavior (Herpertz & Sass, 2000), which is in turn related to emotional shallowness and callousness (Frick et al., 2003). Since it is likely that some features of antisocial behavior reflect either an antisocial personality or a response to circumstances that are out of the individual's control, it is essential to include both behavioral and personality features in the definition of antisocial behavior (Farrington & Coid, 2003). It is also important to determine whether individuals differ in the kind or in the degree of their antisocial behavior (Clark, Livesley, & Morey, 1997).

There is evidence that in most Western countries antisocial behavior peaks at about age 17 – with the majority of adolescents involved in some form of antisocial behavior (Caspi & Moffitt, 1995) - and tends to incline from that age onwards (Moffitt, Caspi, Dickson, Silva, & Stanton, 1996). The risk or protective factors for antisocial behavior are problems with inattention, impulsivity, and hyperactivity; early onset; male gender; high levels of aggression; neuropsychological deficits (Fergusson, Horwood, & Lynskey, 1995; Loeber, Stouthamer-Loeber, Van Kammen, & Farrington, 1991; Moffitt et al., 1996), and peer rejection (Coie, Terry, Lenox, & Lochman, 1995). Despite the recent evidence that incidences of antisocial behavior have started to decrease (Snyder & Sickmund, 1995), its stability over the life course (Loeber, 1982) and the high likelihood of its occurrence in adolescence (Moffitt, 1993) warrant further attention and research (Loeber & Farrington, 2001). It is generally agreed that early conduct problems can predict antisocial behavior in adolescence better than early ADHD (Hinshaw, Lahey, & Hart, 1993), but the ability to predict adolescent antisocial behavior from childhood ADHD is affected by its significant comorbidity with conduct problems (Lilienfeld & Waldman, 1990). Antisocial behavior and aggression can take on many forms (Hinshaw & Lee, 2003), with overt (physical aggression, violence, and assault) and covert (theft, truancy, substance use) antisocial behaviors at the ends of the spectrum and non-compliance in the middle. Loeber and Schmaling (1985) talked about the bipolar dimensionality of antisocial behavior that contains confrontive acts that are overt on the one end and clandestine activities that are covert on the other end. Frick et al. (2003) have reviewed 44 published studies using multi-dimensional scaling techniques and they have also concluded that antisocial behaviors in childhood can be categorized along two dimensions, namely destructive/non-destructive or overt/covert poles. There are distinctions according to these two categories of antisocial behaviors in trajectories (overt antisocial behaviors decline over time, while covert antisocial activities increase from childhood to adolescence – Loeber, 1982); in predictive power (adolescents with self-reported covert antisocial behaviors are likely to have burglary convictions later on, while adolescents with self-reported overt antisocial behaviors are prone to engage in subsequent aggressive offenses); and in family interactions (families of children and youth with overt antisocial behaviors often manifest coercive interchanges, while families of children with covert antisocial behaviors have poor child monitoring techniques).

Why Do Children and Young People Develop Antisocial Behavior?

There are three basic developmental pathways that have been used to describe the development of antisocial behavior:

i) The Child-Onset Pathway

Antisocial behavior starts in early childhood and becomes more severe, frequent, and intense as the child grows older. Characteristic behaviors of these children are noncompliance, anger, irritability, discipline problems, and temper tantrums that appear before the age of 3, worsen at the ages of 7-10 and become established antisocial behavior by the ages of 11-13 (Biederman & Cole, 1992; Farrington, Loeber, & Van Kammer, 1990; Frick, 1998; Hinshaw, Lahey, & Hart, 1993).

ii) The Adolescent-Onset Pathway

Antisocial behavior begins suddenly from ages 12-18 without prior history of behavior problems with high levels of aggression that may lead to high rates of arrests and convictions (Frick, 1998; Moffitt, 1993). These children usually come from less dysfunctional families, have adequate social skills, are less aggressive and have fewer cognitive impairments than children who belong in the first group (Frick, 1998; Walker et al., 1995).

iii) The Delayed-Onset Pathway

This pathway better conceptualizes the antisocial behavior of girls, who usually do not exhibit behavioral problems until adolescence when they display less serious behavioral problems than boys of the same age (Hinshaw et al., 1993; Zoccilillo, 1993). This group has been underexplored and more research is needed.

There is evidence of genetic influence on antisocial behavior, while it has been reported that overt and covert antisocial acts may be independently transmitted through families and may actually represent distinct familial syndromes (Monuteaux, Fitzmaurice, Blacker, Buka, & Biederman, 2004). The origins of antisocial behavior may be traced also to problems in processing emotional information (Harty, Miller, Newcorn, & Halperin, 2009), with research focusing on the amygdala and the prefontal cortex, which modulate the neural circuity that mediates aggression (Birbaumer et al., 2005). Herpertz et al. (2008) reported from their functional magnetic resonance study that male adolescents with antisocial behavior had increased rather than reduced amygdala activation, which means that they had an enhanced response to environmental cues and thus the ability to perceive the affective information in their environment. These contradictory findings confirm that there is need for more relevant studies using psychophysiological data.

3. ADHD AND ANTISOCIAL BEHAVIOR

The attention of researchers has recently shifted to children and young people at high risk for engaging in lifelong antisocial and delinquent behavior, who are classified as comorbid for ADHD and conduct disorder (Diagnostic and Statistical Manual-IV, DSM-IV: American Psychiatric Association, 1994). Although these two clusters of behavior correspond to different classifications in DSM-IV, some researchers have argued that they actually represent the same entity (Barkley, 1982; Loney & Milich, 1982). Actually, Hinshaw (1987) argues that children classified as hyperactive and aggressive overlap considerably and more specifically, 30%-90% of children in one group could also be classified in the other group using either

cutoff scores or cluster analytic methods. These children have been characterized as "fledgling psychopaths" (Lynam, 1996, 1997). Hinshaw (1987) supports that ADHD and antisocial behavior are separate and should be conceptualized as a two-factor model of disruptive behaviors that consists of two distinct dimensions, namely ADHD symptomatology and antisocial behaviors.

The presence of antisocial behavior in ADHD constitutes an important marker of its heterogeneity as shown by various clinical, genetic, and epidemiological studies (Caspi et al., 2008). It should be pointed out that approximately 50% of youth with ADHD manifest antisocial behavior (Kutcher et al., 2004), while longitudinal studies indicate that ADHD leads to antisocial behavior and not the opposite (Thapar, van be Bree, Fowler, Langley, & Whittinger, 2006). However, there is a debate regarding whether ADHD by itself constitutes a risk of adult antisocial behavior (Mannuzza et al., 1998) or whether the relationship between childhood ADHD and adult delinquency results from a high co-occurrence between ADHD and conduct disorder (Lilienfeld & Waldman, 1990). A study conducted by Herpertz et al. (2001) compared psychophysiological responses of boys with ADHD and CD with ADHD alone and with typically developing peers and concluded that although there is a high persistence of antisocial behavior from childhood to adulthood, there is no evidence to support that ADHD itself predisposes individuals to antisocial behavior.

Actually, there is some evidence suggesting that even children and youth who display ADHD symptoms but do not meet the criteria for clinical diagnosis are at higher risk for developing behavior compared to their peers who have less or no ADHD-related symptoms (Fergusson & Howrood, 1995; Fergusson, Horwood, & Linskey, 1997). It is also likely that the type of ADHD constitutes an important predictor of antisocial behavior, although findings are mixed. For example, one relevant study found that hyperactive-impulsive symptoms predict oppositional defiant behavior 2 years later better than inattention symptoms (Burns & Walsh, 2002), another study reported a stronger association between ADHD-combined type and antisocial behavior (Faraone, Biederman, Weber, & Russell, 1998), while another study showed less clear-cut differences (Murphy, Barkley, & Bush, 2002). This means that more studies are needed in order to clarify if the type of ADHD has an impact on the appearance of antisocial behavior. At this point it should be mentioned that there is also some preliminary evidence suggesting that the pervasiveness of ADHD (symptoms present both at home and school) is indicative of higher risk for antisocial behavior than situational ADHD occurring only at home or at school (McArdle, O'Brien, & Kolvin, 1995; Mannuzza, Klein, & Moulton, 2002). The link between the age of onset of antisocial behavior and its persistence in adulthood is quite well established, with studies reporting that childhood-onset antisocial behavior accompanied by cognitive and reading deficits as well as ADHD enhances the appearance of antisocial behavior in the future (Farrington, Loeber, & Van Kammen, 1990; Moffitt, 1990). Hinshaw, Heller, and McHale (1992) have argued that the characteristics of the overt antisocial behavior of children and youth with ADHD have been studied extensively, but this is not the case for their covert antisocial acts that have been largely underexplored. This happens either because covert antisocial behaviors are concealed or because they do not appear often.

Children and youth with ADHD and antisocial behavior tend to exhibit more incidents of aggression, to display more severe achievement deficits, and to be more rejected by their peers than those who have only ADHD or antisocial behavior (Farrington et al., 1990; Gresham, Macmillan, Bocian, Ward, & Forness, 1998; Hinshaw, 1987; Hinshaw et al., 1993).

Moreover, children with severe ADHD symptoms and comorbid antisocial behavior are at highest risk for peer-mediated substance use in adolescence (Marshal & Molina, 2006). However, the assumption that antisocial behavior in childhood can predict antisocial behavior in adulthood is not entirely accurate. For example, from a group of 209 preschool antisocial children, only 15% manifested severe antisocial behavior at age 11 (White, Moffitt, Earls, Robins, & Silva, 1990). The difficulty of the prediction lies in the fact that behaviors that make up the antisocial profile have high appearance rates (Gresham, Lane, & Lambros, 2000). However, in general, youth with ADHD and antisocial behavior have a worse prognosis (Taylor, Harrington, McGuffin, & Dankaerts, 1996) and more pronounced neurocognitive deficits (Moffitt, 1990).

Why Do Children and Young People Develop ADHD and Antisocial Behavior?

Lynam (1996) proposed three models that might address the causes of ADHD and antisocial behavior:

i) Risk-Factor Model

It proposes that ADHD can lead to antisocial behavior mainly through coercive parenting techniques that are repeated over time and evolve into a pattern of non-compliance to parental and societal requests and commands (Patterson, 1982).

ii) Stepping-Stone Model

It suggests that difficult temperament at birth accompanied by early onset of ADHD can lead to antisocial behavior (Moffitt, 1993), unless there is some early intervention that will interrupt the escalating chain of antisocial behaviors (Barkley, 1990).

iii) Subtype Model

In an attempt to explain the complex difficulties encountered by children with ADHD and antisocial behavior, Lynam (1996) introduced the concept of "fledgling psychopaths", who experience deficits in their ability to inhibit goal-directed behavior in the face of challenging environmental contingencies.

The variation between ADHD and antisocial behavior can be explained partly by common genetic factors, such as the catechol O-methyltransferase gene (COMT). Caspi et al. (2008) argued that the antisocial features of ADHD may be related to variations in this gene that seems to play a significant role in modulating prefrontal cortex dopamine levels, which are linked to executive cognitive dysfunctions. Another possible explanation that is offered is that children with high levels of hyperactivity–impulsivity are susceptible to a "social failure" pathway to antisocial behaviour, since they have more chances to be rejected by their peers and therefore to befriend deviant peers (Hinshaw & Melnick, 1995). Inattention has also been linked to vulnerability to the social failure pathway through academic problems (Maedgen & Carlson, 2000; Molina, Smith, & Pelham, 2001).

The influence of genes on the development of antisocial behavior in ADHD has been widely explored, with evidence from twin studies suggesting that antisocial behavior and ADHD share the same genetic influences (Burt, Krueger, McGue, & Iacono, 2003; Nadder, Rutter, Silberg, Maes, & Eaves, 2002) and some researchers have even argued that ADHD

comorbid with antisocial behavior constitutes a genetically more severe form of ADHD (Thapar, Harrington, & McGuffin, 2001) that is more likely to run in families than pure ADHD (Faraone, Biederman, & Monuteau, 2000)(for a more thorough review on evidence of the genetic influence, please see Thapar et al., 2006). As in most cases, the effect of environmental risk factors cannot be underestimated, as shown also in the models proposed by Lynam (1996). Environmental influences are usually divided into prenatal and perinatal risk factors and family and other psychosocial factors. Prenatal and perinatal risk factors include maternal smoking during pregnancy, antenatal use of drugs and alcohol, obstetric adversities (Linnet et al., 2003; Raine, 2002), maternal antenatal anxiety (O'Connor et al., 2003; Van de Bergh & Marcoen, 2004). Some studies show stronger correlations than others, while the interference of confounding variables such as social class, cannot be easily measured or determined unless more studies are conducted in the future (Thapar et al., 2006). Family and other psychosocial factors include family adversity manifested in family conflict (Burt et al., 2003); decreased family cohesion (Biederman, Mick, Faraone, & Burback, 2001); poor quality of parent-child relationships (Barkley, Fischer, Edelrock, & Smallish, 1991); and negative parenting (August, Realmuto, Joyce, & Hektner, 1999). However, it should not be overlooked that there are also extra-familial factors that can cause ADHD and antisocial behavior, such as rejection by peers (Gresham, MacMillan, Bocian, Ward, & Forness, 1998; McArdle, O'Brien, Macmillan, & Kolvin, 2000).

4. INTERVENTIONS FOR ADHD AND ANTISOCIAL BEHAVIOR

Since children with antisocial behavior are at great risk for adult aggressive antisocial behavior (Lynam, 1996), it is essential to identify them as early as possible in order to intervene. In an attempt to achieve this, there are some guidelines that could be followed (Gresham et al., 2000; Walker et al., 1995): a) screening should be proactive and aim at identifying the children at risk before they actually engage in antisocial behaviors; b) assessment should include a variety of informants (parents, teachers, peers, and children themselves) in a variety of settings (home, school, classroom, playground, play groups) with a variety of methods (observations, interviews, behavior ratings, peer sociometrics, self-reports, records); c) early screening is important to ensure that students are more receptive to intervention; d) initial screening methods should be complimented with more accurate and specific measures of behavior later in the assessment process; and e) the assessment information should be used to inform the nature of the intervention processes. It should be stressed that there are some ethical and practical issues that must be taken into consideration when deciding about the identification process. For example, when should children be screened for potential problems? Walker, Severson, and Feil (1994) have developed a tool that could provide accurate diagnosis of internalized and externalized antisocial problems at the age of 3, but is that what society should aim for? It is possible that these children will be stigmatized for life and that even early diagnosis would not be accompanied by the appropriate intervention (Gresham et al., 2000).

It is essential to understand the aetiology and origins of ADHD, antisocial behavior, and other accompanying psychiatric disorders in order to be able to develop new and effective treatments (biological and non-biological) and to educate families and clinicians in the context of clinical management (Thapar, Langley, Asherson, & Gill, 2007). Therefore,

acknolwedging the interplay between genes and environment in the aetiology of ADHD and antisocial behavior is of great importance both for diagnostic and for prevention/intervention processes (Thapar et al., 2006). The goal for most clinicians is to reduce symptoms associated with ADHD and antisocial behavior, as well as to minimize impairment and associated problems. Medication is an option for clinicians, but it seems to produce short-term improvement, since its effectiveness in dealing with long-term antisocial symptoms remains unsubstantiated. Hinshaw et al. (1992) also pointed out that the effects of stimulants have been documented for overt antisocial behaviors, but are not adequately determined for covert antisocial behaviors.

In order to compensate for the limited effectiveness of medication, additional risk reduction strategies are needed. But, since it is neither practical nor desirable to force all children and youth with ADHD and antisocial behavior to follow intensive interventions, it is important to identify those who are at higher risk and provide them with the appropriate treatment (Thapar et al., 2007). Interventions are more likely to be effective if they are based on functional behavior assessment (Kalyva, in press) that aims at identifying what precedes and what follows an unwanted behavior in order to eliminate it. Then the intervention is based on the actual needs of every child and not on the general principles of behavioral intervention.

One issue that poses a problem for many practitioners and mental health professionals is resistance to intervention; that is, when the intervention does not bring about the desirable changes (Gresham, 1998). This means in practice that if a child with ADHD and antisocial behavior continues to exhibit maladaptive behaviors after attending the appropriate intervention, then he/she may need the same treatment implemented more intensely and more frequently, a more intensive and well-designed treatment, or a more restrictive placement (Gresham et al., 2000). Unfortunately, children and adolescents with antisocial behavior have well-established problematic behavior patterns with very few desirable behaviors that could be reinforced. Therefore, they tend to resist and not benefit from interventions that are not well-planned or are based on inadequate theoretical background. It is likely that multiple interventions are needed to target and address multiple behavioral problems (Walker et al., 1995).

Another way to overcome the resistance to intervention is to implement primary, secondary, and tertiary prevention methods. Primary prevention aims at preventing the appearance of the disorder by removing some risk factors that are associated with it. This prevention is usually delivered as a universal intervention targeting all the students in the classroom or the school and it could take the form of a social skills curriculum or classroom-wide discipline plans. DuPaul and Weyandt (2006) reviewed effective school-based interventions for children with ADHD and behavioral problems, which included antecedent-based strategies (e.g., modification of assignments), consequent-based strategies (e.g., daily school report cards), and self-management strategies (e.g., self-monitoring). Secondary prevention targets children at risk before the undesirable behaviors become an established pattern and include selected interventions, such as social skills training, peer tutoring, and behavioral interventions. Tertiary prevention tries to limit the adverse effects of antisocial behaviors by providing highly individualized behavioral interventions and parent training that aim at rehabilitation (Walker et al., 1995).

Tonry and Farrington (1995) have identified four types of prevention: a) criminal justice prevention that refers to the typical attempt to deter people from engaging in antisocial behavior by using law enforcement and criminal justice agencies; b) situational prevention

that aims at reducing the opportunities and the contexts for engaging in antisocial behaviors; c) community prevention that is designed to alter the social institutions and the social conditions that shape antisocial behaviors in the community; and d) developmental prevention that refers to attempts to impede the development of antisocial behaviors in individuals by targeting risk and protective factors that may have an impact on human development. Early developmental prevention programs are usually implemented in pregnancy and infancy and they include parenting programs, preschool programs, individual skills training, and school programs (Farrington et al., 2003). More research is needed on identifying the most effective interventions for children and young people with ADHD and antisocial behavior.

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Chapter 3

VICIOUS DOG OWNERSHIP: IS IT A THIN SLICE OF ANTISOCIAL PERSONALITY?

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The concept of "thin slice" suggests that a person's personality can be predicted from just observing a fragment of his or her behavior. For instance, Fowler, Lilienfeld, and Patrick (2009) had 40 graduate and undergraduate students rate the degree to which individuals exhibited traits of psychopathy and other personality disorders in 5, 10, and 20 second video clips. Hare (2003) described psychopathy as having two key components: Factor 1 (e.g., superficial charm, callousness, remorselessness, grandiosity) and Factor 2 (e.g., parasitic lifestyle, lack of responsibility, impulsiveness, versatility in criminal acts). The construct of psychopathy has been found to be predictive of committing violent crimes upon release from prison (Porter, Birt, & Boer, 2001; Serin & Amos, 1995), committing disciplinary infractions in prison (Edens, Poythress, Lilienfeld, & Patrick, 2008), and a greater likelihood of recidivism (Hare, Clark, Grann, & Thornton, 2000). All the respondents for the Fowler et al. study used a Likert scale to provide "thin slice" ratings on the individual in the video. The researchers demonstrated that the "thin slice" ratings provided for the psychopathy items were significantly correlated with several measures of psychopathy (Psychopathy Checklist-Revised [PCL-R; Hare, 1991; 2003], Interpersonal Measure of Psychopathy [Kossen, Steuerwald, Forth, & Kirkhart, 1997]). Moreover, "thin slice" psychopathy ratings were

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significantly correlated with scores on the PCL-R when raters watched a five second video, but not when raters watched a 10 or 20 second video. Also, ratings provided by individuals that viewed videos without audio were more highly correlated with PCL-R scores than were audio only clips or clips that included both audio and picture video. In addition to predictions of psychopathy, thin slice behavior has been found to be predictive of intelligence scale scores (Borkenam, Mauer, Riemann, Spinath, & Angleitner, 2004), personality test scores (Borkenam et al., 2004), job performance evaluation ratings (Hecht & LaFrance, 1995), and teacher evaluation ratings (Babad, Avni-Babad, & Rosenthal, 2004). Could a "thin slice" of behavior, such as dog ownership, give us some clue about an individual's broader personality? Do certain individuals select to own dogs that are more likely to be aggressive?

The first dogs were wild wolves tamed by humans in southeastern Asia, approximately 16,300 years ago. The development of the dog occurred around the same time that cultural groups within Asia became less nomadic and more sedentary. From southeastern Asia, the culture of having a dog spread throughout Asia, Europe, and worldwide (Pang et al., 2009). Presently, in the United States (U.S.), there are over 72 million dogs (American Veterinary Medical Association, 2010). Nearly 160 breeds of dogs have been recognized by the American Kennel Club (AKC). The five most popular dog breeds in 2009 among U.S. dog owners were Labrador Retrievers, German Shepherds, Yorkshire Terriers, Golden Retrievers, and Beagles, respectively (AKC, 2010).

Many people assume that dogs and their owners share personality and physical characteristics. In fact, Roy (2004) found that owners of pedigree dogs physically resembled their dogs. Why do people buy and raise specific breeds of dogs. Is this a "thin slice" of behavior also?

AGGRESSIVE DOG OWNERSHIP AND OWNER PERSONALITY

Podberscek and Serpell (1997) explored the personality and demographic characteristics of owners of high aggressive and low aggressive English cocker spaniel dogs. To classify the dogs in this study into high aggressive and low aggressive categories, the dog owners responded to a 13-item questionnaire in which they were asked to rate on a five-point scale how frequently their dog exhibited aggressive behavior across several different situations. For example, owners were asked to rate the frequency of their dog's aggression "towards children in the household", "towards strange dogs", and "at meal times/defending food." A total score of aggression was derived from the 13-item aggression questionnaire. The researchers determined that dog owners were in the high aggressive dog category if their dog was determined to be in the top 25th percentile for the aggression measure total score. Owners that had described their dogs as low in aggression, determined by scores on the aggression measure being in the bottom 25th percentile, were categorized in the low aggressive dog owner group. Owners were then asked to complete the Cattell 16 Personality Factor Questionnaire (Cattell, Eber, & Tatsuoka, 1970) measuring traits such as warmth, reasoning, emotional stability, dominance, liveliness, rule-conscious, social boldness, sensitivity, vigilance, abstractedness, privateness, open to change, perfectionism, tension, self-reliance, and apprehension. In total, 241 owners of low aggressive dogs and 280 owners of high aggressive dogs from the United Kingdom participated in this study.

When examining owner personality in relation to high aggressive vs. low aggressive dog ownership, several important findings emerged. Owners of high aggressive dogs were high in tension (i.e., having lots of energy, easily frustrated), low in emotional stability (i.e., frequently upset, mood changes), low in social boldness (i.e., shy, sensitive to threats) and low in perfectionism (i.e., impulsive, tolerant of disorder) than low aggressive dog owners. Concluding this study, the authors put forth several explanations for why high aggressive dog owners' exhibit higher levels of the four noted personality traits. One explanation suggested that the high aggressive dog owners could be more attentive to the aggressive acts displayed by their dogs which resulted in them providing higher aggression scores for their animals. The authors also suggested that high aggressive dogs may act more aggressively and dominant because it compliments their owners' timid, threat sensitive personality. It is impossible to know from the results of this study how the high aggressive dogs came to act in an aggressive manner. However, what this study does tell us is that having a highly aggressive dog could be a "thin slice" marker of owner personality (Podberscek & Serpell, 1997).

DEFINING "VICIOUS" DOG BREEDS

Each year in the U.S. 4.7 million people are bitten by dogs. Of those bitten each year, 386,000 are seriously injured and some killed (American Veterinary Medical Association, 2007; Center for Disease Control, 2007). Researchers suggest that some dog breeds may have a greater potential for being aggressive towards humans than other breeds. For instance, when examining dog bite incidents reported to the Denver Municipal Animal Shelter in 1991, Gershman, Sacks, and Wright (1994) found German Shepherds, Chows, Collies, and Akitas were the most frequent dog breeds identified as the perpetrators. (No Pit Bull owners were included in this study because ownership of a new Pit Bull was prohibited in Denver in 1991). All of the dog bite cases analyzed in the Gershman et al. study involved dogs being aggressive towards a person that did not live in the same household as the dog. Unshelm (1997) surveyed dog owners who were seeking veterinarian care for their dog because their dog had been injured in a recent dog fight. Results of this study demonstrated that the following breeds were more likely to be the aggressors in dog fights: Bull Terriers, Boxers, Dobermans, German Shepherds, Great Danes, Hovawarts, Pit Bulls, Rottweilers, Shepherd-Mongrels, and Staffordshire Terriers.

Similarly, Sacks, Lockwood, Hornreich, and Sattin (1996) reviewed the information available on dog-related fatalities in three databases (i.e., NEXIS search service of Reed Elsevier Inc, National Center of Health Statistics, and the Humane Society of the United States). This review demonstrated that across a 25-year timeframe (1979-1994) a total of 177 individuals died from dog bites where the breed of the dog involved in the attack was known. Pit Bulls were involved in the largest number of dog-bite deaths (n = 67). German Shepherds (n = 26), Rottweilers (n = 21), Huskies (n = 18), Malamutes (n = 15), Chows (n = 8), Dobermans (n = 8), Great Danes (n = 5), St. Bernards (n = 4), and Akitas (n = 4) were also involved in dog-related deaths over this 25-year time span. Due to the high prevalence of injury or death caused by specific dogs, many insurance companies refuse to issue homeowners insurance to owners of specific breeds of dogs considered "vicious" or high risk

for causing injury. The most common breeds of dogs recognized as "vicious" by insurance companies include Akita, Chow ("Chow Chow"), Doberman, Pit Bull, Rottweiler, and Wolf-mix (American Kennel Club, 2010).

Several dog bite incidents have made headlines in the last few years, perpetuating the stigma that surrounds several of these "vicious" breeds. For instance, in 2001 Diane Whipple was tragically maimed and killed by two 120-pound Presa Canario dogs in her own apartment complex. The two owners, both attorneys, were convicted of involuntary manslaughter and keeping a mischievous animal that killed a human being. Both dogs were euthanized and the owners were each sentenced to four years in prison (Noel, 2002). In 2005, 82-year old Dorothy Sullivan was walking her Shih Tzu dog when she and her dog were attacked and killed by three pit bulls. As a result of these killings, Deanna Large, the owner of the three pit bulls, was found guilty of involuntary manslaughter and received a sentence of three years in prison (Crosgrove-Mather, 2006).

"VICIOUS" DOGS AND ANTISOCIAL BEHAVIOR

Researchers have begun to look at whether individuals that own high risk or "vicious" dog breeds exhibit certain personality traits and antisocial behaviors (Barnes, Boat, Putnam, Dates, & Mahlman, 2006; Ragatz, Fremouw, Thomas, & McCoy, 2009; Schenk, Ragatz, & Fremouw, in preparation). Barnes et al. (2006) explored whether owners of vicious dogs (i.e., Akitas, Chows, Pit Bulls, Rottweilers) and unlicensed dogs were more likely to commit criminal infractions (i.e., aggression, minor traffic, major traffic, drugs, alcohol, domestic violence, crimes involving children, and firearms) when compared to owners of non-vicious dogs or licensed dogs. Barnes et al. hypothesized that owners of vicious dogs and unlicensed dogs would commit more criminal infractions. This hypothesis would support the deviance generalization hypothesis (Arluke, Levin, Luke, & Ascione, 1999), which suggests that individuals that commit one type of criminal act (e.g., animal abuse, child abuse) are also likely to commit other types of criminal infractions (e.g., domestic violence, robbery).

Barnes et al.'s (2006) final sample included 355 dog owners. All data for the study was gathered from preexisting records between the years of 2000 and 2002 from the Cincinnati Society for the Prevention for Cruelty to Animals (SPCA Cincinnati). Cited vicious dog owners included those individuals that owned a vicious dog breed (i.e., Akitas, Chows, Pit Bulls, Rottweilers) and were cited by the SPCA Cincinnati. Citations were given for various offenses such as not putting a muzzle on the dog or not keeping the dog on one's property. Non-vicious cited dog owners were those individuals that owned a dog that was not considered vicious and that had been cited by the SPCA Cincinnati. A total of 94 individuals had vicious cited dogs and a total of 94 individuals had non-vicious cited dogs. Next, information regarding owners of licensed dogs was gathered from Hamilton County of Ohio Records. Information was gathered on a total of 94 non-vicious, licensed dog owners and 73 vicious, licensed dog owners. The Hamilton County Clerk of Courts website was utilized to check to see if the dog owners included in this study had a history of committing various criminal infractions. If a search of a specific dog owner did not yield any past criminal infractions based on the information available in the Hamilton County Clerk of Courts website, the authors concluded that the dog owner had not previously taken part in illegal acts

in that county. Information gathered from the Hamilton County Clerk of Courts website included both criminal convictions and citations. The authors divided criminal convictions into the following categories: aggression, drugs, alcohol, crimes that involved children, and firearm offenses. The authors included minor traffic offenses and major traffic offenses within the citation category.

Results of the Barnes et al. (2006) study demonstrated that all of the vicious dog owners had committed one or more past criminal infraction or received a traffic citation. This was independent of whether the vicious dog was licensed or cited. A comparison of vicious and non-vicious dog owners demonstrated that vicious dog owners committed significantly more criminal infractions than non-vicious dog owners across all crime categories. Results were reported in odds ratios. Vicious dog owners were 6.8 times more likely to have committed an aggressive crime, 2.8 times more likely to have a minor traffic violation, 2.5 times more likely to have a major traffic violation, 8.0 times more likely to have a drug offense, 5.4 times more likely to have an alcohol charge, 2.4 times more likely to have a domestic violence conviction, and 2.8 times more likely to have committed a crime involving children compared to non-vicious dog owners. Barnes et al. also examined the differences between cited vicious dog owners and licensed vicious dog owners on criminal conviction and citation history. Findings demonstrated cited vicious dog owners were 1.7 times more likely to have a past minor traffic offense, 1.6 times more likely to have a previous major traffic citation, and 5.5 times more likely to have previously committed a crime that involved a child compared to licensed vicious dog owners. Next, the researchers explored whether owner gender, license status, and vicious dog ownership status significantly predicted total number of criminal convictions. Findings demonstrated that all three predictors (male gender, having a cited dog, and owning a vicious dog) were predictive of more criminal offenses. Vicious dog ownership was the strongest predictor. The researchers also explored whether vicious dog ownership, owner gender, and license status were predictive of number of previous aggressive criminal infractions. Findings demonstrated all three predictors (owning a vicious dog, having a cited dog, and male gender) were significant, and once again owning a vicious dog was the strongest predictor of engaging in previous aggressive criminal acts.

In our first study (Ragatz et al., 2009) investigating the personality characteristics of vicious dog (i.e., Akitas, Pit Bulls, Rottweilers, Dobermans, Chows, Wolf-mix breeds) owners, we set out to replicate and extend upon the Barnes et al. (2006) study. The study sample consisted of 758 students enrolled in an eastern university (193 men and 565 women). All participants were classified into one of four dog ownership categories: vicious dog owners, large dog owners, small dog owners, and non-dog owners. Individuals were classified in the vicious dog category if they endorsed owning a dog that was a full breed or mix breed of any of the following breeds: Akitas, Pit Bulls, Rottweilers, Dobermans, Chows, and Wolf-mixes. A total of 66 individuals were in the vicious dog category. Next, participants were in the large dog ownership category if they endorsed owning a large dog (weighing 40lbs or more) and did not own a vicious dog. A total of 303 individuals were in the large dog category. Then participants were considered to be small dog owners if they owned a dog that weighed 39lbs or less and did not own a vicious or large dog. A total of 195 individuals were included in the small dog ownership category. Lastly, participants were included in the non-dog ownership category if they did not endorse owning a vicious, large, or small dog. A total of 181 individuals did not own a dog and therefore served as the control group in this study.

Participants completed questionnaires assessing their attitudes towards the inhumane treatment of animals, personality, past criminal behaviors, and psychopathic traits. To assess attitudes towards the treatment of animals, Henry's (2004) Attitudes toward the Treatment of Animals Questionnaire was utilized. On this questionnaire, participants read questions regarding how much various types of treatment towards animals would upset him or her. Each individual selected an answer option that was based on a five-point scale (1 = *not at all* to 5 = *A lot*), with lower scores suggestive of more tolerance of abuse towards animals. To measure personality, participants completed the Zuckerman-Kuhlman Personality Questionnaire (ZKPQ; Zuckerman, 2002). The ZKPQ assesses five personality dimensions: activity (tendency to prefer demanding jobs and to frequently exhibit impatience), impulsive sensation-seeking (tendency to act without planning and to prefer the unpredictable), aggression-hostility (tendency to anger quickly, exhibit antisocial behaviors, and to use verbal aggression), sociability (tendency to prefer interacting socially with other people), and neuroticism-anxiety (tendency to worry and be sensitive to the judgment of other people). The Levenson's Self-Report of Psychopathy Scale (LSRP; Levenson, Kiehl, & Fitzpatrick, 1995) was utilized to measure psychopathy. The LSRP measures two dimensions of psychopathy: primary (tendency to exhibit carelessness, selfishness, and manipulation) and secondary (tendency to engage in self-defeating behaviors and impulsiveness) psychopathy. Finally, participants completed the Illegal Behavior Checklist (IBC; McCoy, Fremouw, Tyner, Clegg, Johansson-Love, & Strunk, 2006). The IBC assesses for past criminal infractions across four categories of criminal behavior: violent (e.g., "Have you ever been in a gang fight?"), property (e.g., "Have you ever shoplifted something that was $25 or more?"), drug (e.g., "Have you ever sold marijuana?"), and status offenses ("Have you ever run away from home for more than a day?"). Responses on the IBC can be used to get a total score, which reflects the number of criminal infractions the individual endorsed engaging in across all four criminal behavior categories. Also, individuals can be classified as a specific type of offender based on the type of criminal behavior he or she had engaged in. The criminal behavior category classification is hierarchical with individuals being placed in the category of the most serious offense he or she had previously taken part in. The criminal behavior categories in order of seriousness are violent, property, drug, status and no past criminal offenses.

Several interesting findings resulted from this study. First, when comparing vicious dog owners to all other dog owners (large, small, control) on classification in the different criminal behavior categories (based on responses to the IBC), vicious dog owners were found to be significantly more likely to be classified as violent offenders (15.2%) compared to large (7.9%), small (8.2%), and controls (5.5%). Also, vicious dog owners (1.5%) were much less likely to be classified in the no past criminal offenses category compared to large (7.9%), small (10.3%), and control participants (8.6%). Next, results demonstrated that when comparing the four dog ownership groups by the number of past criminal infractions, vicious dog owners were found to have significantly more past criminal acts than all other dog owners (large, small, and controls).

We then investigated personality differences between the different dog owners. Vicious dog owners were found to be highest in impulsive sensation seeking (as measured by the ZKPQ), significantly higher than controls. Vicious dog owners were not significantly different from the other dog owners on any of the other personality dimensions measured by the ZKPQ. We were especially surprised to find that no differences existed between any of the dog ownership groups on the aggression-hostility subscale of the ZKPQ. However,

several interesting findings were discovered between the other dog ownership groups. For instance, small dog owners were found to be significantly higher in neuroticism compared to large dog owners. Large dog owners were found to be significantly highest on the activity personality dimension when contrasted with small dog owners and controls. Also, large and small dog owners were found to have higher levels of sociability than control individuals.

Next, we looked at differences in psychopathy among the four dog ownership groups. Vicious dog owners were found to be significantly higher in primary psychopathy than small dog owners. Large dog owners and control participants were also significantly higher in primary psychopathy than small dog owners. Interestingly, no significant differences were found between large dog owners, vicious dog owners, and control participants on primary or secondary psychopathy. Lastly, we investigated whether there was a difference between the four dog ownership groups on attitudes towards the treatment of animals. Vicious dog owners were not found to be significantly different from any of the dog ownership groups on their attitudes towards the treatment of animals. This study revealed many interesting, antisocial characteristics that are unique to vicious dog owners.

Our second study (Schenk, Ragatz & Fremouw, in preparation) expanded on these differences between vicious dog owners and other dog ownership categories (large dog owners, small dog owners, and non-dog owners). Specifically, we investigated differences in criminal thinking styles, callousness, personality traits, alcohol use, and deviant lifestyle choices. This study used the same criteria and methods as our first study investigating vicious dog ownership (Ragatz et al., 2009). Our sample consisted of 754 undergraduate participants (202 men and 552 women). Of this sample, 93 participants were classified as owners of vicious dogs (i.e., Akitas, Chows, Dobermans, Pit Bulls, Rottweilers, Wolf-mix breeds), 311 participants were considered large dog owners (owners of dogs weighing 40 pounds or more), 222 participants were small dog owners (owners of dogs weighing 39 pounds or less), and 114 participants were classified as a control group (participants that reported not owning a dog).

Participants completed questionnaires assessing criminal thinking styles, callousness, personality traits, alcohol use, and deviant lifestyle choices. To assess criminal thinking styles, the Psychological Inventory of Criminal Thinking Styles (PICTS) questionnaire was utilized (Walters, 2006). This assessed attitudes that support participation in criminal acts and consisted of eight criminal thinking style subscales: Mollification (i.e., blame external events for one's involvement in criminal acts), Entitlement (i.e., belief that one deserves special rights or attention), Cutoff (i.e., become angry quickly and consequently engage impulsively in antisocial behaviors), Power Orientation (i.e., strong need to be in control of situations), Sentimentality (i.e., express care for others that is artificial and done to make oneself look good), Superoptimism (i.e., belief that one can commit criminal acts without consequences), Cognitive Indolence (i.e., take shortcuts when working toward a goal), and Discontinuity (i.e., distracted by and influenced by negative others into committing criminal acts). The general criminal thinking score (GCT) was calculated by adding the responses for all items on the eight criminal thinking style subscales. Due to the fact that this measure was originally designed for use with an incarcerated population, some questions were modified for a college sample, as done in McCoy et al. (2006) and Walters et al. (2009). The Inventory of Callous-Unemotional Traits (ICU) was utilized to measure callousness, a construct associated with psychopathy (Essau, Sasagawa, & Frick, 2006). Since Ragatz et al. (2009) discovered vicious dog owners were higher in primary psychopathy, in which callousness is a main component,

the ICU was administered to further expand upon this finding. To assess personality traits of the participants, the Five Factor Model Rating Form (FFMRF) was administered (Widiger, 2003). The five personality traits measured consist of agreeableness, conscientiousness, extraversion, neuroticism, and openness. To investigate the relationship between alcohol use and vicious dog ownership, participants completed the Alcohol Use Disorders Identification Test (AUDIT; Babor, Higgins-Biddle, Saunders, & Monteiro, 2001). This measure assessed an individual's alcohol consumption, as well as potential drinking problems. Finally, participants completed a Lifestyle Questionnaire (constructed by the authors; Schenk, Ragatz & Fremouw, in preparation). This measure assessed various lifestyle choices, such as marijuana usage, frequency of other drug usage (e.g., opiates not prescribed to you, cocaine, ecstasy, methamphetamines, amphetamines not prescribed to you, sedatives not prescribed to you, tranquilizers not prescribed to you, or hallucinogens), number of visible tattoos (on face, hands, neck, or arms), piercings, traffic citations, arrests for misdemeanors or felonies, convictions for misdemeanors or felonies, and evictions. There were also questions regarding duration of longest employment, being fired from a job, quitting a job, number of class skipped per week, number of physical fights involved in over the past 5 years, the number of people dated for longer than a month, and the longest relationship "exclusively" dating someone. Finally, the number of hours a week spent doing various activities on the internet, the number of hours a week spent playing different types of video games, and the number of hours a week spent playing video games with various ratings was assessed.

Many interesting findings were revealed in this study, further expanding our understanding of vicious dog owners and the differences that exist between this ownership category and others. First, it appears that vicious dogs are appropriately categorized and may be living up to their "vicious" title. It was reported that vicious dogs bit humans significantly more often than other dogs. Specifically, vicious dogs were the most likely to have bitten someone else (11.5%), followed by small dogs (9.3%), and then large dogs (3.3%).

We also investigated if vicious dog owners would differ in their criminal thinking styles compared to other dog owners and non-dog owners. Vicious dog owners had significantly higher general criminal thinking style scores (as measured by the PICTS) than large dog owners, small dog owners, and control participants. Vicious dog owners also differed on the criminal thinking style subscales of Entitlement (i.e., belief that one deserves special rights or attention), Sentimentality (i.e., express care for others that is artificial and done to make oneself look good), and Superoptimism (i.e., belief that one can commit criminal acts without consequences). Specifically, vicious dog owners were significantly higher on Entitlement and Superoptimism than small dog owners. Vicious dog owners were also significantly higher on Sentimentality than all other dog ownership categories (large dog owners, small dog owners, and control participants).

Callousness was assessed to expand on the previous finding that vicious dog owners were higher in primary psychopathy (Ragatz et al., 2009). Surprisingly, no significant differences were found between any of the dog ownership categories and callousness. Also, there were no differences in personality traits between any of the dog ownership groups. Although the FFMRF assessed five distinct components of personality (agreeableness, conscientiousness, extraversion, neuroticism, and openness) no differences were found with any of these five traits. Additionally, there were no significant differences found between dog ownership categories and alcohol use (as measured by the AUDIT).

We also examined differences in lifestyle choices among the four dog ownership groups. Vicious dog owners differed in their frequency of marijuana usage, the number of physical fights they have engaged in over the past five years, and the number of arrests for a misdemeanor or felony they have experienced. Vicious dog owners had a significantly higher frequency of marijuana usage than large dog owners, small dog owners, and control participants. Vicious dog owners also engaged in significantly more physical fights than both large dog owners and small dog owners. Finally, vicious dog owners were arrested for a misdemeanor or felony significantly more than control group participants. The results of this study and others (Ragatz et al., 2009; Barnes et al., 2006) indicate that vicious dog owners are characteristically different and tend to display more antisocial characteristics than other dog owners and non-dog owners.

A growing body of research (Barnes et al., 2006; Ragatz et al., 2009; Schenk et al., in preparation) suggests that owners of vicious dogs are different from other dog breed owners and non-dog owners. All three studies demonstrated vicious dog owners were involved in substantially more criminal acts than all other dog owners and non-dog owners. When engaging in criminal activity, vicious dog owners are more likely to engage in serious acts, such as violent, property, or drug-related activities. In addition, there findings regarding criminal behavior and vicious dog ownership held across two participant samples: a community sample of dog owners in an Ohio County and college students in an eastern university.

CONCLUSION

"Thin slices" are small segments of a person's behavior, which can be used to predict broader behavior segments (see Fowler et al., 2009). Moreover, Fowler et al. demonstrated that shorter, nonverbal segments of behavior were most predictive of an individual's broader personality. Could dog ownership be a "thin slice" of behavior which provides insight into the owner's broader personality? Podberscek and Serpell (1997) were the first researchers to investigate this topic. They demonstrated that owners of aggressive dogs were higher in tension and energy but low in social boldness, emotional stability, and perfectionism.

Ragatz et al. (2009) demonstrated that vicious dog owners have higher levels of sensation seeking and primary psychopathy, two personality dimensions conducive to criminal behavior. In a follow-up study, Schenk et al. (in preparation) demonstrated vicious dog owners exhibit elevated levels of criminal thinking when contrasted with all other owners and non-dog owners. The criminal thinking dimensions most prominent among vicious dog owners were Superoptimism, Sentimentality, and Entitlement. Endorsement of the aforementioned criminal thinking styles suggests that vicious dog owners may exhibit superficial charm or empathy towards others, believe they can get away with criminal acts, and believe they should be provided with special treatment by others. In addition, vicious dogs were described as biting humans significantly more frequently than all other dog breeds. Importantly, several owner behaviors were found to be equivalent between the three dog owner groups (i.e., duration of time dog is chained outside, duration of time spent daily playing with the dog, number of training classes completed), suggesting vicious dogs were

not treated differently than the non-vicious dogs. In sum, research suggests vicious dog owners are more likely to exhibit both antisocial behaviors and attitudes.

IMPLICATIONS AND FUTURE DIRECTIONS

Research on vicious dog owners remains preliminary. Unfortunately, the current research in this area provides limited information on how owners of vicious dogs actually treat and interact with their dog. Although Schenk et al. (in preparation) attempted to assess for several owner-dog interactional variables (e.g., chaining outside, training), there are several variables still not explored. Quite possibly, being in an environment where aggressive behavior is exhibited by owners could facilitate and exacerbate aggressive behavior exhibited by their dogs. Future research could examine further how owners of vicious dog breeds interact with their pets. Possible variables for examination include duration of time a day the animal spends in a dog cage, type of punishment utilized, and duration of time spent socializing with other dogs. Perhaps additional socialization (e.g., greater duration of time at the dog park) or training could help to decrease the potential for aggression among vicious dog breeds.

As the general deviance hypothesis suggests (Arluke et al., 1999), owning an aggression-prone dog (e.g., vicious dog) may be just one of a repertoire of antisocial behaviors an individual takes part in. Due to the strong relation between vicious dog ownership and involvement in criminal behavior future pet adoption agencies may want to conduct more extensive background checks on potential owners. Keeping vicious dogs out of environments prone to aggression could assist with decreasing future injury and death caused by dog bites.

Lastly, knowing that ownership of a vicious dog is related to engagement in an assortment of antisocial actions, particularly physically aggressive acts, is important. Specifically, asking about dog ownership status could potentially be a useful variable for psychologists to assess for when conducting violence risk assessments. Currently, psychologists show moderate to low capability in predicting criminal violence. However, actuarial risk assessments tend to be better predictors of future violence when contrasted with clinical risk assessments. This is problematic as such risk assessments are used by the courts to make major decisions such as whether a defendant should receive capital punishment, whether a psychiatric patient should be released from a hospital, treatment recommendations, and whether a sexual offender should be civilly committed (Fulero & Wrightsman, 2009). Future research could investigate if adding questions regarding dog ownership to actuarial risk assessment measures in fact helps to increase the capacity for clinicians to predict an individual's level of future risk for violence.

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Chapter 4

ADOLESCENT SUBSTANCE USE DISORDER AND ATTENTION DEFICIT HYPERACTIVITY DISORDER: A LITERATURE REVIEW

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Substance use disorder (SUD) among adolescents is a widespread, devastating public health problem, and is associated with the leading causes of death among youth under 21 (Becker & Curry, 2008). In addition, it is a major factor in delinquency with most of the $244.1 million spent by the federal government for juvenile detention and corrections, and for delinquency prevention, mentoring, and reentry programs, being spent on substance-involved youth (Califano, 2009). Despite these consequences, only 10% of adolescents with SUD receive treatment and more than 50% of those who are treated drop out or terminate with unsatisfactory progress (Becker & Curry, 2008). For example, in the largest psychosocial treatment study to date of adolescents with SUD, the Cannabis Youth Treatment Study (CYT), only 25% were in recovery at a 1-year follow up, defined as no substance use or dependence problems and living in the community (Dennis et al., 2004; Perepletichikova, Krystal, & Kaufman, 2008). This review will propose that these bleak outcomes may be due in no small measure to the failure to identify and properly treat one of the unique needs of adolescents with SUD - comorbid Attention Deficit Hyperactivity Disorder (ADHD) [Volkow, 2009]. As the review will document, an astonishing 50% of adolescents in treatment for SUD are co-morbid for ADHD and this co-morbidity is associated with an earlier onset of SUD, more severe and longer duration of SUD, more difficulty remaining in

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treatment, and a greater likelihood of relapse after treatment (Chan, Dennis, & Funk, 2008; Hawkins, 2009; Wilens, 2008a; Wilens et al., 2007a). Hence it is critically important that practitioners understand the relationship between SUD and ADHD in adolescents since co-occuring disorders present serious challenges to traditional mental health and substance abuse treatments systems for adolescents (Hawkins, 2009). The purpose of this paper is to provide such an understanding with implications for treatment. It will do so by first establishing the prevalence of ADHD among adolescents in treatment for SUD. Second, it will discuss the mechanisms whereby ADHD increases the risk for SUD. Third, it will provide treatment recommendations that are informed by the prior discussion. Lastly, it should be noted that given the vastness of the literature on SUD and ADHD and given that the goal of the review is to be broadly synthetic, the paper will draw on findings of authoritative critical reviews as well as individual studies. Also, since substantial data indicate that substance abuse and substance dependence are best conceptualized as reflecting differences in substance-problem severity on a unidimensional continuum rather than distinct categories, SUD will be the nosological rubric employed to designate this conception (Martin, Chung, & Langenbucher, 2008).

PREVALENCE OF ADHD IN ADOLESCENTS IN TREATMENT FOR SUD

ADHD is the most commonly diagnosed disorder of childhood (National Institutes of Health, 2000), affecting approximately 12% of males and 5% of females aged 6-17 in the United States according to the only two studies based on a nationally representative samples (Froehlich, Lanphear, Epstein, Barbaresi, Katusic, & Kahn, 2007; Pastor, & Rubin, 2008). However, its prevalence among adolescents with SUD is much greater. For example, aggregate data from studies of mainly cannabis abusing youth, the most common form of SUD among youth, yield a prevalence rate of 38% to 50% (Dennis et al., 2004;Wilens, 2009a). Much higher rates were found in a study of 4,930 adolescents in multisite treatment settings for SUD which reported an ADHD prevalence of 64% for those younger than 15, and 61% for those 15-17 (Chan, Dennis, & Funk, 2008). In conclusion, with prevalence rates ranging from 38% to 64%, this review will adopt a conservative estimate that approximately 50% of adolescents in treatment for SUD also have ADHD. Given the magnitude of this comorbidity, it is therefore critically important to understand the role ADHD plays in increasing risk for SUD and the necessity of incorporating this understanding into the treatment protocol.

The widespread prevalence of ADHD among adolescents with SUD is best explained by the secondary substance abuse disorder model and the common factor model (Hawkins, 2009). The secondary substance abuse disorder model explains co-morbidity by positing that disorders such as ADHD increase risk for the development of SUD. Two distinct mechanisms are operative in this model. The first mechanism involves a cascading sequence in which ADHD increases risk for the development of the disruptive behavior disorders of oppositional defiant disorder (ODD) and conduct disorder (CD), thereby increasing the risk for the development of SUD (Martell et al., 2009). The second mechanism involves self-medication in which juveniles use legal and illegal substances to self-medicate ADHD symptoms.

The common factor model posits that high rates of comorbidity are the result of shared risk factors. This review will discuss impulsivity as the most important shared risk factor.

SECONDARY SUBSTANCE ABUSE DISORDER MODEL

ADHD as a Risk Factor for Disruptive Behavior Disorders

This model enjoys widespread support as there is a robust consensus that ADHD increases risk for SUD by increasing risk for CD (Barkley, 2006; Wilens, 2007, 2008a). Numerous studies have yielded extensive evidence that ADHD is an exceedingly common comorbid condition of CD with approximately 50% of both sexes in clinic samples, and in some studies as high as 100%, also having ADHD (Barkley, 2006; Klein, Abikoff, Klass, Ganeles, Seese, & Pollack, 1997; Marsh et al., 2008; Lahey, B., Loeber, R., Burke, J., & Applegate, 2005; Newcorn, Halpern, & Miller, 2009). Although there are several possible explanations for this comorbidity (Newcorn, Halpern, & Miller, 2009), it is best explained by a developmental sequence among three distinct disorders: ADHD, ODD, and CD (Martell et al., 2009; Newcorn, Halpern, & Miller, 2009). ADHD behaviors emerge first, followed by ODD behaviors reflecting a pattern of negativistic, defiant, disobedient, and hostile behavior towards authority figures followed by more severe conduct problem behaviors reflecting a repetitive and persistent pattern of behavior in which the basic rights of others or major age-appropriate societal rules or norms are violated (Burke, Loeber, Lahey, & Rathouz, 2005; Connor, & Doerfler, 2008; Loeber, Burke, & Pardini, 2009; Waschbusch, 2002).

ADHD Increases Risk for Oppositional Defiant Disorder

Children who temperamentally tend to be overactive, impulsive, easily frustrated, irritated and angered are at increased risk for the development of non-compliance and aggression, which are the two most important risk factors for developing ODD (McMahon & Frick, 2007). Note that these temperamental tendencies are essentially a verbatim description of ADHD and may represent it's earliest manifestations, as the consensus understanding is that ADHD constitutes the extreme end of a dimension, or dimensions, of behavior that falls along a continuum with the behavior of typical children (Barkley, 2006; Nigg, 2006a). This helps explain the high co-morbidity between ADHD and ODD. Starting in preschool children, 62% of those who have ADHD are comorbid for ODD with the end result being that up to 84% of adolescents with ADHD will develop ODD (Barkley, 2006). The extreme behavioral and emotional impulsivity of ADHD is such a severe socialization challenge (Barkley, 2010) that a typical child with ADHD has about a half million negative interactions with parents, teachers, peers and siblings per year (Pelham, & Fabiano, 2008). Hence, it is not surprising that the interplay between ADHD and caretakers can rather easily develop into power struggles that increase risk for ODD (Nigg, 2006b; Pelham, & Fabiano, 2008).

ADHD/ODD Increases Risk for CD

ODD is no longer considered to be simply a benign, milder form of CD, but rather one of its strongest predictors which mediates the relationship with ADHD and CD (Burke, Pardini, & Loeber, 2009; Loeber, Burke, & Pardini, 2009). This ominous development is best

explained by the magnification of the negative interplay with dysfunctional parents and neighborhoods characterized by variables such as harsh, physical punishment, poor supervision, parental SUD and antisocial behavior, etc. (Burke, Pardini, & Loeber, 2008; Button, Scourfield, Martin, Purcell, & McGuffin, 2005; Odgers, Milen, Caspi, Crump, Poulton, & Moffitt, 2007). This interaction between early neurodevelopmental risk factors such as ADHD and psychosocial adversity risk factors is the most widely accepted model for explaining the development of life course persistent antisocial behavior (Dodge, 2008).

ADHD/CD Increases Risk for Academic Failure and Association with Deviant Peers

Academic functioning is a domain of tremendous difficulty for youth with ADHD, especially those who have ADHD/CD, such that almost all clinic-referred children perform poorly at school. For example, approximately 30% repeat a grade, 30-40% may be placed in special education, 45% may be suspended from school, and 10-35% may drop out (Barkley, 2006).

ADHD/CD increases risk for academic failure in the following ways. First, the severe impairments in selective attention, working memory, and sustaining attention that characterize ADHD in and of themselves adversely affect academic performance (Barkley, 2006). Secondly, the serious behavior problems that typify ADHD/CD further exacerbate these severe academic difficulties (Barkley, 2006). Thirdly, the combination of ADHD/CD plus academic failure leads to a loss of self esteem, frustration and peer rejection, and, most importantly, association with deviant peers (Marshall & Molina, 2006).

Deviant peer affiliation is one of the best predictors of adolescent substance use because of selection and influence processes. Namely, juveniles who are deviant are more likely to *select* deviant peers and thus be *influenced* by the deviancy training that attends this affiliation, e.g., substance use and abuse (Cornelius, Clark, Reynolds, Kirisci, & Tarter, 2007; Hampson, Andrews, & Barckley, 2008; Marshall & Molina, 2006).

SECONDARY SUBSTANCE ABUSE DISORDER MODEL

SUD as Self Medication for ADHD

There is no doubt that a subgroup of adolescents with SUD/ADHD are using licit and illicit substances for the purpose of self-medication which can be defined as the use of substances for reasons other than their euphoric properties, such as ameliorating ADHD symptoms of inattention (Kollins, 2009;Wilens, 2008a,b). The biological basis of this self-medication can be explained by the linkage of ADHD and substances to the neurotransmitter dopaimine. There is a robust consensus that ADHD is linked to deficiency in dopamine (Mick & Faraone, 2008; Swanson et al., 2008a), and an equally robust consensus that the dopamine system plays an important role in the brain's response to rewards as well as the rewarding properties drugs of abuse such as cocaine, nicotine, heroin, cannabis, alcohol (Fareri, Martin, & Delgado, 2008; Goodman & Volkow, 2008; Koob & LeMoal, 2008; Schultz, 2007). Thus there is solid scientific evidence that drugs of abuse can function as a form of self medication because, like stimulant medication, they acutely but temporarily raise the concentration of dopamine in the brain and hence can temporarily improve ADHD

symptoms (Volkow & Swanson, 2008). Unlike stimulant medication, however, drugs of abuse can also cause euphoric effects by triggering a massive dopamine surge followed by rapid clearance (Kollins, 2008).

Lastly, it should be noted that there is convincing evidence that that adolescents with ADHD smoke at rates significantly higher than non-ADHD adolescents and that cigarette smoking serves as a gateway drug for SUD in that it greatly increases the risk for subsequent use of alcohol and other drugs (Biederman et al., 2006; Kollins, 2009; Odgers et al., 2008; Wilens, 2008a,b). For example, there is preliminary evidence that half of ADHD youth who smoke will develop an SUD in adulthood (Wilens, 2008a). This increased risk of smoking for adolescents with ADHD may be due to nicotine's ability to enhance attention (Kollins, 2009). Thus cigarettes can be used as a form of self medication and indeed nicotine agents are being used as medication to treat ADHD (Kollins, 2009).

COMMON FACTOR MODEL

Impulsivity as a Common Risk Factor in SUD/ADHD

The common factor model posits that high rates of comorbidity are the result of shared risk factors (Hawkins, 2009). In the case of the co-occurrence of SUD and ADHD, the most important shared risk factor is impulsivity which commonly manifests itself in sensation seeking and risk taking (Barkley, 2006; Hawkins, 2009). Thus, there is a strong consensus that behavioral and emotional impulsivity is both a cardinal symptom of ADHD and a major risk factor for SUD (Barkley, 2006, 2010; Hawkins, 2009; Koob & LeMoal, 2008). Indeed, SUD can be aptly conceptualized as a disorder that progresses from impulsivity to impulsivity/compulsivity (Koob & LeMoal, 2008). Impulsivity/sensation-seeking helps explain why ADHD can increase risk for SUD independent of increasing risk for CD (Elkins, McGue, & Iacono, 2008; Galera, Bouvad, Messiah, & Formbonne, 2008; Jester et al., 2008; Szobot & Bukstein, 2008).

Sensation-seeking, which can be defined as the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experience, is a well established risk factor for SUD (Hampson, Andrews, & Barckley, 2008; Iacono, Malone, & McGue, 2008; Zald et al., 2008; Zuckerann, 2007). As with ADHD/CD, this risk appears to be mediated by increasing risk for affiliation with deviant peers in that juveniles high in sensation-seeking will tend to seek out peers who can provide opportunities for novel, non normative stimulation such as substance use (Hampson, Andrews, & Barckley, 2008). The biological basis for this shared risk factor can be explained by the fact that both disorders share a dysfunctional dopamine system in which novelty seeking leads to an accentuated dopaminergic response to novelty thereby inducing dopamine release (Tripp & Wickens, 2008; Volkow, 2008).

Recommendations for Treatment of Adolescents with SUD/ADHD

Unfortunately adolescents with co-occurring disorders often fail to receive effective treatment, if any at all (Hawkins, 2009). If this dismal record is to be rectified with regard to adolescents co-morbid for SUD/ADHD, the essential first step of treatment is obviously premised on the identification of such individuals. Since numerous recent authoritative

sources provide best practice models for assessment of ADHD (e.g., AACAP, 2007; Johnson & Mah, 2008), this topic need not be dealt with in this article other than to note that accurate, reliable assessment for ADHD in an adolescent with SUD requires a period of 1 month of abstinence prior to assessment (Wilens, 2009a). If a diagnosis of ADHD is made, it is essential to treat this disorder along with the SUD in an simultaneous, integrated approach (AACAP, 2005; Hawkins, 2009; Wilens, 2009a; Volkow, 2009). The key question is how. Although there is a substantial literature on evidence based treatments for either SUD (Becker & Curry, 2008; Volkow, 2009) or ADHD (Pelham & Fabiano, 2008; Swanson et al., 2008), given the traditional separation of mental health and substance abuse fields, evidence-based guidelines for how these treatments should be integrated for adolescents with both disorders is virtually non-existent (Hawkins, 2009; Wilens, 2009a). In the absence such guidelines, the preceding review would suggest that the first step to achieving an integrated approach would be the implementation of intensive case management services (Hawkins, 2009).

INTENSIVE CASE MANAGEMENT SERVICES

This approach involves specially trained professionals to assess and coordinate the services necessary to help adolescents co-morbid for SUD/ADHD (Hawkins, 2009). These professionals, once they have been cross-trained in SUD and ADHD, would provide at least three vital services.

Assessment

Case managers would insure that all adolescents were adequately screened for ADHD and then referred to experts for diagnosis. They could draw upon the previously referenced recent authoritative sources that provide best practice models for assessment of ADHD to craft a screening instrument appropriate for their setting.

Immediate Treatment

Once an adolescent comorbid for SUD/ADHD is indentified, the case manager would help initiate, implement and coordinate an integrated approach to the treatment of both disorders. The treatments needs of SUD and ADHD should be considered simultaneously; however, if possible, the SUD should be addressed initially (Wilens, 2009a). The managers could draw upon the previously mentioned substantial literature on evidence based treatments for SUD and ADHD to craft such an approach. The ‘integration’ component would be a work in progress, since evidence-based guidelines are non-existent as they are for virtually any other mental disorder co-occuring with SUD (Hawkins, 2009). In this ‘integration,’ as the second edition of National Institute of Drug Abuse publication on principles of drug addiction treatment noted, since psychoactive medications may be critical for treatment success when patients have co-occurring disorders (Volkow, 2009), serious consideration should be given to the use of stimulant medication in conjunction with evidence based psychosocial

interventions for ADHD (Pelham & Fabiano, 2008; Swanson et al., 2008b). Such consideration is especially important for the approximately one-third of adolescents with SUD/ADHD who are using illicit drugs as a form of medication for their ADHD (Wilens et al., 2007).The reasons for such a consideration are the following.

First, there is a robust consensus that stimulant medication, which is more effective than non-stimulant medications (Faraone, 2009), is the first line of treatment for severe cases of ADHD (AACAP, 2007; Biederman & Spencer, 2008; Connor, 2006; Swanson et al., 2008a). Hence, they should be considered for treatment of adolescents with SUD/ADHD despite that fact that they have a clearly established potential for abuse, can be and are being diverted for misuse, and have yet to be properly studied in such a population (Kollins, 2008;Wilens, 2008a, 2009a).

Second, the issue of whether the widespread use of stimulant medications to treat children with ADHD increases risk for SUD later in life has been decisively answered. A substantial body of literature has found that stimulant treatment begun in childhood or early adolescence does not increase susceptibility to SUD, with some studies also finding that such treatment reduces risk for the development of an SUD (Biederman & Spencer, 2008; Goodman & Volkow, 2008; Looby, 2008; Mannuzza et al., 2008; Molina et al., 2007; Volkow, 2008; Wilens, 2009a). These findings may be explained in part by evidence that stimulants act somewhat differently with respect to abuse potential in patients with ADHD (Kollins, 2008).

Thirdly, there is no evidence that the use of stimulants to treat those with SUD/ADHD exacerbates the SUD or of severe drug reactions between stimulants and marijuana, alcohol, or other drugs of abuse (Wilens, 2008a; Wilens, 2009b).

If stimulant medication is integrated into a comprehensive treatment approach, careful monitoring is warranted for signs of possible abuse or diversion such as missed appointments, repeated requests for higher doses and a pattern of ‘lost’ prescriptions (Kollins, 2008). Problems of potential abuse of stimulant medication can be reduced in two ways. First, a prodrug or long acting formulations can be used, as they are less easily manipulated than immediate release formulations to enable abuse by intranasal or intravenous methods to produce an euphoric effect (Kollins, 2008). Second, recently developed novel delivery systems such as the crush resistant shell of Concerta (MHP) or a MPH skin patch, can be used (Mariani & Levin, 2007).

In conclusion, there is a robust evidence base to suggest that stimulant treatment of adolescents with ADHD/SUD should not be summarily dismissed because of a historically erroneous notion that such treatment necessarily increases risk for SUD.

Long Term Treatment

Both SUD (Volkow, 2009) and ADHD (Barkley, Murphy, & Fischer, 2009) should be considered chronic disorders. For example, with regard to SUD, the largest psychosocial treatment study to date of adolescents with SUD has shown that the normative pattern after discharge from good treatment programs is for adolescents to go in and out of periods of recovery and relapse (Dennis et al., 2004). Similarly, with regard to ADHD, even a state of the art 14 month intensive treatment program for children with ADHD showed that long-term monitoring is warranted, as an 8 year follow-up in adolescence found that the treated group

was functioning more poorly than a contrast group on virtually every variable that was studied (Molina et al., 2009). Thus adolescent SUD/ADHD should be viewed as a chronic condition that needs ongoing monitoring and reintervention or continuing care. A case manager would provide this vital function of long term monitoring.

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Chapter 5

PERVERTED JUSTICE: A CONTENT ANALYSIS OF THE LANGUAGE USED BY OFFENDERS DETECTED ATTEMPTING TO SOLICIT CHILDREN FOR SEX

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ABSTRACT

This study explored the language used by offenders soliciting sexual activities with children within Internet chat-rooms. Relational content analysis classified the linguistic content by which offenders sought to engage young persons. Eight recurrent themes encompassed the cognitions of an on-line sexual offender: 'implicit/explicit content', 'on-line solicitation', 'fixated discourse', 'use of colloquialisms', 'conscience', 'acknowledgement of illegal/immoral behaviour', 'minimising risk of detection', and 'preparing to meet offline'. The language indicated increased risk-taking behaviours of the offender, which countered the anonymity chat-rooms otherwise provide. Minimising risk of detection seemed unimportant and offenders arranged off-line meetings with little caution. Electronic anonymity may give offenders false confidence, and so encourage persons to extend on-line and virtual risk-taking into to the real world.

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INTRODUCTION

The cheap, convenient and apparently confidential nature of the Internet makes the medium ideal for solicitous communication. In some ways this is positive; persons who find interpersonal communication difficult can express their desires indirectly, but still form relationships with sympathetic others using similar means of communication, so providing the previously excluded an alternative means by which to socialise (Granic & Lamey, 2000). Unfortunately, there is a darker side to such ease of communication, as this same process makes it easier for persons to seek sexual contact with children and vulnerable persons. Even when the Internet was less ubiquitous nearly one in five (19%) youths still reported having been approached for sex over the Internet (Mitchell, Finkelhor, & Wolak, 2001). Of the 19% reporting sexual solicitation, 3% reported this as aggressive; only 10% of sexual solicitations were reported to the police or their Internet service provider. Most parents (69%) and youth (76%) had not heard of the Internet Watch Foundation (http://www.iwf.org.uk/ or the internet Crime Complaint Centre (http://www.ic3.gov/default.aspx)) where such occurrences could be reported. None of the youth solicited in Mitchell *et al.'s* (2001) study reported having been sexually assaulted, but their study suggested youths encounter numerous approaches whilst in Internet chat rooms where offline contact is attempted or made.

The potential for some on-line abuse to transfer from the virtual to the real world is genuine, and efforts to understand this process and thereby protect vulnerable persons who use the Internet are thus justified. Retrospective studies (e.g., Elliot, Browne, & Kilcoyne, 1995) give some insight into the behaviours and thought processes that motivate sexual offenders, but there is a paucity of empirical data on how persons are groomed for potential sexual abuse via the Internet.

Durkin (1997) suggests sexual offenders misuse the Internet in four ways: by trans**f**erring child pornography; targeting children to molest; communicating with other paedophiles; and to converse using sexually explicit language with children. Not all men who download 'indecent' sexual imagery involving children appear deviant or emotionally unstable (Henry, Mandeville-Norden, Hayes, & Egan, 2010), but the Internet makes it easy for individuals who were once furtive and isolated to find like-minded peers (Ward, Keenan, & Hudson, 2000; Durkin, Forsyth, & Quinn, 2006), and it remains the case that some sexual offenders use the Internet to abuse on-line, offline, and further offend via the production and transfer of pornographic images or attempts to solicit sex from children (Sheldon & Howitt, 2008). The occurrence of disinhibited sexual behaviour on the Internet reflects the "triple-A engine": accessibility, affordability, and anonymity (Cooper, McLoughlin, & Campbell, 2000). The relaxed and playfully informal nature of the Internet, coupled with the Internet's apparent anonymity, act as powerful factors disinhibiting behaviour (Danet, 1998). Apparently anonymous, persons can develop different personas allowing them to express thoughts, fantasies and sexual identities they may not have previously explored. Adopting a different identity on-line may relieve people of responsibility, as it is different to their identity outside cyberspace. While this may be sexually liberating (Palandri & Green, 2000) it is more problematic for those who desire to solicit children for sex (Taylor, Holland, & Quayle, 2001).

The safety provided by anonymity facilitates the expression of sexual interest, as the Internet user can present the self in any way believed to be attractive to an unsuspecting

target. Self-representation on the Internet is mainly derived through conversation (Cornwell & Lundgren, 2001) although audio-visual content is increasingly common as bandwidth improves. When the purpose of self-representation is purely sexual, as in the soliciting of children, then the style of writing, use of punctuation, speed of response, and use of emoticons (icons of emotional states) will each influence the processing of first impressions (Mantovani, 2001). This is an important part of the grooming process, as it is important for establishing initial credibility and gaining the trust of the targeted child.

Quayle and Taylor's study of paedophilic voyeurs (2003) addressed persons for whom problematic Internet use was mediated by distorted cognitions. Their model considered the various stages offenders follow when using the Internet and the thought processes that sustain this engagement, providing a conceptual framework for therapeutic assessment and intervention. Such cognitions exacerbated the level of problematic behaviour in as much as voyeurism leads some to the commission of contact offences. Ingram, Hathorn, and Evans (2000) note problematic Internet users congregate on-line, developing virtual communities in which they can coach one another on the skills necessary to avoid detection when trading pornography or attempting to groom children and young persons.

Some populations seem more vulnerable to grooming than others, and troubled teenagers experiencing high levels of depression, peer victimisation, and parental alienation are more attracted to forming on-line relationships (Wolak, Mitchell, & Finkelhor, 2003). Beebe, Asche, Harrison, and Quinlan (2004) found that teenage chat room use was consistently and significantly related to negative psychological and environmental factors and participation in risk behaviours. Mitchell *et al.,* (*op cit*) found that troubled youths were more predisposed to on-line sexual solicitation than their less troubled peers, suggesting that youth who are estranged from other peers and family members may be more vulnerable to on-line exploitation by strangers, although 75% of sexually solicited adolescents appeared nevertheless well-balanced. Ten percent did not use chat rooms, and 9% did not talk with strangers. Parental supervision techniques, such as asking permission to go on-line, having rules about what to do on-line, checking the monitor, and searching files after logging off did not relate to solicitation risk.

The current study attempts to address the present gap in research by examining recorded transcripts of conversations conducted by persons prosecuted for soliciting children for sex in Internet chat rooms using a content analysis to gain theoretical insight into the offenders' thought processes. Though there are several qualitative methods to choose from, the approach chosen here is relational analysis (Weber, 1990). Relational analysis resembles the traditional scientific approach of having a pre-defined question in mind, and is an inductive which can be used to suggest an heuristic model which would be useful for directing subsequent action.

METHOD

Participants

The data in this study derived from individuals acting as *agent provocateur* (AP) in a chat room on a website called www.perverted-justice.com. These individuals are authorised to masquerade as children and to engage in chat room discussions as a means of identifying

persons who use the chat room inappropriately. The sexual offenders ultimately prosecuted were oblivious both to their participation in this study and to the fact that their chat room conversations were with adults masquerading as children. Twenty conversations that led to conviction were analysed in this study. To optimise consistency of sampling, these conversations selected involved adult males who were sexually targeted girls less than 16-years-old. The 20 protocols chosen were randomly selected from the complete transcripts available at the website.

Design

This study employed relational content analysis to examine the components of solicitous chat room conversations made by men seeking sexual relations with young girls.

PROCEDURE

The twenty chat room conversations were downloaded from www.perverted-justice.com and saved in a Word document as text files. These conversations were then transferred into a computer software programme (NVivo) for analysis. A description of NVivo is provided in the Data Analysis section.

ETHICAL ISSUES

Although the information gathered for analysis is in the public domain, permission to use the chat room conversations as data the current study was obtained from the proprietor of the website. Although it was recognised that conducting this work could evoke uncomfortable feelings in the authors, all researchers were supported by their colleagues and approached the matter professionally, mindful that far worse content is routinely processed by other persons in the social, health and criminal-justice arena.

Ethics: Are AP Legal or an Example of Entrapment?

The type of language and measures used by the AP could be construed as entrapment The content of www.perverted-justice.com was devised by individuals in the legal field and approved by a Professor at the Harvard School of Law, so rules are provided determining what can and cannot be said. The actions of the AP do not constitute entrapment for two reasons. First, entrapment is a term created and legislated by law enforcement officials; AP are not law enforcement officials. Second, offenders make the first contact with the AP; the initiation of sexual activity is by the offender.

DATA ANALYSIS

Conversations were analysed for recurrent themes thought to reflect the strategies used by sexual offenders in the Internet grooming process. Relational analysis was used to identify concepts present in the conversations. Relational analysis goes beyond presence by exploring the relationships between the concepts identified. Thus, the focus of relational analysis is to search for meaningful relationships among concepts in a text (Weber, 1990). The following strategy for relational analysis was used in this study:

1. Familiarisation

The reader made a "*précis of the entire corpus of data*" (Alywin, 1985, p.230), becoming familiar with the content by repeated reading.

2. Affect Extraction

This category of relational analysis makes an emotional evaluation of concepts explicit in a text, exploring the emotional and/or psychological state of an individual. According to Gottschalk (1995), the emotional and/or psychological state of an individual can be ascertained by their verbal/written content.

3. Categorisation

The text of the conversations was reduced and coded into categories. These represent emergent themes. Repetitions of these emergent themes between conversations are indicative of their status as recurrent themes.

4. Exploration

The relationship between the categories was then explored to establish the degree to which two or more concepts are related, and to determine whether or not the concepts are positively or negatively related to one another.

NVIVO

The computer software package, NVivo (NUD*IST) 6.0 (QSR, 2002), was used to assist with data analysis. NVivo is designed to remove rigid divisions between data and interpretation. The program also offers many ways of connecting the parts of a study and integrating reflection and recorded data. It is particularly useful for managing and synthesising ideas as data are linked and coded.

RESULTS

The quotes within the results were chosen as strong (sometimes explicit) exemplars of underlying recurrent themes, the focus being on similarity and the consistent way sexual offenders appear to think about soliciting for sex on-line. To this end, each theme reflects a distinctive representation of the cognitions of a sexual predator whilst on-line. Our analysis focuses upon those themes relevant in understanding the Internet grooming process engaged by sexual offenders. There are two sections: one presents analysis of the sexual offender's text, the other that of the AP. The analysis begins with a presentation of the raw content of the sexual offenders' discourse, distinguishing between 'implicit' and 'explicit' comments. This theme relates to the second category, which looks at the way in which sexual offenders appear to 'solicit' children for sex on-line. The methods of solicitation used by sexual offenders—'initiation' and 'transference'—tie in with the extent to which sexual offenders appear to remain focused on their objective whilst on-line; this theme is referred to as '***fixated discourse***'. Any deviation from the principal focus of sexual solicitation to show interest in the AP's dialogue embraces the themes of '***conscience'*** and ***'colloquial language***'. Following this, the analysis examines how sexual offenders appear to 'minimise possible risks of detection' and how they 'acknowledge illegal/immoral behaviour'. The analysis of sexual offenders' text culminates with the examination of their motivation to meet off-line with the target victim regardless of morality or risk factors associated with detection. Finally, an analysis of the comments made by APs is presented. Individual sexual offenders are denoted by the code S1 to x, APs by AP1 to x.

1. Content of Discourse

Implicit

The term implicit includes any passage of conversation on the part of the sexual offender that could be reasonably assumed to be grooming behaviour without being obvious to a child. The noticeable aspect of the following extracts from one conversation is how the offender focuses on reinforcing his target about his fondness for them, whilst gradually shifting to compliments of a more sexual nature so as not to appear too obvious early in the conversation:

> S1 (3:19:05 PM): hey you are really cute.
> S1 (3:20:41 PM): u are pretty.
> S1 (3:35:25 PM): hi sexy.

The next example alludes to the offender having a game with his target (it is clear to the reader that his intentions may be sexually orientated):

> S2 (4:07:04 AM): we could jus sleep or play with each other.

Another example illustrates how the offender tries to befriend his target:

> S3 (5:59:16 PM): wanna be my friend angel.

Explicit

The term explicit encompasses any conversation that is overtly related to sex. As can be seen from the following extracts, these comments are so explicit that the offenders are letting their intentions known to their targets. This clearly undermines any subtle grooming strategy and renders redundant any implicit technique. Examples include:

S4 (7:34:42 PM): Ever think about anal?
S5 (3:06:25 AM): ok then right now take your finger and put it in your pussy.
S6 (10:28:24 PM): have u stroked a guys cock before?

2. On-line Solicitation

Initiation

Initiation relates to any passage of conversation in which the offender is deemed to have solicited the child to perform a sexual act whilst on-line. This category overlaps with the 'explicit' subcategory. For example:

S7 (06:01:12 PM): get your finger in while u rub clit and go in and out.

Transference

This subcategory comprises content in which the offender is construed as transferring his intention to have sexual relations with the target onto the target. That is, where the offender appears to transfer the responsibility to the intended victim. This could be inferred as offender seeking consent. In this extract, 's9' is the offender:

S9 (11:39:43 PM): well if we ever meet this summer
AP1 (11:40:01 PM): u still wanna meet me?
S9 (11:40:28 PM): of course!!!!!!!!!!!!!!!!
S9 (11:40:29 PM): i mean
S9 (11:40:33 PM): if u do
S9 (11:40:34 PM): eeek
S9 (11:40:47 PM): and u don't freak out when u realize i really am 36/old.

The following example shows offender (S2) tentatively ask a victim about having sex and thereafter seeks to meet off-line:

S2 (4:13:15 AM): would u want to try having sex?
AP2 (4:13:21 AM): ya if u wanted 2
S2 (4:13:26 AM): ya
AP2 (4:14:18 AM): kewl!!
S2 (4:14:21 AM): so give me directions tomorrow.

In the following example, offender S3 had been showing off his penis via webcam whilst on-line. He compares his penis to a 'toy' and gives ownership of the toy to the AP:

S3 (6:19:49 PM): ok baby

S3 (6:19:57 PM): wanna see 1 more time ur toy
AP3 (6:20:00 PM): sur
S3 (6:20:05 PM): cause is urs now.

3. Fixated Discourse

This theme includes any passage of conversation in which the offender dismisses the AP's comments and focuses on what the offender wishes to discuss whilst on-line. This theme overlaps with both the explicit content theme and the initiation category of the on-line solicitation theme. In this example, S7 is encouraging the intended victim to practise sucking a penis:

S7 (07:09:57 PM): do u deep throte them
AP4 (07:10:29 PM): wat u mean?
S7 (07:10:52 PM): never mind
S7 (07:11:00 PM): u got it
S7 (07:11:20 PM): ok relax throte
AP4 (07:11:29 PM): ok
S7 (07:11:50 PM): put popsickle in mouth
S7 (07:12:05 PM): and go to back of throte
AP4 (07:12:25 PM): it gags me
S7 (07:12:50 PM): close eyes
S7 (07:12:56 PM): swallow
S7 (07:13:12 PM): and relax

This example sees S5 ordering AP5 to concentrate on what he is encouraging her to do. In this case, the offender is persuading the target victim to insert fingers into her vagina:

S5 (3:32:27 AM): dont talk so much about other stuff think about what your doing and what it feels like
AP5 (3:32:35 AM): oh sry
S5 (3:32:46 AM): it will feel good
S5 (3:33:57 AM): put your finger in as far as they will go

The following extract illustrates the sexual predator S4's complete fixation on carrying out a particular fantasy:

S4 (10:29:40 PM): not sure where I want to cum though
AP (10:29:57 PM): yeah? what r u thinkin?
S4 (10:30:37 PM): hmmmm, on your face, or tits, or down your throat or maybe on your ass
AP (10:31:12 PM): oh ok. whatever is fine just as long as its not in me. lol
S4 (10:32:13 PM): ok
S4 (10:32:20 PM): it won't be
AP (10:32:36 PM): kewl. lol
S4 (10:33:22 PM): which one of those would you prefer?
AP (10:34:19 PM): umm i dunno. ive only had guys cum on my belly b4. whatever u wanna do is ok.

S4 (10:34:32 PM): what would you like to try?
AP (10:35:20 PM): it doesnt matter. im just so excited and i dont care. lol
S4 (10:35:54 PM): pick one
AP (10:36:52 PM): umm.
AP (10:37:18 PM): i dunno. well the least messy would b on my back or butt i guess.
AP (10:38:04 PM): i have call my mom right now. ill b back in like 10 -15 minutes.
S4 (10:38:29 PM): ok. Maybe I could cum on your tits

4. Use of Colloquialisms

This theme incorporates any idiomatic-like responses that the offenders use to appear more appealing or credible to the target. Particular examples include:

S10 (05:25:40 PM): will u be my gf gorges

S6 (9:41:02 PM): ur soooooo hottttt
S6 (10:40:09 PM): omg i love small girls im tellin you
S6 (10:40:11 PM): no way
S6 (10:40:16 PM): thats my favorite
S6 (10:40:19 PM): skinny girls
S6 (10:40:20 PM): mmmmmmmmmmm
S6 (10:40:23 PM): yummyyyy

This particular theme links with the implicit subcategory of the 'content' theme. As with implicit content, the offender tries to appeal to the young person by behaving as a child, only to progress to making explicit sexual remarks later in the conversation.

5. Conscience

Empathic

The empathic subcategory comprises components of conversation where the offender appears to acknowledge that either his on-line request or suggestion may worry or distress the AP, or that his remark is inappropriate. In the following extract, the offender discusses the possibility of teaching the prospective victim to suck a penis:

S11(2:36:04 AM): i would help but its not moral

This was the only example morality in any of the chat room conversations analysed, suggesting the urge to commit the offence overpowers any inhibitions the offender otherwise has.

Unempathic

This subcategory consists of content indicating the offender is either oblivious to, or disinterested in any concerns revealed by the AP, and links closely to the 'fixated discourse' theme. In this example, 'S12' is the offender:

AP (11:45:14 PM): u gonna bring condoms?
AP (11:45:18 PM): I dont wanna get preggers.
S12 (11:45:24 PM): ok
S12 (11:45:44 PM): i'm not gona use a condom, but i wont cum in u

The sexual predator in this example is S13:

S13(7:34:42 PM): Ever think about anal?
AP (7:35:06 PM): lol i havent done it. does it hurt?
S13(7:35:22 PM): at first, but then I think you would like it
S13 (8:23:24 PM): if I don't have to buy them I can get there sooner
AP (8:23:52 PM): well its up 2 u. i just dont wanna get preggers

6. Acknowledging Illegal/Immoral Behaviour

This theme incorporates content within conversations indicating the offender is aware his behaviour is illegal and/or immoral. This category relates closely to the fixated discourse theme, the minimising risk theme, and the unempathic category within the conscience theme The following extract suggests that the offender is prepared to overlook issues of morality and empathy for the victim if he can gain sexual thrills:

S1 (4:01:10 PM): nothing like making a girl say "fuck me!"
S1 (4:01:19 PM): even if u know u are not supposed to.

This line reveals that the offender knows his sexual intentions are unlawful:

S5 (2:34:06 AM): yea but you tell anyone or something gets out i go to jail

7. Minimising Risk

This theme exposes how offenders try to reduce risk during on-line solicitation:

S1 (7:20:23 PM): shut down yahoo to erase all this
S2 (4:23:55 AM): r u going to tell anyone iam coming
S2 (4:24:12 AM): just between me and u right
S6 (10:44:08 PM): so u can keep it a secret right?

The most notable inference that might be made concerning this theme is that it is not recurrent. Sexual offenders in this data series appeared to take considerable risks whilst soliciting for sex on-line. They gave out mobile phone numbers to arrange meetings. The anonymity provided by the Internet bolsters confidence and a sense of immunity, not least because the offender can take on a different persona whilst on-line with the intended victim. However, offenders frequently revealed an accurate age during conversation; thus another view might be that the strength of motivation to carry out the offence renders risk-taking a minor consideration.

8. Preparing to Meet Offline

This theme examines the degree to which sexual offenders seek to finalise their grooming procedure via an offline meeting with a view to actually committing the offence. Specific examples of this include:

> S14 (9:52:15 PM): i would love to meet ya sometime
> S15 (6:06:06 PM): would do u like meet me in person?
> S4 (7:40:19 PM): So, when do you want to hook up?

In each of these cases, the offender was prepared to drive long distances (100-200 miles) to meet with their prospective victims. Furthermore, the offenders were willing to meet anywhere. For example, in the prospective victim's house:

> S15 (8:19:21 PM): what's your addy?
> S15 (8:19:48 PM): when do you want me there?

Or in a shopping mall:

> S3 (6:56:29 PM): so 4 real wanna see me in the wal-mart Saturday

Thus, offenders stopped being cautious when focused on actually meeting a child.

ROLE OF THE AP

The role of the AP is to wait for an offender to make contact on-line and then to engage in conversation with the person who contacted them. The objective of the AP is to obtain a contact number from the offender and arrange to meet them off-line. In this way, the offender can be prosecuted. Of the 20 offenders involved in chat room conversations analysed for the purpose of this study, 12 were later convicted of grooming offences. In the following extract, the AP is discussing oral sex:

> AP (7:33:51 PM): i like u 2 swallow. Lol

One of the potential flaws of this study is the possibility that comments such as that above may not genuinely reflect those of adolescent girls. However, the response of the offender to the above comment indicates a lack of suspicion. The offender uses capital letters to emphasise his appreciation of the AP's comment:

> S4 (7:34:42 PM): VERY NICE.

This could suggest that the offender is fixated on the thought of fulfilling this fantasy so fails to consider that the AP's comment may differ to the general chat room talk of adolescent girls, or that he is used to reading such comments from adolescent girls.

In another example, the AP uses a name that is sexually provocative (lips4u69), which may appeal to a sexual offender. The AP's comments can also be interpreted as being extremely encouraging for an offender who wishes to commit an offence:

S17 (11:17:17 PM): i'm hard thinking about fucking you
AP (11:18:00 PM): damn. i cant wait. ur making me so excited.
S17 (11:18:48 PM): you on top of me would be very nice
AP (11:19: 42 PM): yeah. i like to be on top lol
S17 (11:20:38 PM): good. my cock is so hard right now
AP (11:21:14 PM): damn. stop teasing me.

DISCUSSION

This study used content analysis to examine the Internet grooming process used by prosecuted sexual offenders. Detailed analysis of twenty chat room conversations revealed eight recurrent themes that reflected distinctive cognitions used by on-line sexual offenders. These comprised '*content of discourse'*, '*on-line solicitation' ',fixated discourse', ' use of colloquialisms', 'conscience', 'acknowledging illegal/immoral behaviour', 'risk minimisation', and ' preparing to meet offline'.*

The 'content of discourse' theme divided into '*implicit'* and '*explicit'* categories. The term '*implicit'* reflected offender's conversation that might be reasonably assumed to constitute grooming without being obvious to a child. The '*explicit'* category addressed conversation overtly related to sex. This theme was fluid; offenders were initially careful to moderate their language and disguise their sexual solicitation, but became increasingly explicit during conversation, making implicit grooming strategies redundant. There are two possible explanations for this. First, offenders may believe using explicit sexual language does not deter the child from maintaining chat room conversation and developing an on-line relationship; the irreverent, provocative, and explicit language used in many chat rooms, and the subculture of 'trolling' also normalises such discourse. Being explicit is also time-saving, as many children will correctly withdraw at this point.

'On-line solicitation' divided into '*initiation'* and *'transference'.* Initiation was defined as any passage of conversation where an offender solicited a child to perform a sexual act whilst on-line. Transference occurred when the offender was construed as diverting responsibility for sexual solicitation to the victim. Offenders can diffuse responsibility for their behaviour by apparently gaining consent from a prospective victim, or manipulating a child into taking responsibility for a sexual act, possibly inhibiting a victim from divulging abuse. The 'initiation' category overlaps with an 'explicit content' category. Both express what the offender desires, though an offender may regard on-line sexual solicitation as inherently sexual satisfying, and thus remain an indirect, "hands-off" offender rather than proceeding to "hands-on" offending. Fixated discourse reflected conversation in which the offender dismissed the target's comments and focused on what the offender wanted to discuss. This theme overlapped with the explicit nature of the content and the initiation aspect of on-line solicitation theme, perhaps substantiating the claim that offenders see the Internet grooming process as a convenient opportunity for immediate gratification, becoming a substitute to committing a contact offence.

Colloquial language was a theme used to define any child-like responses expressed by offenders; presumably such responses are used to appear more appealing or credible to the victim. However, some offenders disclosed their real ages during conversation, undermining any advantage gained through deceit. Possibly sexual opportunists judge whether a conversation has developed sufficiently to reveal genuine information (e.g., age). Eventually, the security of anonymity has to be breached, and some credible social exchange may control just what is disclosed to a potential victim.

The conscience theme also divided into two categories: '*empathic'* and *'unempathic'.* The empathic category comprised conversation where it was acknowledged that the communication may have worried or distressed the intended victim. However empathy was not a recurrent theme in the conversations analysed, suggesting offenders neutralise inhibitions or lack empathy and inhibitions to start with. This observation marries with the general principle that criminal cognitions have broad dimensions of thoughtlessness and callousness (Egan, McMurran, Richardson, & Blair, 2000). The unempathic category comprised content indicating offenders were either oblivious to or disinterested in concerns revealed to potential victims. This category links closely with the fixated discourse theme, highlighting the powerful motivations driving the offender's desire to achieve their end, and Elliot *et al.'s* (1995) finding that only 1 in 4 sexual offenders stopped their abuse if a victim expressed distress or pain during the act.

The sixth recurrent theme was *'acknowledging illegal/immoral behaviour'.* This theme included content indicating offenders were aware of the unacceptability of their behaviour. This theme relates to the fixated discourse and conscience themes, as it indicated offenders were prepared to overlook scruple. The *'minimising risk'* theme exposed offenders' attempts to cover their tracks during on-line solicitation. The most notable aspect of this theme was how infrequently it emerged, as offenders took clear risks whilst soliciting on-line, for example giving mobile telephone numbers and arranging to meet prospective victims. This theme conceptually overlaps with acknowledging illegal/immoral behaviour, suggesting offenders know the penalties of soliciting in this context, but are not explicitly bothered by them. This could reflect an underlying compulsion to offend which overwhelms fear or risk of detection (Egan, Kavanagh & Blair, 2005), or a self-serving preferences to be pursued irrespective of consequence (Egan & Cordan, 2008). The final recurrent theme identified was *'preparing to meet offline'.* This theme examined the lengths offenders went to in order to arrange an offline meeting with a potential victim, so shifting from virtual sexual activity to real world risk (Seto, Maric,& Barbaree, 2001).

There are weaknesses with this study. First, the responses of an AP to the overtures of a sexual offender may differ to the responses of a real child. The emergent themes we elicited from the observed texts may be different to those made by genuine children or to Internet-based sexual offenders who are not detected. We note that our data analysis does not indicate there was any obvious suspicion in relation to the responses made by the AP. We limited the study to conversations between male sexual offenders and persons masquerading as young girls; subsequent studies examining on-line grooming processes targeting young boys is clearly relevant. This study is small, and analysis was strictly based on content themes; we sought to extract broad conceptual patterns which can be used to codify on-line solicitation discourse. We do not propose that our findings necessarily define all online soliciting methods, and this study simply sought to define some initial parameters in the debate. We believe that issues of reliability, validity and generalisability of findings are more usefully

addressed when there is a more significant *corpus* of data in this area justifying more rigorous analyses. However our model provides a framework for the collection of data which will provide the consistency required for broader understanding, and which may be applicable for any persons assessing sexual offenders or examining the data collected from such offenders.

In conclusion, **t**his study explored the Internet grooming process used by men seeking to solicit girls for underage sex. Relational analysis was used to content analyse the language used by 20 offenders. This revealed eight recurrent themes which reflected distinctive elements of the rhetoric used by a sexual offender on-line. These themes were 'implicit/explicit content', 'on-line solicitation', 'fixated discourse', 'use of colloquialisms', 'conscience', 'acknowledgement of illegal/immoral behaviour', 'minimising risk of detection', and 'preparing to meet offline'. The language used suggested that offenders often took risks even when easily detected, and minimising the risk of detection seemed unimportant to offenders seeking to arrange meetings offline. The apparent anonymity of the Internet may give sexual offenders the confidence to say exactly what they want, but also paradoxically leads them to take risks that may lead to their detection. The on-line behaviour of a sexual offender appears direct and unsubtle, whereas real world grooming appears more devious and deceitful.

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Chapter 6

IS DEVELOPMENTALLY INFORMED THERAPY FOR PERSONS WITH ID AND CRIMINAL PERSONALITY/OFFENSES RELEVANT?

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Initially, the "Reconstructive Therapy" of Dr. Jerome Schulte, focused on the treatment of the homicidal psychotic patient. After decades of treatment applying this model with a variety of offenses, Dr. Schulte believed that it could be applied to understand and treat the "Criminal Personality", various offenses as well as treating non-clinical populations of children, adolescents and adults. The goal of therapy became one of promoting personal growth and humanness through the positive resolution of Ericksonian stages. The question remains if the successful resolution of Erickson's Psychosocial stages is relevant to the functioning of a Person with an Intellectual Disability, and Criminal Offenses? A theoretical and initial exploratory analysis suggests that the Reconstructive Therapy model can be relevant to the treatment for Persons with Intellectual Disabilities (ID) and various offenses.

Dr. Schulte initially developed his model of "Reconstructive Therapy" while working with forensic psychiatric patients at Atascadero Forensic Hospital in California. According to Dr. Schulte [1], the homicidal psychotic patient can be "the most challenging and complex case(s) where you have a traumatic syndrome superimposed upon a psychotic process and possibly a personality disorder (maybe psychopathy)". Essentially, Dr. Schulte applied the Erickson stages of Psychosocial Development to inform how to conceptualize and treated these patients.

Dr. Schulte's Reconstructive Therapy encompassed an initial stage where the psychosis needed to be treated and be in remission before the patient could join group psychotherapy. While in therapy, the patient would then work to address such stages as developing Self-Value, Autonomy, Pride, Identity, Intimacy and then work on two Relapse Prevention phases. Within each phase of therapy, the individual is presented with contradictory "forces" that pull

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at the person. The goal is to withstand, negotiate and positively resolve these contradictory forces towards personal growth. In regards to the first phase of developing Self-Value, Dr. Schulte [1] explains "one must begin with the assumption that there has been a lifelong deficiency of value which antedates the homicide and is at the core of the homicide". The aim of this phase is to "develop a sense of worth as a human being which is not contingent upon achievements, derived from the outside but is part of one's birthright".Once the patient develops this sense of worth then s/he can work to reconcile the contradictory forces of trust versus the mistrust of others involving "fulfilling the need for unconditional love…(and) to seek out of oneself this need from an adult position".Once this is done, then the therapy can progress to the second phase of developing a sense of autonomy. According to Dr. Schulte [1], "the dynamic force in all homicides equals the need to destroy or individuate oneself from the symbiotic, parasitic force that is engulfing oneself, that is preventing in achieving autonomy and the completion of the work of separation and individualization or an attempt through fusion with an object that it seen as capable of bestowing the feeling of autonomy. The ongoing, lifelong struggle is a need for a feeling of existence or survival-an absolute need for a satisfactory fulfillment of the need for autonomy that is the foundation of the resolving of the human potential for dangerousness". Within this phase, the contradictory forces involve dependency versus developing a sense of independence.

The third phase involves the development of a sense of pride. The 'battleground" in processing initiative versus guilt involves "each patient (taking) responsibility for all of their actions in life including all crimes and homicides-go through a process of accountability to oneself and the group as a representative of society which they learn that they are all part of, a step by step process of working through all of their feelings, and actions leading up to the homicide as well as the homicide itself"…"It is this pride that develops through the taking full responsibility of all of the actions that one initiates in life that is the determining criterion for the realization of the position of non-dangerousness"[1]. Subsequently, the fourth phase involves the development of a sense of identity. A positive and stable sense of identity is important to be able to function. If this sense of identity is fragile, continues to have threatening/aggressive aspects to it or it doesn't encompass the different roles that the person takes on, then identity diffusion occurs. Finally, the fifth stage of intimacy and sense of love involves now that the person has an identity, it can be shared it with someone else. Two relapse prevention phases are then addressed which include learning about one's risk factors for developing a psychosis, and backsliding on the psychosocial stages.

In subsequent communications with Dr. Schulte, he has found that not only can Psychotic-Homicidal offenses be treated, but the "Criminal Personality"/offenses can be understood as a failure in reconciling these psychosocial stages. According to Dr. Schulte[2], "I have been equally successful in applying the model to non-psychotic criminal offenders, regardless of the type of offense…it is the progressive cumulative effect of unresolved or failed stages that not only determine the eventual occurrence of the criminal personality but even ultimately dictates the type of criminal personality…the resolution of the first three stages is mandatory to reach a position of considering a state of non-dangerousness". Subsequently, Dr. Schulte's writings concentrated on the development of the "Socially Acceptable" or "Criminal Personality". According to Dr. Schulte, these two personality types are different sides of the same coin and that both of them strive for "mastery and need fulfillment". However, the successful resolution of the Ericksonian Psychosocial stages leads one towards the development of the "Socially Acceptible" Personality; however, the negative

resolution of these same stages can lead one to seek self-worth and value through the control and manipulation of others, thus starting one down the path of the "Criminal Personality".

In regard to persons with an Intellectual Disability, it would appear to be reasonable that the psychosocial stages outlined here would help guide or at a minimum inform the remediation of one's functioning deficits and address the developmental delays within this population. However, the author is unaware of any such approach being used in treating persons with ID and criminal offenses. However, a current prominent treatment model for Persons with ID and sex offenses, the Old Me New Me model, essentially does incorporate many of the Ericksonian stages and issues in a different manner.

According to Jim Haaven [3], the "Old/New Me model, in its simplest form, presents a theory of positive psychology in that the offender identifies his or her present characteristics and behaviors (Old Me) associated with the offending lifestyle and then develops new characteristics and behaviors (New Me) of the non-offending lifestyle that he or she wants to lead. The New Me is the endorsement of positive approach goals to live one's life in healthy, fulfilling ways without sexual offending behavior. This model stresses humanistic values in addition to addressing dynamic risk factors for offending."

Essentially, there are many fundamental similarities and few differences between the Reconstructive and Old Me New Me models. For instance, Dr. Schulte talks about the "Socially Acceptable and Criminal Personalities", while Jim Haaven talks about the Old Me and New Me identities. The Criminal Personality is similar to the Old Me identity since it was the identity that was prominent when the person was committing their offenses. The Socially Acceptable Personality is similar to the New Me identity where the person has entered treatment, is motivated to change, and develops and assumes a success-oriented identity (New Me). Just as Dr. Schulte conceptualizes that these two personality types are two different sides of the same coin, Jim Haaven also states that within each person is an Old and a New Me who battle for control of the person. In addition, the tasks of resolving the psychosocial stages, although they aren't addressed in the same order, are also the focus of Old Me New Me treatment. For instance, self value can be explored within one's Old Me identity, in that the Person with ID may have experienced a sense of stigmatization due to the disability defining their identity. The process of developing and strengthening a success-oriented identity or New Me, is a validating process that the offender can be successful and create a Good Life. The core Treatment paradigm to the Old Me New Me model is identity change from a criminal/disability-defining identity towards a positive, empowering success identity. This identity development and shift is highly empowering for persons with ID especially due to their experience of stigmatization and possible past abuse, which is more prevalent in this population than in the non-disabled population. Subsequently, once the Old Me and New Me identities are defined and developed, then the beliefs and skills to develop initiative, competence, intimacy etc are addressed. However, the one stage that is addressed differently in the Old Me and New Me model, than the reconstructive model, is the issue of autonomy. Although the person with ID will come to understand that they alone are responsible for their choices and actions, and need to develop their own "individualized" identity; however their autonomy can be limited due to their support system. At times, this support system may impinge upon their sense of autonomy. Within Old Me and New Me Treatment, the person is taught how to ask for help from their support system, and the support system is designed to "wrap around" the individual. Although the autonomy of a person may be "facilitated" by his

admission to secure services, his connection with family and his support system is further developed and strengthened.

A main difference in the models involves how much they rely on disclosure and accountability of their past actions and offenses. For Dr. Schulte, the person must work orderly through attaining self-value, autonomy and then take responsibility and accountability for all of their actions which can result in a sense of pride for having done so. Only until this is accomplished is the position of non-dangerousness attained. However, in Old Me New Me Treatment, since it is difficult to know about all of the person's past offenses, and since the person with ID is more vulnerable to shame (due to prior stigmatization, disability defining identity, and a less coherent identity), this process of disclosing about one's past sexual behavior is non-confrontational. The goal of this task is to have the person continue to rely on their empowering New Me identity, and courage, to share the difficult information. However, during the process of therapy sufficient disclosures are made especially since conceptualizing one's Old Me as the offending identity gives one a safe enough distance from which to disclose about one's sexual offenses, and then not be defined by them.

In addition, another model has been applied to the Person with ID and sex offenses, namely the Good Lives Model. The Good Lives Model developed by Ward and Mann [4] believes that the person tries to attain certain goods in their lives, such as excellence in work and play, relatedness to others, inner peace etc. However, due to a number of barriers and factors, the person may primarily be able to access these "goods" only through criminal or offending behaviors. However, it is possible that Schulte's model would argue that certain "goods" can only be attained in a certain order-thus possibly placing their attainment along a hierarchy rather than merely teaching self-management and a process or skills in how to attain these "goods" without the use of offending behaviors.

In essence, the Old Me New Me and Good Lives models have recognized that negotiating or resolving various psychosocial issues is important in the treatment of persons with ID and criminal offenses. Since these two different models, which emphasize different but related methods and psychosocial issues, are applicable to treating offenders with ID, perhaps the Reconstructive model of treatment may not only be relevant, but necessary. This model has been the only model that directly linked the resolution of structured psychosocial stages and issues with the clinical-forensic treatment of various dangerous offenses. Although the model has been applied in Dr. Schulte's clinical experience, the proof of its effectiveness should now be evaluated in clinical research.

In order to empirically evaluate the model with persons with ID, first, it was essential to identify a measure of the degree of resolution of the various Ericksonian stages. To this author's knowledge, the Measures of Psychosocial development (Hawley [5]) is the only measure to evaluate one's functioning in this manner. According to Dr. Hawley, "the Measures of Psychosocial Development (MPD), is a self-report inventory, based on the Ericksonian constructs, which assesses adolescent and adult personality development. The MPD was designed to translate the constructs of Erickson's theory into objective measures to facilitate the investigation and clinical application of Erickson's work. Specifically, the MPD provides: an index of the overall psychosocial health based on Erickson's criteria; measures the eight positive and eight negative stage attitudes, and estimates the degree of resolution for the stage conflicts. It consists of 112 self descriptive statements which are rated on a 5 point scale (from very much like me to not at all like me)." This measure can be used with a person with ID if the examiner reads the questions and a visual scale is constructed that visually

depicts the various structured responses. According to Dr. Hawley [6], she suggested that a significantly unresolved ericksonian stage, for a person with ID, may fall below a T score of 30 at the 2nd percentile. Secondly, it was believed that negatively resolved stages are related or can be identified as meaningful in offenders with ID and violent and sex offenses. To further ascertain if the ID sex offender does have psychosocial development deficits a la Erickson, an ad hoc analysis of a small group (N=20) of Intellectually Disabled Sex Offenders, who had already been evaluated by way of a Comprehensive Sex Offender Evaluation, was reviewed. Since the analysis was ad hoc, and the sample size was small, the results are only exploratory and suggestive. The first procedure involved trying to determine the extent that significantly negatively resolved psychosocial stages were related to sex offense risk. Since these individuals already had completed Sex Offender Evaluations, there was archival data already available. In particular, for Moderate Low and Moderate High risk sex offenders, with using the Rapid Risk Assessment of Sex Offender Recidivism (Hansen [7]), a substantial number of offenders evidenced significantly negative resolution towards mistrust (44% of the small sample) and isolation (37% of the sample). The results of this ad hoc analysis suggests that for moderate risk ID sex offenders, significantly negatively resolved psychosocial issues towards mistrust and isolation may exist.

In order to ascertain if the significant negatively resolved psychosocial stages can be identified for a Person with Intellectual Disabilities and a violent offense, the MPD was used to both inform and measure progress in therapy for a female who attempted matricide when psychotic. In essence, she wanted to attack her mother with a hatchet but her mother may have found it, hid it, and as a result, this female used a knife and blooded her, but stopped when she saw that her mother was bleeding. Subsequently, she was placed within secure services. Prior to the intensive individual therapy, she evidenced significant deficits in self-value, autonomy, initiative and intimacy. After one-and-a-half years of intensive individual therapy (which was informed by reconstructive therapy), none of her psychosocial stages were significantly negative resolved; in addition, as a result, her risk for violence had decreased from a former high risk to a moderate risk, and she was supported to leave secure services.

In conclusion, the Reconstructive model of therapy of a psychotic homicidal person has been expanded to the treatment for non-psychotic offenders, and non-clinical populations. Since this model makes use of treating the unresolved stages of Erickson's Psychosocial stages, the apparently reasonable premise was advanced that since the Intellectually Disabled (ID) population already have deficits in their functioning, that this model of treatment, especially among ID offenders might be particularly relevant. There doesn't appear to be any prior studies evaluating the relationship between an ID offender and his/her functioning in regards to these psychosocial stages of development. An ad hoc analysis of a small group of ID sex offenders and a case study of a psychotic homicidal offender appears to suggest that Dr. Schulte's Reconstructive Therapy model may be relevant to understanding and treating persons with ID who commit various offenses.

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Chapter 7

COCAINE-DEPENDENT PATIENTS WITH ANTISOCIAL PERSONALITY DISORDER, COCAINE-DEPENDENCE AND TREATMENT OUTCOMES*

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ABSTRACT

This study compared the efficacy of two commonly used treatment approaches (cognitive–behavioral treatment and contingency management) for the treatment of cocaine dependence among methadone-maintained patients with and without antisocial personality disorder (ASPD). This disorder is strongly associated with substance abuse and recent study findings provide a strong argument against the perception that substance abusers with ASPD are unresponsive to drug treatment.

Method

Patients were randomly assigned to four study conditions including cognitive–behavioral treatment (CBT), contingency management (CM), CBT with CM, or methadone maintenance (also the control condition). The Structural Clinical Interview for Mental Disorders–IV was administered to 108 patients to assess ASPD.

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Hypotheses

We hypothesized that ASPD patients in the three treatment conditions (CBT, CM, CBT + CM) would have better treatment responsivity over the 16-week course of treatment than would ASPD patients in the control condition (MM). Moreover, we hypothesized that there would be a cumulative treatment effect among ASPD patients over the course of treatment, with good performance in the CBT condition, better performance in the CM condition, and optimum performance in the CBT + CM condition. Conversely, we hypothesized that the positive treatment effect of CM would decline for the ASPD patients once the incentive was removed (i.e., during the post-treatment outcome period).

Results

A two-way analysis of variance showed that patients with ASPD were more likely to abstain from cocaine use during treatment than patients without ASPD. The strong treatment effect for ASPD patients was primarily due to the CM condition. A series of regression analyses showed that ASPD remained significantly related to CM treatment responsivity while controlling for other related factors.

Conclusion

Monetary incentives appear to reduce cocaine use among substance abusers with ASPD more than among those without ASPD. The results of the present study and other recent publications suggest that substance abusers with ASPD may be more responsive to treatment than previously believed.

INTRODUCTION

Antisocial personality disorder (ASPD) is a personality disorder officially recognized by the American Psychiatric Association and often associated with substance abuse and criminal behavior. The key features of the disorder are outlined in the *Diagnostic and Statistical Manual of Mental Disorders,* fourth edition, commonly known as the DSM-IV. The essential feature of this disorder is "a pervasive pattern of disregard for, and violation of, the rights of others that begins in childhood or early adolescence and continues into adulthood" (American Psychiatric Association, 1994: 645). Common signs of childhood development of ASPD are lying, stealing, fighting, resisting authority, and cruelty to animals. Aggressive sexual behavior, drinking and drug abuse are common in adolescence. Adult manifestations include illegal behavior, deceitfulness, recklessness, violence, job troubles, and marital difficulties. (For a complete description of ASPD, see Messina, 2002.)

Previous research indicates that this disorder is also strongly associated with excessive substance abuse in adulthood, with about 40% to 50% of substance abusers meeting the criteria for ASPD (Messina, Wish, and Nemes, 1999; Tims, DeLeon, and Jainchill, 1994) and approximately 90% of persons diagnosed with ASPD being substance abusers (Gerstley, Alterman, McLellan, and Woody, 1990). In light of the prevalence of ASPD among substance-abusing populations, it became imperative that effective treatment strategies be

identified. Thus, the recurring association among ASPD, substance abuse, and crime led to a variety of treatment outcome evaluations for substance abusers with this disorder. Yet, there is a widely held belief among treatment providers that persons with ASPD will not respond well to treatment as a direct result of the symptoms of their disorder (e.g., habitual lying and lack of emotional insight). In fact, treatment providers and therapists alike often state that patients with ASPD will manipulate their therapy for their own self-serving needs (Abram, 1989; Davidson and Neale, 1990; Evans and Sullivan, 1990; Forrest, 1992). As one expert notes: "If it is to their advantage to act cured, they will do so, but they will return to former patterns of behavior at the first opportunity" (Coon, 1983: 465). This belief was substantiated by a frequently cited report that stated that, compared to other types of patients, antisocial opioid abusers responded poorly to both routine drug abuse counseling and specialized psychotherapy (Woody, McLellan, Luborsky, and O'Brien, 1985).

Results from more recent studies that have empirically assessed the relationship between ASPD and substance abuse treatment outcomes have not supported the previous findings regarding this disorder and treatment response (Brooner, Kidorf, King, and Stoller, 1998; Gil, Nolimal, and Crowley, 1992; Messina et al., 1999; Silverman et al., 1998). Gil et al. (1992) compared the treatment outcomes of 55 consecutively admitted methadone maintenance patients with ASPD (42%) and those without ASPD. Although the findings were limited by the small sample and ambiguous design, no significant differences were found between those with and those without ASPD on any 12-month outcome variable (e.g., treatment retention, urine test results, therapy session attendance). It appeared that ASPD patients did as well as those without ASPD in a traditional methadone maintenance program. However, a lack of difference did not necessarily imply good treatment responsivity. The authors reported low overall retention in this sample of clients.

Valliant (1975) had previously speculated that structured behavioral programs with incentives for participation might produce the best results for antisocial opioid patients. Evans and Sullivan (1990) also stated that "[it] is highly unlikely that antisocials will develop genuine remorse and altruistic reasons for staying clean and sober. However, they may be interested if it will help them win at poker, make more money, or stay out of jail" (p. 104).

Brooner and his colleagues (1998) directly tested Valliant's hypothesis regarding the use of incentives. Forty opioid abusers with co-occurring ASPD were randomly assigned to an experimental treatment condition combining methadone maintenance and contingency management techniques (i.e., a structural behavioral intervention using rapid delivery of positive and negative contingencies) or a control condition (i.e., standard methadone maintenance). In the experimental condition, take-home methadone doses and dose alterations were contingent on drug-free urine specimens and counseling session attendance. Preliminary findings did not reveal significant differences between the groups; yet, both groups showed marked reductions in heroin and cocaine use during the 17-week outcome evaluation. The authors contend that these findings are not only contrary to what is commonly thought about ASPD clients in traditional methadone treatment, but also about ASPD clients in enhanced methadone (i.e., methadone maintenance combined with contingency management) treatment programs as well. However, this study was limited by a small sample and by the absence of a non-ASPD control group.

Other contingency management approaches include giving vouchers that are exchangeable for goods and services in response to drug-free urine specimens. Silverman et al. (1998) compared the treatment responsiveness of 59 methadone maintenance patients with

ASPD (19%) and without ASPD who were participating in voucher-based cocaine abstinence reinforcement therapy. Patients were randomly assigned to two levels of voucher-based interventions or a control group in which vouchers were given on a noncontingent basis. The authors found that both contingent interventions significantly increased abstinence from cocaine and opiates, compared with the control group. Moreover, a diagnosis of ASPD was unrelated to treatment outcomes. However, the small sample size (and low prevalence of ASPD) may have rendered any differences in outcomes between substance abusers with ASPD and those without ASPD difficult to detect.

Another study explored the relationship of ASPD and treatment outcomes in therapeutic communities (TCs) with random assignment of (primarily cocaine dependent) respondents to two residential programs differing primarily in length (Messina et al., 1999). TCs often rely on cognitive behavioral methods to change existing behavior patterns. Clients diagnosed as having ASPD (n=166) were compared to 172 clients with no ASPD on three outcome measures. After controlling for relevant factors, clients with ASPD were as likely to complete treatment as other clients and they exhibited the same patterns of reduced drug use and criminal activity as did non-ASPD clients.

The findings from the above recent studies could indicate that ASPD is not a strong predictor of treatment nonresponsivity, as previously believed.The implications of these findings are important in light of the fact that substance abusers with ASPD are more likely than those without ASPD to engage in violent and serious criminal behaviors (Abram, 1989; Brooner, Schmidt, Felch, and Bigelow, 1992). However, the empirical literature assessing the relationship between ASPD and substance abuse treatment outcomes is lacking, and the existing research is limited by small sample sizes, nonrandom designs, and/or the absence of an appropriate control group. The present study sought to examine the relationship between ASPD and substance abuse treatment responsivity by addressing these primary weaknesses of the literature.

This study directly compares the efficacy of two commonly used treatment approaches (cognitive behavioral treatment and contingency management) for the treatment of cocaine dependence among methadone-maintained patients *with and without* ASPD. These two treatment approaches represent two of the most promising psychological-behavioral approaches for the treatment of substance abuse. However, the rationales for these two approaches differ considerably. Cognitive behavioral treatment (CBT) strategies are based upon social learning principles (Bandura, 1977). These techniques include a wide range of treatment strategies designed to prevent relapse to drug use. The primary focus of CBT is maintaining a habit-changing process. This process is twofold: to prevent the occurrence of initial lapses to drug use after one has embarked on a program of habit change, and to prevent any lapse from escalating into total relapse (Marlatt and Gordon, 1985).

Contingency management (CM) techniques, on the other hand, are founded on principles of operant conditioning (Skinner, 1938). The CM techniques create systems of incentives and disincentives to motivate behavior change. Some positive incentive strategies include take-home methadone doses and cash incentives for drug-free urine specimens. One of the most promising applications of CBT and CM is in the area of cocaine abuse treatment. Cocaine abuse continues to be a serious public health problem and is an important factor in drug-related crime and violence (Everingham and Rydell, 1994). Moreover, cocaine abuse among methadone-maintained patients continues to be a serious challenge for treatment clinicians (Farabee, Rawson, and McCann, 2002; Rawson, Obert, McCann, and Ling, 1991; Silverman,

Chutuape, Bigelow, and Stitzer, 1999). Both CBT and CM have been shown to be effective in treating cocaine-dependent patients (Carroll, 1999; Carroll et al., 1994; Farabee et al., 2002; Foote et al., 1994; Marlatt and Gordon, 1985; Silverman et al., 1996; Silverman et al., 1998; Silverman et al., 1999).

This study offers an excellent opportunity to compare the relative efficacy of an information-based "talk therapy" (CBT) with a purely operant paradigm (CM) for producing desired behavior change among substance-abusing clients with co-occurring ASPD. Furthermore, this study assesses the relative efficacy of combining these interventions (CBT+CM) for reducing cocaine use among methadone-maintained patients with ASPD. Since all patients are involved in a "platform" condition of methadone maintenance, it is possible to use a study design in which three active cocaine treatment conditions (CBT, CM, and CBT+CM) are compared to a control condition in which patients receive no additional treatment for their cocaine disorder.

Because of the limited literature (both in number and design) regarding substance abuse treatment responsivity for ASPD patients, findings are somewhat difficult to interpret. It is possible that group differences within the methadone maintenance studies have not been found because of the low power generated by the insufficient sample sizes. For example, it is likely that Brooner et al. (1998) would have found a significant difference between the ASPD patients in the experimental (CM) condition and the ASPD patients in the control condition had they used a larger sample. (By our calculations, their preliminary study generated a power of only .07, with an effect size of .15). The ASPD patients in the CM condition had a larger number of drug-free urine specimens, on average, than did the ASPD patients in the control condition. Monetary incentives for cocaine abstinence could be a strong external motivator for patients with ASPD.

Monetary incentives *combined* with drug-relapse education and peer support (i.e., CBT) might prove to be a strong treatment intervention for co-disordered patients.

Therefore, we hypothesized that ASPD patients in the three treatment conditions (CBT, CM, CBT+CM) would have better treatment responsivity over the 16-week course of treatment than would ASPD patients in the control condition (i.e., methadone maintenance only). Moreover, we hypothesized that there would be a cumulative treatment effect among ASPD patients over the course of treatment, with good performance in the CBT condition, better performance in the CM condition, and optimum performance in the CBT+CM condition.

$$[\text{CBT}] < [\text{CM}] < [\text{CBT} + \text{CM}]$$

Conversely, we hypothesized that the positive treatment effect of CM would decline for the ASPD patients once the incentive is removed (i.e., during the posttreatment outcome period). Because it has been speculated that ASPD patients have little internal motivation, it is reasonable to hypothesize that they will be less likely to remain abstinent in the absence of external incentives. Because the available literature assessing the relationship between ASPD and treatment outcomes is lacking, we also posed the more general research question: Is a diagnosis of ASPD a significant predictor of treatment outcomes?

METHOD

The data for this study is from the "Behavioral/Cognitive Behavioral Trial for Cocaine Abuse Project", a treatment outcome study for methadone-maintained, cocaine-dependent patients. The main treatment outcome report for this project can be found in Rawson et al. (2002). The current chapter focuses on the ASPD diagnosis and its relation to treatment outcomes.

Patients

Study participants were volunteers from two licensed narcotic treatment programs in Los Angeles, California (Matrix Institute and West Los Angeles Treatment Program). To be eligible for the study, all candidates were required: (1) to have been on methadone maintenance treatment at one of the two clinics for a minimum of 90 days; (2) to meet DSM-IV criteria for cocaine dependence; and (3) to show evidence of cocaine use (cocaine-metabolite positive urine sample) during the month prior to study enrollment. Individuals were ineligible if they (1) were also dependent upon alcohol or benzodiazepines to the point of requiring withdrawal medication; (2) if they had received specific treatment for cocaine in the previous 30 days; or (3) if they were court-mandated to treatment.

During a 30-month recruitment period, 120 individuals met study eligibility criteria, were enrolled in the study, and were randomly assigned into one of the four study conditions (CBT, CM, CBT+CM, or MM). [1] At admission, slightly more than half (56%) of the sample was male and the mean age was 43. With respect to race/ethnicity, 38% of the sample were White, 31% African American, 28% Hispanic, and 6% "other." The majority of patients (72%) had completed at least 12 years of school. A small percentage (15%) of the sample reported that they had steady employment over the past 3 years. Among the four conditions, none of the between-group differences in patient characteristics was statistically significant. Similar to the demographic profiles, self-reported prevalence of past-month drug and alcohol use did not vary significantly by study condition.

Procedures

Random assignment into one of the four study conditions (30 patients in each condition) took place following informed consent procedures and a 2-week baseline data collection period.

[1] Only four individuals volunteered for study participation in the first 60 days of recruitment. The two study clinics operated on a fee-for-service basis in which patients paid either $140 (Matrix Clinic) or $180 (West LA Clinic) per month for methadone maintenance treatment services. Only after a $40 per month methadone program fee-reduction was offered as an incentive for study participation did study recruitment become adequate. Thus, the group of individuals who participated in this study can be characterized as having relatively low motivation to stop their cocaine use as defined by the requirement of a $40 per month incentive to encourage study participation.

Demographic and background information was captured using the Addiction Severity Index (ASI). The ASI is a semi-structured interview instrument used for both clinical and research purposes to determine service needs (McLellan et al., 1992). It is a comprehensive instrument consisting of questions pertaining to demographics, employment, living situation, past and current health status, past and current drug use, past and current drug treatment history, past and current criminal and criminal justice involvement, and past and current mental health status and treatment.

The Structural Clinical Interview for Mental Disorders-IV (SCID) was administered during the first 30 days of study participation by a trained masters- or Ph.D.-level staff person to confirm the substance use diagnosis and to determine the presence of ASPD. The SCID is a semi-structured interview for making Axis I and Axis II diagnoses based on DSM-IV criteria (Kranzler, Rounsaville, and Tennen, 1995). SCID interviews were supervised and reviewed by a Ph.D.-level staff member. A total of 108 clients were evaluated by the SCID diagnostic interview and are the focus of this study (12 patients dropped-out of treatment prior to administration of the SCID). Forty-four percent of the target sample met the DSM-IV criteria for ASPD. The frequency of ASPD among the study patients is consistent with other reports on the psychiatric co-morbidity among methadone maintained-individuals (Rounseville, Eyre, Weissman, and Kleber, 1983; Sievewright and Daly, 1997).

Treatment Interventions

CBT procedures. The CBT procedure consisted of a total of 48 group sessions (3 per week for 16 weeks). Typical groups had four to eight patients. Each group session was scheduled to be 90 minutes in duration, and the material for each session was provided in a workbook. Each workbook presented a concept or a brief written exercise that explained or illustrated an aspect of cognitive-behavioral therapy. This method has been found in previous work by Rawson, Obert, McCann, Smith, and Scheffey (1989) to help stimulant users achieve and maintain abstinence. Many of the concepts were distilled from Marlatt and Gordon (1985) and/or are consistent with the National Institute on Drug Abuse manual on CBT (Carroll, 1999). Each session was led by a master's level therapist who had received 40-60 hours of supervised training in delivering the materials in a standardized manner. All sessions were audiotaped and reviewed by a counseling supervisor. Feedback was given to the therapist to shape and reinforce consistency.

The session format consisted of the topic being introduced by the staff member/group leader, the sheet being read aloud by the leader or a participant volunteer, and group members being given approximately 5 to 10 minutes to discuss the relevance of the topic to him/herself. Those individuals who were unwilling to discuss the topic were allowed to sit and listen. At the end of the topic discussion (typically 45-60 minutes into the session), each individual was asked to discuss his/her drug use/nonuse over the previous time period since the last group. The group leader and other group members verbally reinforced those reporting no use, less use, and/or the initiation of some new prosocial behavior. Finally, each member was asked to describe his/her behavioral plan for the time period leading up to the next session. Plans that included activities based upon the cognitive behavioral principles presented in the treatment groups received praise from the group leader and other members.

CM procedures. Patients in the CM-only condition were required to provide three urine samples per week and meet briefly (2-5 minutes) with the CM technician. The meetings with the CM technician covered four topics: (1) a review of the results of the urine test (tested immediately using enzyme multiplied immunoassay tests [EMIT]); (2) the delivery of the appropriate paper voucher certificate, if earned; (3) a discussion of how the voucher or accumulated voucher account could be redeemed; and (4) the delivery of the earned items when the vouchers were redeemed. On occasions when vouchers were earned, the CM technician provided praise and encouragement for successful performance. Patients who provided samples positive for stimulants (there were no contingencies for drug use other than stimulants) were not "scolded" or punished (other than the punishment of withholding the voucher).

The voucher value was based upon an escalating schedule that was similar to that used in previous studies (Higgins et al., 1993, 1994). The initial voucher value started at $2.50 per stimulant-negative sample, increasing in value by $1.25 with each successive negative sample, and with a $10 bonus for three consecutive stimulant-negative samples. The maximum voucher value was $46.25 per sample (excluding the $10 bonus). Across the course of the entire 16 weeks, the maximum possible earning (48 consecutive stimulant-free samples) was $1,277.50. Cash was never given to patients. As the voucher account increased in value as a result of stimulant-free urine samples, patients were encouraged to "spend" their savings on items that could support drug-free activities.

Patients in all study conditions received identical methadone maintenance (MM) services. The average dose of methadone at baseline was 72 milligrams for the CBT group, 62 milligrams for the CM group, 68 milligrams for the CBT+CM group, and 71 milligrams for the MM-only group. Participation in the study had no effect on the nature of their MM treatment. There were very clear rules for the termination of patients from the study. Termination could be a result of: (1) study completion (16-weeks); (2) missing two consecutive weekly data collection visits; or (3) missing either six consecutive CBT groups or six consecutive urine samples. Therefore, a consistent 2-week absence from protocol participation was the criterion for study termination across all study conditions.

Study Measures

The cocaine treatment intervention lasted 16 weeks for all conditions. Cocaine use, as measured by urinalysis, was the principal dependent measure during and after treatment. All study patients were required to give three urine samples per week throughout the 16-week study period and at each of the three follow-up interviews (17, 26, and 52 weeks). All samples were analyzed for metabolites of cocaine (benzoylecognine, BE) and methamphetamine. (Methamphetamine was included as a target along with cocaine to prevent "stimulant switching"; however, the frequency of methamphetamine use in this population was almost nonexistent. Hence, the study findings are specific to cocaine). A 300 ng/ml urinary BE cutoff was used to define a positive sample. All samples were analyzed on-site using EMIT (SYVA) reagent test procedures. All samples were monitored (i.e., collected in bottles equipped with temperature strips, and the bathrooms where samples were collected did not have hot water to prevent tampering). In addition, approximately 33% of all samples were collected under observation. Observation of urine specimens was conducted on a random

basis. All subjects were breath alcohol tested at the time of the collection of each urine sample.

Follow-up urine specimens were analyzed for cocaine, methamphetamine, metabolites of illicit opiates, benzodiazepines, barbiturates, and cannabinoids. Ninety percent of the sample provided urine specimens at the 17-week follow-up, 83% provided specimens at the 26-week follow-up, and 83% provided specimens at the 52-week follow-up. There were no significant differences in follow-up rates between those with and those without ASPD across the four study conditions at any of the follow-up periods (percentages shown below).

- *17-Week Follow-Up*: Non-ASPD CBT = 86%; ASPD CBT = 93%; Non-ASPD CM = 92%; ASPD CM = 93%; Non-ASPD CBT+CM = 89%; ASPD CBT+CM = 100%; Non- ASPD control = 87%; ASPD control = 83%.
- *26-Week Follow-Up*: Non-ASPD CBT = 79%; ASPD CBT = 93%; Non-ASPD CM = 83%; ASPD CM = 87%; Non-ASPD CBT+CM = 89%; ASPD CBT+CM = 86%; Non-ASPD control = 73%; ASPD control = 75%.

Table 1. Sample Characteristics at Admission, by ASPD Status (N = 108)

Characteristics	**No ASPD (N = 60) %**	**ASPD (N = 48) %**	**Total (N = 108) %**
Gender			
Male	43**	71**	56
Female	*57*	*29*	*44*
	100%	100%	100%
Race/Ethnicity			
White	43	31	38
Black	40**	21**	31
Hispanic/Other	*17*	*48*	*31*
	100%	100% 1	00%
Mean Age at Admission (SD)	43.7 (7.6)	43.5 (8.1)	43
Education			
Less than 12 years	18*	40*	28
High-school Degree or more	*82*	*60*	*72*
	100%	100%	100%
Full Time Employment Past 3 Years	17	13	15
Study Condition			
CBT	23	29	26
CM	20	31	25
CBT+CM	32	15	24
MM	*25*	*25*	*25*
	100%	100%	100%

*p < .05. **p < .01.

Data Analysis

The distribution of demographic and drug-use characteristics by ASPD status was evaluated using chi-square analysis and t-tests. Similarly, the distribution of SCID-I and II diagnoses across study conditions was evaluated by chi-square analysis. In-treatment cocaine use measures were analyzed using a Two-Way Analysis of Variance (ANOVA). To control for inflated alpha error, Tukey-Kramer tests were used for all post hoc comparisons. In addition, a series of regression analyses were conducted to assess in-treatment cocaine use while controlling for pre-existing differences between those with and those without ASPD. To assess cocaine and heroin use following treatment, separate chi-square analyses were conducted for those with and those without ASPD at each of the follow-up time periods. All statistical tests were considered significant at $p \leq .05$ and were two-tailed.

RESULTS

Demographic characteristics for ASPD and non-ASPD patients were similar across the four study conditions; however, small cell sizes limited reliable statistical inference. Although patients were randomly assigned to the study conditions, they were not randomly assigned by ASPD diagnosis. To further explore any pre-existing differences, all ASPD patients were compared with all non-ASPD patients with regard to their demographic and drug use characteristics.

Table 2. Self-Reported Drug/Alcohol Use 30 Days Prior to Admission, by ASPD Status (N = 108)

Substance Use 30 Days Prior to Admission	No ASPD (N = 60) %	ASPD (N = 48) %	Total (N = 108) %
Alcohol Use	57	60	58
Alcohol Use to Intoxication	23	35	29
Marijuana	30	27	29
Heroin Use	58*	79*	68
Other Opiates	08**	31**	18
Cocaine Use	100	98	99
Amphetamines	03	08	06

Consistent with previous literature, patients diagnosed with ASPD were significantly more likely to be male (71% vs. 43%, $p < .01$) and to have less than a high school education (40% vs. 18%, $p < .05$) than non-ASPD patients (see Table 1). With regard to ethnicity, patients with ASPD were significantly more likely than non-ASPD patients to be Hispanic (48% vs. 17%, $p < .01$). No significant differences between those with and those without ASPD were found with regard to age or employment, and patients with ASPD were equally distributed among the study conditions.

Table 3 SCID-I and II Diagnoses, by Study Condition (N = 108)[a]

	CBT (N=28) %	CM (N=27) %	CBT+CM (N=26) %	MM (N=27) %	Total (N=108) %
Diagnoses[b]					
SCID-I					
Substance Use Disorder	100	100	100	100	100
Mood Disorder	18	33	23	19	23
Anxiety Disorder	18	37	27	19	25
SCID-II					
Antisocial Personality Disorder (ASPD)	50	56	27	44	44
All Diagnoses					
Substance Use Disorder Only	29	23	50	36	34
Substance Use and Other Axis I Disorders	21	22	23	19	21
Substance Use and ASPD	36	22	12	26	24
Substance Use, ASPD, and Other Axis I Dis.	14	33	15	19	21
	100%	100%	100%	100%	100%

[a] N's vary slightly due to missing data.

[b] Only diagnoses prevalent in 5% or more of the sample are shown.

Note. Differences are not significant.

Comparisons of demographic characteristics of *ASPD-patients only* across the four study conditions were also conducted. No significant differences were found with regard to age, gender, race/ethnicity, or high school education (results are not shown).

Table 2 displays the self-reported drug and alcohol use patterns by ASPD status during the 30 days prior to study admission. Those with ASPD were significantly more likely to have used heroin (79% vs. 58%, $\underline{p} < .05$) and other opiates (31% vs. 8%, $\underline{p} < .01$) during this time period, than non-ASPD patients. No other substance-use differences were found. Cocaine (99%) and heroin (68%) were most likely to be used during the 30 days prior to study admission, followed by alcohol (58%), marijuana (29%), other opiates (18%), and amphetamines (6%).

Table 3 displays the prevalence of ASPD, substance use disorder, and other SCID-I psychiatric disorders by study condition. Only those diagnoses prevalent in more than 5% of the sample are shown. There were no significant differences among the four study conditions with regard to prevalence of psychiatric disorders. All subjects met the criteria for substance use disorder and almost half (44%) had co-occurring ASPD. Of those evaluated by the SCID, 34% had no disorders other than substance use, 21% had substance use and other Axis I disorders, 24% had substance use with co-occurring ASPD, and 21% had substance use

disorder, co-occurring ASPD, and other Axis I disorders. (All analyses combine clients with substance use disorder only and those with other Axis I disorders into the non-ASPD group.)

In-Treatment Performance

Treatment Retention

Treatment retention is frequently an important outcome indicator and is sometimes used as one measure of treatment efficacy. In this study, the value of treatment retention as a dependent measure was compromised by the necessity to reduce patients' monthly methadone program fees by $40 to promote study enrollment. Therefore, not surprisingly, there was no significant difference in study retention for patients with and those without ASPD across four study conditions. The average number of weeks in treatment for the ASPD group was 14.7 (SD = 3.4), ranging from 12 to 16. The average number of weeks in treatment for the non-ASPD group was 13.2 (SD = 4.9), ranging from 10 to 15 weeks.

Cocaine-Abstinence during Treatment

The primary dependent measure in this study was cocaine use as measured by urine toxicology. Since retention in treatment was not significantly different for those with and without ASPD across study conditions, the most direct measure of cocaine use across the 16 weeks of the trial was the number of *cocaine-negative* urine samples given by each participant during their 48 opportunities to give samples (3 times per week for 16 weeks). There were no significant differences between those with and those without ASPD across the four study conditions with regard to the rates of missing urines.

Table 4. Treatment Effectiveness Scores for In-Treatment Cocaine-Free Urine Samples, by Study Condition and ASPD Status

ASPD Status	CBT	CM*	CBT+CM	MM
No ASPD Mean TES for Cocaine (s.d)	17.6 (17.9)a	25.5 (20.7)a	24.2 (21.1)a	14.5 (16.9)a
ASPD Mean TES for Cocaine (S.D.)	24.8 (15.6)a	39.4 (11.4)b	37.7 (13.3)ab	9.3 (11.3)c

Note. Subscripts represent the results of pairwise comparisons between study conditions; means that do not have a subscript in common are significantly different from each other ($p < .05$).

*The CM condition was the only condition with a significant difference between those with and without ASPD ($p < .05$).

A Two-Way ANOVA was performed to determine differences in the mean number of cocaine-negative samples (CNS) provided by ASPD status and by study condition. The possibility of an interaction effect (ASPD status X study condition) was also explored. We initially asked if ASPD would be a significant predictor of in-treatment responsivity. There was a significant main effect for ASPD status. The mean number of CNS for patients with ASPD (CNS = 27.4, SD = 17.5) was significantly higher than the mean number of CNS for

those without ASPD (CNS = 20.5, SD = 19.4) [F (1,107) = 4.74, p < .05), suggesting that ASPD patients performed better during the 16-week treatment course than non-ASPD patients. However, there was no interaction effect between ASPD status and study condition.

We also hypothesized that ASPD patients in the three cocaine treatment conditions (CBT, CM, CBT+CM) would have better outcomes than ASPD patients in the control condition (MM). This hypothesis was supported. Pairwise comparisons of the mean number of CNS indicated that ASPD patients in each of the treatment conditions had significantly higher scores than those in the control condition (CBT = 24.8; CM = 39.4; CBT+CM = 37.7; vs. MM = 9.3, p < .05). The same pattern was found among the study conditions for the non-ASPD group, but differences were not statistically significant (see Table 4).

The above findings indicate that ASPD patients responded positively to the three cocaine treatment conditions; however, we also hypothesized a cumulative treatment effect for ASPD patients, with optimum performance in the CBT+CM condition (CBT< CM < CBT+CM). This hypothesis was not supported. Pairwise comparisons did show that the mean number of CNS for the ASPD patients in the CM condition was significantly higher than the mean number of CNS for the ASPD patients in the CBT-only condition (CBT = 24.8 vs. CM = 39.4, p < .05). However, no differences were found for the ASPD patients in the CBT+CM condition compared with the ASPD patients in the CM or CBT-only groups (shown in Table 4).

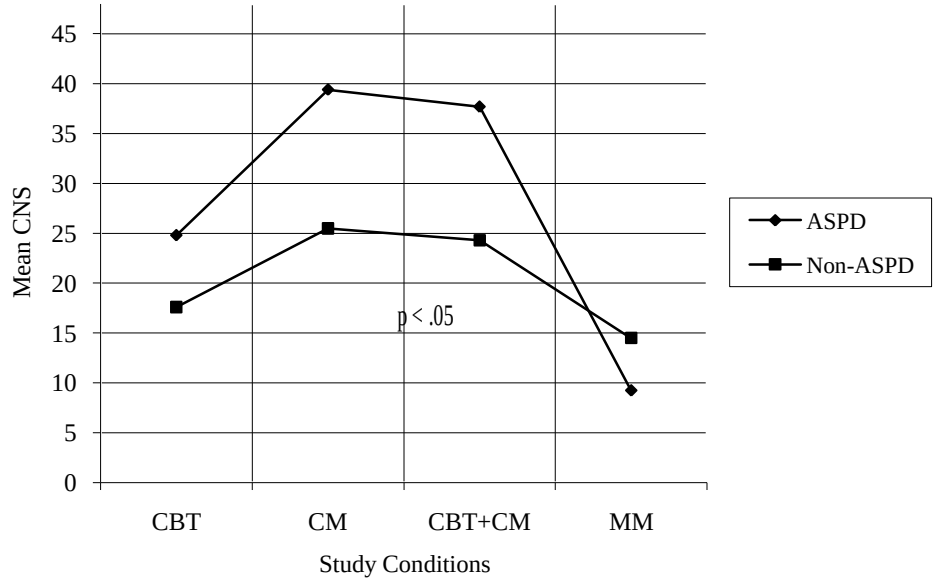

Figure 1. Cocaine-Negative Specimens Provided During Treatment (N=108).

Moreover, ASPD patients in the CM condition performed significantly better than the non-ASPD CM patients (ASPD/CM CNS = 39.4 vs. non-ASPD/CM CNS = 25.5, p < .05). The differences in CNS means were not significant for ASPD and non-ASPD patients in any of the other study conditions (shown in Figure 1).

The above bivariate analyses, however, do not take into account pre-existing differences between those with and without ASPD that might be related to in-treatment performance. Initially, no demographic differences were found between those with and those without ASPD in any of the treatment conditions; however, when we compared *all* of the ASPD patients with *all* of the non-ASPD patients (see Tables 1 and 2), some pre-existing differences were evident (i.e., gender, race, high school education, and opiate use). Therefore, we decided to further explore the association of ASPD with CM treatment using multivariate analyses. Because the total number of patients in the CM condition fell below 30, we were limited in the number of independent variables (or predictors) that could be included in the multivariate analyses (Keppel, 1991). Thus, we conducted a series of regressions pairing ASPD with each of the above characteristics. In all of these pairings, a diagnosis of ASPD remained significantly related to the mean number of CNS ($p<.01$). We further confirmed the *lack* of an association of ASPD to in-treatment performance among the other study conditions (analyses not shown).

Post-Treatment Performance

Cocaine Urinalysis Results for ASPD Patients at Each Follow-Up Period

We hypothesized that the positive treatment effect of CM would decline for the ASPD patients once the incentives were removed (i.e., no vouchers were given during the posttreatment outcome periods). This hypothesis was not supported. ASPD patients in the CM conditions continued to abstain from cocaine use throughout the three follow-up time periods. Figure 2 shows that ASPD patients in the CM-only condition were as likely as those in the other study conditions to have cocaine-free urine specimens at weeks 17, 26, and 52. In fact, over 70% of the CM-only group provided cocaine-free specimens at each follow-up time period. Overall, differences in percentages of cocaine-free specimens between the treatment groups and the control group were not significant at weeks 17 and 26. However, percentages were significantly different at week 52, indicating that between 65% and 80% of the ASPD patients in any of the three treatment conditions were abstaining from cocaine use at the 52-week follow-up period, compared to 20% in the control condition ($p < .05$).

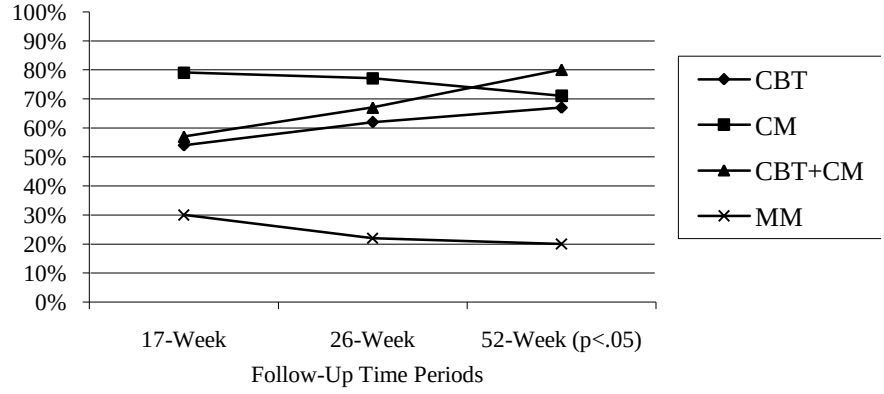

Figure 2. Cocaine-Free Urine Specimens During Follow-Up [ASPD Patients].

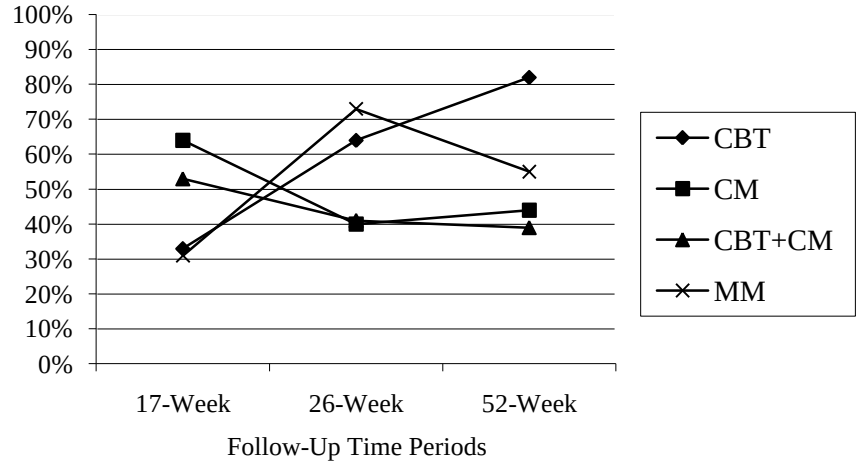

Figure 3. Cocaine-Free Urine Specimens During Follow-Up [Non-ASPD Patients].

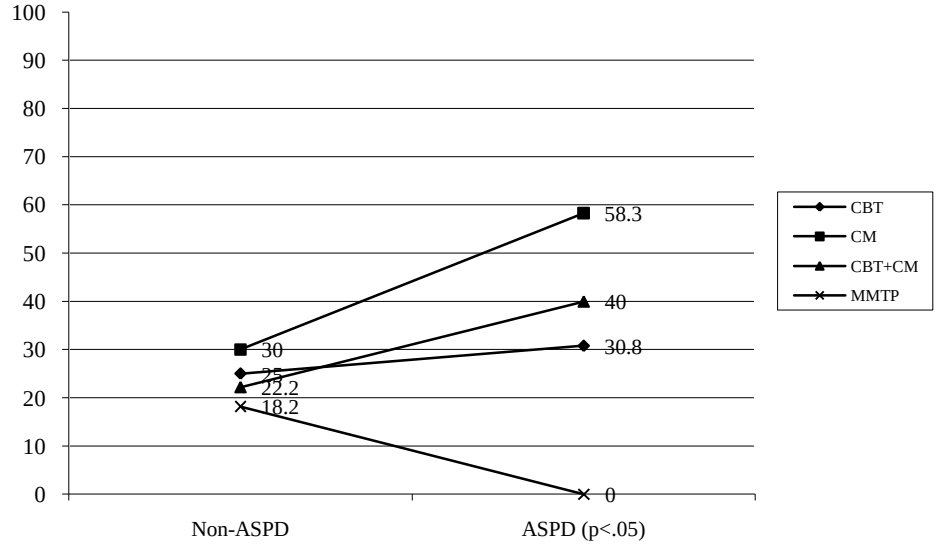

Figure 4. Percentage of Cocaine-Free Urine Specimens at All Three Follow-Up Periods (N=91).

Cocaine Urinalysis Results for Non-ASPD Patients at Each Follow-Up Period

The rates of cocaine abstinence for the non-ASPD patients did not follow the same trends as those for the ASPD patients. Figure 3 shows that the percentages of cocaine-free specimens were similar across the four study groups for each follow-up time period (i.e., no significant differences were found). However, the CBT-only group was the only treatment group that showed substantial increases in abstinence over the three follow-up time periods (33%, 64%, and 81% respectively).

Post-treatment responsivity. To assess overall differences in posttreatment performance between those with and those without ASPD, we created a posttreatment responsivity measure that totaled the percentages of patients who had cocaine-free urine specimens at all three of the follow-up periods. Figure 4 shows the posttreatment results by study condition for those with and those without ASPD. Among non-ASPD patients, there were no significant differences in cocaine negative specimens at each of the three follow-up time periods.

In contrast, the ASPD patients in the three cocaine treatment conditions showed large differences in continued abstinence from cocaine compared with those in the control condition ($p < .05$). Over half of the ASPD patients in the CM-only condition had cocaine-free urine results at each follow-up interview (58%), followed by those in the CBT+CM condition (40%), and those in the CBT-only condition (31%). None of the MM-only group had three consecutive cocaine-free urine results.

Because the posttreatment findings regarding cocaine use were not as expected, we explored the possibility that ASPD patients were more likely than non-ASPD patients to be using heroin at the follow-up time periods. These results are shown below.

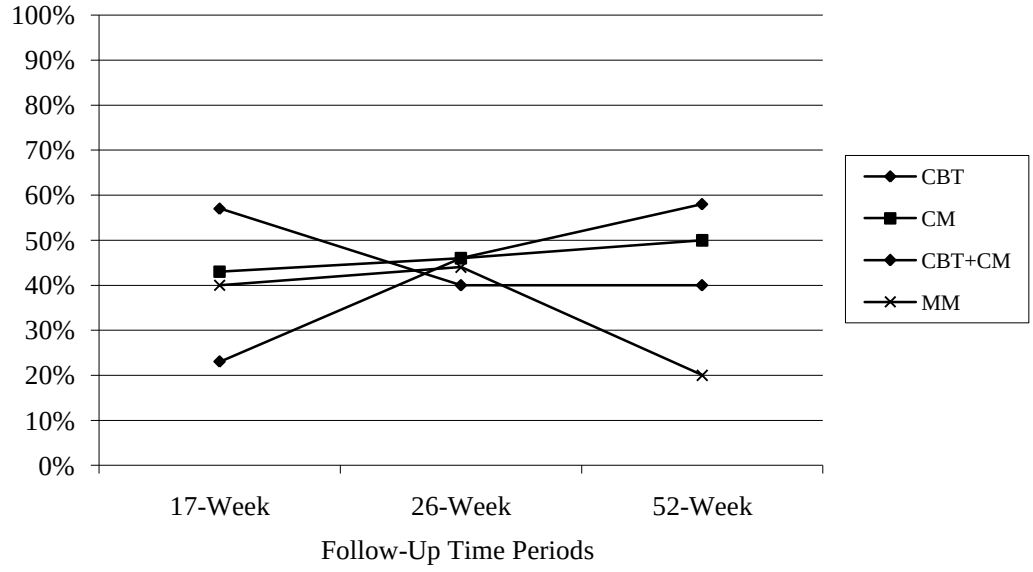

Figure 5. Heroin-Free Urine Specimens During Follow-Up [ASPD Participants].

Post-treatment heroin urinalysis results. Overall, study patients were less likely to abstain from heroin use, compared to cocaine use, at the three follow-up time periods regardless of treatment group or ASPD status (see Figures 5 and 6). However, abstinence rates were not trivial. At the 26-week follow-up, between 40% and 50% of the ASPD patients tested negative for heroin, whereas between 50% and 60% of the non-ASPD patients tested negative for heroin. In addition, non-ASPD patients in the CBT-only condition were significantly more likely to abstain from heroin at the 17-week follow-up compared with those in the other treatment conditions (CBT = 75% vs. CM = 36% vs. CBT+CM = 35% vs. MM = 23%, $p < .05$).

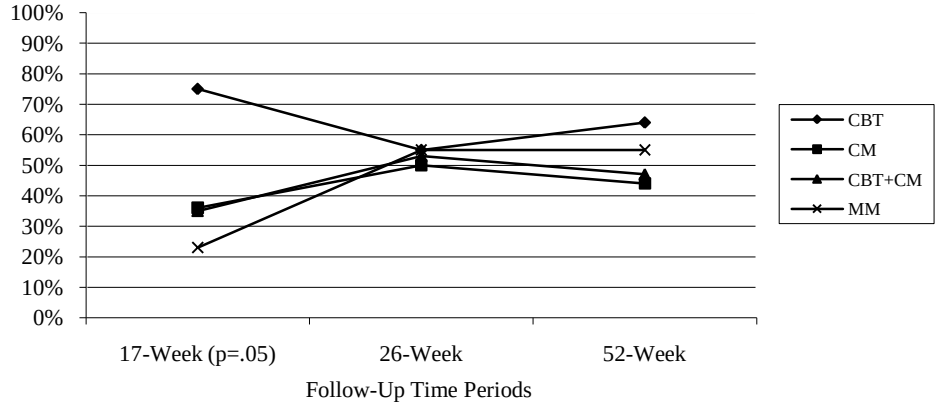

Figure 6. Heroin-Free Urine Specimens During Follow-Up[Non-ASPD Participants].

Post-treatment heroin urinalysis results. Overall, study patients were less likely to abstain from heroin use, compared to cocaine use, at the three follow-up time periods regardless of treatment group or ASPD status (see Figures 5 and 6). However, abstinence rates were not trivial. At the 26-week follow-up, between 40% and 50% of the ASPD patients tested negative for heroin, whereas between 50% and 60% of the non-ASPD patients tested negative for heroin. In addition, non-ASPD patients in the CBT-only condition were significantly more likely to abstain from heroin at the 17-week follow-up compared with those in the other treatment conditions (CBT = 75% vs. CM = 36% vs. CBT+CM = 35% vs. MM = 23%, $\underline{p} < .05$).

CONCLUSION

Recent findings of successful treatment outcomes for methadone-maintained patients with ASPD provides a strong argument against the perception that substance abusers with ASPD are unresponsive to drug treatment (Brooner et al., 1998; Gil et al., 1992; Silverman et al., 1998). However, these studies have been limited by small sample sizes and ambiguous designs. The current study sought to overcome the limitations of the previous research. The primary goal of this study was to determine the efficacy of two commonly used treatment approaches, separately and combined, for the treatment of cocaine dependence in methadone-maintained patients with co-occurring ASPD.

In-Treatment Responsivity

Three major trends of in-treatment responsivity are evident. First, in contrast to previous findings (and beliefs), we found that a diagnosis of ASPD was significantly and positively related to treatment responsivity. Those with ASPD were more likely to abstain from cocaine use during treatment than those without ASPD. Second, ASPD patients in each of the treatment conditions performed significantly better than ASPD patients in the control

condition, whereas no differences in performance by study condition were found for the non-ASPD patients. Third, the strong treatment effect for ASPD patients was primarily due to the CM condition. During the 16-week course of treatment, those in the CM condition were significantly more likely to abstain from cocaine use than those in the CBT-only condition. In contrast, abstinence levels in the combined treatment group (CBT+CM) fell between the CBT- and CM-only levels and did not differ significantly from either. Furthermore, ASPD patients in the CM condition were significantly more likely to abstain from cocaine use than non-ASPD patients in the CM condition, even after controlling for pre-existing differences.

As earlier theorists hypothesized (Evans and Sullivan, 1990; Valliant, 1975), monetary incentives appear to be a successful treatment intervention for reducing cocaine use among substance abusers with co-occurring ASPD, and a more successful intervention than for those without ASPD. Furthermore, patients with ASPD responded significantly better to this type of intervention than ASPD patients in "talk-based therapy." The larger question, however, was whether the positive treatment effects of the CM intervention would continue beyond the course of treatment, once the incentive was removed.

Post-Treatment Responsivity

Four major results are evident from our posttreatment outcomes. First, and contrary to our hypothesis, ASPD patients in the CM conditions continued to abstain from cocaine use throughout the three follow-up periods. Although differences in cocaine abstinence between the groups were not significant, ASPD patients in the CM conditions appeared to maintain the highest levels of posttreatment cocaine abstinence. In addition, comparable numbers of ASPD and non-ASPD patients were abstaining from heroin at the follow-up time periods. Second, ASPD patients in all three treatment conditions were significantly more likely to abstain from cocaine use at the 52 week follow-up than those in the control condition. Third, a clear pattern of posttreatment performance between the treatment groups was not evident for the non-ASPD patients. Non-ASPD patients in the CM conditions appeared to do well at the first follow-up, but their performance declined substantially during the remaining follow-up periods. In contrast, non-ASPD patients in the CBT-only group were the only treatment group whose performance increased over the follow-up time periods. And fourth, ASPD patients in each of the treatment conditions were significantly more likely to test negative for cocaine at *all* three of the follow-up periods than those in the MM-only condition, whereas no differences were found for non-ASPD patients. Most importantly, ASPD patients in the CM condition were twice as likely as non-ASPD patients in the CM condition to have negative urine test results for cocaine at all follow-up periods.

These findings provide a strong argument against the perception that substance abusers with ASPD are unresponsive to drug treatment. Consequently, these findings are important in light of treatment program exclusionary criteria and current public policy. Many substance abuse treatment programs across the nation exclude persons with ASPD on the assumption that they will not respond well to treatment efforts (Messina et al., 1999). Furthermore, a diagnosis of ASPD is among the exclusionary criteria for Maryland's newly constructed Public Mental Health System, and ASPD is the only personality diagnosis deemed untreatable within this system of health service delivery (Brooner et al., 1998). The results of the present

study and other recent publications suggest that substance abusers with ASPD may be more responsive to treatment than previously believed.

Study Strengths

The primary strength of our study was the rigorous study design. Random assignment of patients across study conditions created comparable groups. As a result, any differences between group performance tend to reflect the effect of the treatment intervention, rather than error variance (Bordens and Abbott, 1991). Random assignment also eliminated the issue of self-selection, which can be affected by such client attributes as personal motivation, perception of treatment modality, and treatment availability (Hser, 1995). In addition, the "platform" condition of methadone maintenance made it possible to use a study design with a true control condition.

Another strength of our study was the high prevalence rate of ASPD (45%), which is similar to other estimates of ASPD among methadone-maintained patients (ranging from 25% to 54%; Rounsaville, Eyre, Weissman, and Kleber, 1983). The high prevalence of this disorder within our sample allowed us to make comparisons of ASPD patients across study conditions, as well as between those with and those without ASPD. Thus, we were able to assess the treatment responsivity of ASPD patients in each treatment condition and compare their performance to those without ASPD.

The use of objective measures of drug use to assess treatment outcomes was an additional strength of this study. Self-reported drug use may be considerably less valid than previously reported (Messina, Wish, Nemes, and Wraight, 2000). For example, Wish, Hoffman, and Nemes (1997) found that among substance-abusing populations, clients were more likely to truthfully report heroin use than cocaine use. The authors further suggest that self-reports may be less valid at follow-up than at intake.

Study Limitations

Some limitations of this study should also be kept in mind when interpreting the results. The primary limitation is the sample size. Although our study had a larger sample than previous research among methadone-maintained patients, our posttreatment comparisons were limited by small cell sizes due to the four study conditions. However, we were able to improve power as compared to our calculations for Brooner's (1998) study. (Power calculation for our study =.47, effect size = .37; power calculation for Brooner = .07, effect size = .15).

Another limitation of this study (and others) is the existence of other psychiatric disorders among the sample. Patients with and without ASPD may have been diagnosed with various other psychiatric disorders. It is difficult to know the degree to which the various combinations of other disorders confounded the distinction between those with and those without ASPD, or if the presence of additional psychiatric disorders in patients with ASPD moderates the effect of the ASPD diagnosis on treatment response. However, recent findings from a large sample of methadone-maintained patients (N = 518) demonstrated minor differences between patients with ASPD only and patients with ASPD and other psychiatric

disorders (King, Kidorf, Stoller, Carter, and Brooner, 2001). ASPD-only patients exhibited higher rates of heroin use during treatment, whereas ASPD patients with additional disorders exhibited higher rates of benzodiazepine use. No differences between the two groups were found for cocaine use during treatment.

An additional roadblock facing those who study and treat ASPD is the lack of agreement about a basic definition and the use of different definitions. There is much controversy among social scientists and clinicians over the proper measurement of ASPD among substance abusers. Although social scientists most often use diagnostic interviews that follow DSM-IV criteria to assess ASPD (such as the SCID-II), many have raised concerns about possible limitations of the DSM (Messina, Wish, Hoffman, and Nemes, 2001). It has been suggested that the DSM criteria for ASPD focus on behavioral characteristics instead of underlying personality traits and do not require that ASPD occur independently of substance abuse (Gerstley et al., 1990). Rounsaville et al. (1983) suggest that clients whose antisocial activities are independent of the need to obtain drugs are "primary antisocial addicts" and those whose antisocial activities are directly related to drug use are "secondary antisocial addicts." The authors speculated that secondary antisocial addicts might have better treatment responses. If most of our sample members were secondary antisocial addicts, it could account for their more positive treatment outcomes.

Summary

The relationships between ASPD, substance abuse, and crime is the nexus of a major social problem and understanding the interactions among these patterns of behavior will help identify the individuals and groups who most need effective intervention. The findings from the current study and other recent literature indicate that substance abusers with co-occurring ASPD can benefit from drug treatment programs. Furthermore, methadone-maintained ASPD patients participating in CM interventions show substantial reductions in cocaine use beyond the intervention period. It is therefore suggested that treatment programs make efforts to attract and retain substance abusers with a diagnosis of ASPD. Future research should continue to explore the many issues surrounding the diagnosis of ASPD, as well as its relationship to treatment outcomes.

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Chapter 8

DELINQUENCY AND ANTISOCIAL BEHAVIOUR AMONG HIGH RISK YOUNG PEOPLE IN ADOLESCENCE*

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INTRODUCTION

This chapter presents an investigation of the patterns of offending and antisocial behaviour amongst young people from the age of 11-16 years who are categoried as high risk or vulnerable to delinquency and antisocial behaviour. The chapter will draw upon findings from the first five datasweeps of the Belfast Youth Development Study (BYDS), a longitudinal study of the onset and development of adolescent problem behaviour. Through a detailed exploration of the onset and development of delinquency and antisocial behaviour from the age of 11-16 years it will provide insights for targeting and development of appropriate interventions for school aged high risk young people who do not attend mainstream school in adolescence. The findings will form the empirical base for a discussion of the key issues around appropriate interventions and the development of conclusions in relation to young people who have received comparatively less attention in the delinquency literature but who are considered more likely to offend during adolescence.

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WHAT IS ADOLESCENCE?

An important and primary issue for this chapter is identifying the period of adolescence. Defining adolescence is itself a contested issue in the youth development literature. For many it corresponds to the teenage years up to the age of eighteen years and the commencement of legal adulthood. However, recently researchers are increasingly taking the period from the end of primary education at the age of the eleven years up to the end of teenage years which includes the period traditionally known as youth transition (16-18 years) and the beginning of emerging adulthood (Arnett, 2000) as one that includes a number of drug transition stages. This chapter will cover the period the period 11-16 years which in the UK marks the period of compulsory secondary education to the end of statutory education. However as the chapter shows a number of young people will stop attending mainstream school before the age of 16 years and for this reason are of particular importance for policy makers but comparatively less is known about their experience during adolescence, particularly in the UK. The reasons for this are elaborated upon later in this chapter.

Adolescence has been defined as a transitional stage between childhood and adulthood that may have inescapable implications and consequences for later life (Nicholson and Ayers, 2004). Adolescence is conceived of as a period lasting up to ten years which is divided into three stages; early (10-13- years old), middle (14-16 years old) and late adolescence (17 + years old) according to Petersen and Leffert (1995). This exploration of young people is interested particularly in middle adolescence which is a period marked by greater interest in experimentation and may signal the initiation into risk-taking behaviours (Rutter et al 1998).

This experimentation can lead to an increase in delinquency, sexual experimentation, challenges to parental authority and conflict surrounding beliefs and values (Fishbien and Ajzen, 1975). Evidence also exists to suggest that during these years more serious substance using behaviours develop (Goulden and Sondhi, 2001). Research has highlighted that many psychological disorders, such as major depression (Angold et al, 1998) certain anxiety disorders and eating disorders (Steinhaus et al, 1993) emerge during the early to middle stages of adolescence. It is also argued that the middle adolescent period is the peak period for offending and risk-taking in boys with the average criminal career beginning at around fifteen years old (Farrington et al, 1998).

The information above presents a rationale for focusing on middle adolescence in particular as research indicates that experimentation with a variety of risk-taking activities is central to this particular phase of development. For the majority there is a marked fall in criminal behaviour during early adult life, though a minority continue to persist in their offending ‘careers’. In many ways it has been the management of this ‘problem population;’ until the point at which they ‘grow up’ which has been seen as the key task in controlling crime. In some respects, however, this appears to be becoming increasingly difficult.

DELINQUENCY AND ANTISOCIAL BEHAVIOUR IN ADOLESCENCE

Delinquency is an expression of conformity to (sub cultural) norms that runs counter to the values of the wider society (Western et al, 2003). Cloward and Ohlin (1960) describe three types of criminal sub-cultures: criminal, violent and retreatist and identify the

neighbourhood structure as a key influence on the formation of each subculture. The criminal-subculture occurs in lower socio-economic status, but socially organised neighbourhoods, and is typically directed towards property crime. The violent subculture is typically directed towards violent or gang affiliated baheviour and is characterised by socially disorganised neighbourhoods. The final subculture, retreatist, encompasses those individuals who do not 'flourish' in either the criminal or violent subculture, and is characteristic of drug related offending.

It is only one element of a much larger syndrome of antisocial behaviour that tends to persist over time (Farrington, 1984). However, this time generally corresponds to the teenage years with delinquent behaviours noted during the teenage years and into early twenties. Whilst the relationship between the age of delinquent behaviour has been the subject of considerable debate there is no generally agreed consensus on a single age for delinquent behaviour other than the teenage years are the peak period for delinquency. This appears to have lead to the generally accepted view that a significant proportion of young people will just mature out of crime. Others suggest that the key issue here is not that the level of delinquency becomes less prevalent into early adulthood but the nature and frequency of delinquency and antisocial behaviour changes as more serious and violent offences become more prevalent during the later teenage years and into early adulthood.

Graham and Bowling (1995) suggest the peak age of offending is 15 years for property, expressive, and serious offences; 16 years for violent offences crime; 20 years for drug offences. Expressive and violent offences were most prevalence among 14-17 year olds; and theft and motor offences among 22-25 year olds. The Cambridge Study of Delinquent Behaviour (Great Britain) 1961-81 noted that the peak age of offending was 17/18 years (Farrington, 1984). Whilst it is generally accepted that young people are most often associated with delinquent behaviour, it is usually young males who are seen as the main offenders here. In 1995, for example, the ratio of males to females convicted for all indictable offences by young offenders was 3.3:1 (Criminal Statistics England and Wales, 1995).

Hawkins et al (1992) in a seminal paper *Risk and Protective Factors for Alcohol and Other Drug Problems in Adolescence and early Adulthood: Implications for Substance Abuse Prevention* presented a list of behaviours associated with antisocial behaviour problems in adolescence. These factors, the authors claim, show much consistency in effects across cultures, races and in particular genders in the USA Europe and Australia and are to be found in communities, families, schools, peer groups and individuals. A further principle of the work of Hawkins et al (1992) is a general positive relationship between the number of risk factors present at one time and the likelihood of negative behaviour in adolescence, although the quality of the association would appear to be a stronger indication of the role of each factor.

In relation specifically to delinquency there is a range of risk factors that increase the likelihood of a young person committing an offence. Loeber and Dishon (1983) suggest the most important predictors for male offending are poor parent child-management techniques; offending by parents and sibling; low intelligence and low educational attainment; and separation from parents. Loeber and Stouthamer (1987) note however that low socio-economic status was a rather weak predictor of delinquency. The results obtained from British longitudinal surveys of delinquency (Farrington, 1984) report similar outcomes as those obtained in comparable surveys in North America, the Scandinavian countries (Wikstom

1987), and New Zealand (Fergusson et al, 1993) and, indeed, with results obtained in British cross-sectional surveys (Graham and Bowling 1996).

However, the causal status of known risk factors to delinquency remains to be clarified and no single risk factor can explain delinquency and antisocial behaviour in adolescence, but the greater the number of risk factors, the greater the likelihood of early onset offending (Hawkins et al, 2002). In relation to substance abuse a large literature base supports associations between alcohol use/abuse and crime (Rutter et al, 1998). One explanation for this is because they share the same set of risk factors (Jessor et al, 1991; Catalano and Hwakins, 1997). Fergusson and Harwood (2000) from their analysis of the Christchurch Longitudinal Study showed that alcohol abuse in late adolescence increases involvement in crime (especially violent crime).

It is clear that many groups are working with offenders suffering from drug and alcohol addiction in an effort to reduce re-offending. Unsurprisingly, a recent government report also highlighted excessive drinking as the main underlying factor in the rise of teenage crime and anti-social behaviour, observing that young people '…who drank alcohol once a week or more committed a disproportional volume of crime, accounting for 37 per cent of all offences' (Pavis et al, 1997). These figures increased to 63% as young people became older and where binge drinking patterns could be identified (Home Office, 2004).

A number of theories have attempted to conceptualise the nature of offending, many of which have placed a strong emphasis on the social world of the offender and the role that social networks, norms and values have on behaviour. Examples of these theories include social control theory (Hirschi, 1969), sub-cultural theory (Wolfgang and Ferracuti, 1967), lifestyles-exposure theory (Hindelang, 1973) and routine activities theory (Cohen and Felson, 1979). Each of these theories proposes that offending behaviour is a product of the relationship between an individual and society. Social control theory asserts that it is the ties or bonds that individuals form with others and their acceptance and adherence to societal norms and values which influence participation in offending or anti-social behaviour. Similarly sub-cultural theory (Wolfgang and Ferracuti, 2003) premises that membership of certain groups can result in the development and acceptance of values, norms and behaviours which supports and encourages deviance and delinquency. The related theories of lifestyle-exposure and routine activities link involvement in crime to particular situation contexts which arise out of the social networks of the individual. Hindelang (1973) suggest that an individual's lifestyle – the locations in which they spend time, the activities they participate in and the people they associate with, determine involvement in criminal activity. Routine activities theory proposes that criminal events are a function of a favourable environment – determined by the presence of a suitable target or victim in a location accessible to the perpetrator and outside the sphere of protective guardianship.

Although distinct theories of delinquency have been developed, there is appears to be a consensus that the social environment and relationships of an individual are influential in criminal involvement. A significant body of research has lent weight to these theories, particularly in empirical investigations of adolescent delinquency. One particular area that is emerging in the literature is the relationship between victimisation and offending. Victims and offenders are traditionally viewed as two distinct categories of individuals, defined by their respective roles and experiences of a particular event. Yet a substantial body of research suggests that victims and perpetrators may be very similar, sharing similar environmental and social factors which facilitate exposure to violence and crime (e.g. Fagan, Piper and Cheng,

1987). As Fattah (1991:123) points out ‘criminals are more frequently victimized than non-criminals and ... victims of violent crime themselves have considerable criminal involvements’.

High Risk Groups in Adolescence

Catalano et al (1998) defined high risk groups as those either exposed to multiple risk factors, or to an elevated level on one particular risk factor. They describe the term ‘at risk’ in relation to children and young people as referring to children and youth who are in danger of failing at school, in their social life, or in making a successful transition to work. Educational, social and vocational failure are predictable to some extent by a range of factors, including, ethnic status, family circumstances, language, type of school, geography and community. (Day et al, 1997).

The role of school and/or education in the lives of young people is key here. Existing research findings suggest that children and young people often survive exposure to a single risk factor, but that exposure to multiple risks significantly increases the risk of maladaptive outcomes (Rutter, 1979)

Lloyd (1998) takes this definition further when identifying specific high risk groups such as the homeless, those 'looked after' by local authorities or in foster care, truants, those excluded from school, young offenders, children from families with substance-abusing parents or siblings, and young people with conduct or depressive disorders. Many of these categories, i.e. the homeless, those 'looked after' and young offenders consist of relatively small numbers of young people particularly in early adolescence. The main challenges to researching young people considered to belong to high risk subsamples include the resources required to identify these hard to reach groups and then encouraging them to participate in research. These young people can be suspicious towards adults who are unfamiliar to them who arrive and begin asking questions about personal and sensitive issues. These challenges go some way to explaining the comparatively limited base on this subject.

The existing research on these young people consistently reports higher levels of delinquency and antisocial behavior compared with those who are categorised as not being vulnerable (e.g. Audit Commission 1996; Powis et al, 1998). Others have highlighted those attending Emotional Behavioural Difficulty Units (EBD) as at a high risk or vulnerable to delinquency and antisocial behavior during adolescence (Kress and Elias, 1993). These young people are rarely included in school based surveys, the main information source of offending behavior between the age of 11-16 years. As a result comparatively little is known about the offending behaviours of these young people. One of the reasons they are considered to be at a high risk to delinquency and antisocial behaviour is because of exclusion from mainstream school, and identified behavioural problems and/or conduct disorders (Phil and Peterson 1991; Davis and Florian 2004).

The comparatively limited empirical base of delinquency and antisocial behaviour amongst high risk young people makes it difficult to produce clear conclusions about what is best for them when developing best practice. This task has become substantially more challenging when compared with those who continue to attend mainstream school. Even where targeted surveys were undertaken, these have generally been undertaken on a cross sectional basis involving one-off questionnaire/interview surveys with the high risk samples.

Whilst these studies provide a 'snapshot' relevant to the time and location of research, the samples in such studies are generally comparatively small, making their generalisability to all young people difficult. Whilst the existing evidence from these studies remains limited, there is even less evidence on the experience of these young people being studied over a longer period of time which would greatly assist the development of appropriate targeted interventions at all stages throughout adolescence. As a result establishing the resources for researching delinquency and antisocial behaviour amongst high risk young people presents a major challenge for researchers before such studies can begin.

Unlike much of the empirical research on adolescent delinquency and antisocial behaviour, studies with vulnerable groups of young people tend to be undertaken outside mainstream school settings, and on a cross-sectional basis due to the difficulties of identifying and accessing appropriate samples (Powis et al, 1998). More generally, young people who are categorised as belonging to at least one high risk group are considered to have a higher propensity to offend and therefore may benefit from targeted intervention. There is comparatively limited level of research upon which to base such interventions for young people who constitute high risk groups compared to their peers who continue to attend school. Longitudinal data on the prevalence and nature of offending among these groups represents a particular gap in the literature (Lloyd, 1998; Manski et al, 2001). The High Risk Booster Sample of the Belfast Youth Development Study has attempted to address the general information gap on at risk young people on a longitudinal basis.

The Belfast Youth Development Study

The empirical evidence presented in this chapter is drawn from the Belfast Youth Development Study being undertaken at the Institute of Child Care Research, located with the School of Sociology Social Policy and Social Work at Queens University Belfast, Northern Ireland. This section describes the study which includes a High Risk Booster Sample, one of the innovative aspects of the study.

The Belfast Youth Development Study (BYDS) is a longitudinal study of adolescent problem behaviour. It began in 2001 when the study cohort of approximately 4500 young people entered postprimnary school at the age of eleven years. Its aim is to study the onset and development of adolescent problem behaviour during adolescence. This involved an annual survey of the study cohort in order to build a picture of the issues associated with the onset, progression and desistance from problem behaviours from the age of 11-16 years. This was achieved through a traditional longitudinal research design within participating schools across three towns in Northern Ireland. All schools in each town were invited to participate, three quarters agreed. Three quarters of the sample cohort lived in Belfast, the main urban centre in Northern Ireland. The other two towns were about thirty miles north of Belfast and twenty-five miles south of the city respectively. These two towns were selected because they were considered to have emerging problems around illicit drug use and would provide important insights into the experience of young people growing up in these areas in relation to the behaviours associated with delinquency and antisocial behaviour. The main data collection involved an annual data collection sweep in each of the 43 mainstream schools that agreed to participate in the research. This represented 19 per cent of all postprimary schools in Northern Ireland.

In addition, an annual data collection sweep amongst young people living in each town who did not attend mainstream school was undertaken as part of the BYDS. This included those attending alternative education provision for school excludees, young people attending Emotional and Behavioral Difficulty Units, and those living in state care at the time of the research. These subsamples are young people who have been traditionally considered vulnerable to or at a high risk to marginalisation in society duirng adolescence and beyond. They are young people who are usually excluded from surveys of school aged young people due to the resource implications of undertaking such research on those who are traditionally hard to access and include in research which is a time consuming process.

The high risk booster sample of the BYDS utilized a repeated cross-sectional approach to data collection which involved surveying all those who met the inclusion criteria at each annual data sweep (Menard, 1991). This approach was adopted to overcome the challenges of using a traditional longitudinal approach with a sample that is very difficult to track over a long period of time. Full details of the research and data collection procedures for each high risk sample are available elsewhere (McCrystal et al, 2007a). The findings from such surveys are also less generalisable beyond the participating sample making them less attractive to funders and therefore more challenging for researchers to undertake such studies. As a result the experience of these young people has received less attention in the research literature and from policy makers.

The BYDS has addressed this gap in the UK literature to some extent through its High Risk Booster Sample. The delinquency and antisocial behaviour of these young people was studied from the age of 11-16 years. As a prospective longitudinal study the BYDS also provides important insights more generally to the onset and development of delinquency and antisocial behaviours during adolescent. This approach is the most informative method for studying developmental changes over time to reveal developmental pathways leading to positive and negative outcomes. Other advantages of using a prospective longitudinal study are for the development of temporal problems that will assist in the inference of causality, to identify the specific timing of the onset of problem behaviour (Farrington, 1991), in particular delinquency.

The BYDS used a self report measure of delinquency and antisocial behaviour. This consisted of a scale that included fourteen items of delinquency and antisocial behaviour. The items in the scale were asked in a question format. In the first year the participants were asked have you ever committed any of the following items? From years 2-5 this was asked as *In the past 12 months, have you....*

- Not paid the correct fare on a bus or train
- Taken something from a shop or store without paying for it?
- Behaved badly in a public place so that people complained or you got into trouble?
- Stolen or ridden in a stolen care or a van or on a stolen motorbike?
- Taken money or something else that did not belong to you from school?
- Carried a knife or weapon with you for protection or in case it was needed in a fight?
- Deliberately damaged or destroyed property that did not belong to you (for example, windows, cars or streetlights)
- Broken into a house or building to steal something?

- Written things or sprayed paint on property that did not belong to you (for example a phone box, care building, or bus shelter)?
- Used force, threats or a weapon to get money or something else from somebody?
- Taken money or something else that did not belong to you from your home without permission?
- Deliberately set fire or tried to set fire to someone's property or a building (for example, a school)?
- Hit, kicked or punched someone on purpose to hurt or injure them?
- Broken into a car or van to steal something out of it?

Those who answered *yes* each year were then asked to indicate the frequency of each item for the period of each datasweep. Frequency measures were 1-2 times; 3 to 5 times; 6 to 9 times; and 10 or more times.

Whilst questions are raised about the validity of self-report data on illegal activity, such data can on the other hand contain more comprehensive information than official statistics on delinquent behaviour of young people as they record behaviours not reported, or otherwise known, to authorities (Loeber and Farrington, 1994). Others claim that young people are willing to report accurate information on minor and serious delinquent acts (Farrington et al, 1996).

To a considerable extent the limited level of empirical evidence of delinquent and antisocial behaviour with high risk young people reflects methodological difficulties in studying this group. As a result much of the research on these young people involved small samples with few population-based perspectives and very few studies have tracked these individuals over time. Existing research in this area is generally cross-sectional with the limitations associated with such studies including their relevance beyond the time and location of the study. Within the Belfast Youth Development Study these challenges were overcome when investigating delinquency and antisocial behaviours of high risk young people from the age of 11-16 years through use of a repeated cross-sectional research design that identified all those living within three towns of the BYDS who were the same age as the mainstream school sample but were not attending school at the time of each data collection sweep.

Other factors contributing to the poor knowledge base results from firstly, these young people are frequently excluded from studies examining offending behaviour, because they are seen to be 'atypical' and thus not representative of the population under study. Secondly, the administration of self-report surveys can be problematic for these young people, because of limitations in skills central to the completion of a questionnaire (e.g. comparatively poor literacy and reading comprehension). Some commentators (e.g. Kessler and Klein, 1995) have suggested that the lack of usable data reflects methodological difficulties in obtaining empirical evidence of relevant data from these young people. The limited data base has implications for the development of appropriate resources, both classroom-based education, and for defining the approaches to intervention, once delinquent behaviour has been identified.

The High Risk Booster Sample of the Belfast Youth Development

The less structured lifestyles of some young people including those who are not attending mainstream school makes them a more difficult group to research (Nilson, 1999). This also makes studying their lifestyles over a long period of time particularly challenging, which goes some way to explaining the cross sectional nature of much of the research undertaken with these young people. The BYDS is addressing this gap in the literature through inclusion of an annual survey of its High Risk Booster Sample. As the description of this subsample clearly implies, this component of the BYDS includes young people considered to be high risk to delinquency and antisocial behaviour in adolescence and included school excludees, young people attending Emotional and Behavioral Difficulty Units, and those living in state care at the time of the research. The delinquency and antisocial behaviours of these young people are the main interest of this chapter. The comparatively limited research on their delinquency and antisocial behaviour may raise questions about the extent to which current education and prevention initiatives have been developed to meet their specific needs. Within the BYDS delinquency and antisocial patterns of a number of these vulnerable groups were studied from the age of 11-16 years.

Many school based studies do not include booster samples of the type included in the BYDS. One of the reasons for this is the difficulty involved with identifying and accessing such young people. Such findings suggest that school based surveys may be underestimating the true level of delinquency and antisocial behaviour amongst school aged young people generally. Other studies have highlighted the diverse and at time heterogeneous nature of such young people particularly when compared with those attending mainstream school. For example, boys are more likely to be excluded from school, and young people with emotional and behavioural difficulties are over represented in exclusion rates by over six times their proportion in the school population (Hayden, 1997).

For many years it has been argued that effective intervention needs to be targeted for particular recipients especially high risk and/or vulnerable young people as their needs may vary. Targeting specific needs and experiences of such recipients has become a key principle for effective intervention initiatives including age and appropriateness (White and Pitts, 1998) with a focus on vulnerable groups (HAS, 2001) which is also a cost effective approach. Furthermore the earlier prevention strategies are implemented, the more likely they are to be effective. To succeed, targeting preventive interventions relies on the accurate identification of the needs of these groups. Despite the extensive range of information on risk and protective factors to delinquency and antisocial behaviour, there is relatively little known about what works to prevent these behaviours amongst vulnerable groups. One exception was reported by Smyth and Saulnier (1996) who found that interventions with high-risk young people could be effective when programmes were culturally relevant, included outreach and incentives, and involved peers or families. However, efficient identification of high risk groups remains a particular challenge for researchers practitioners and policy makers.

Patterns of Delinquency and Antisocial Behaviour in the BYDS

In this section the patterns of delinquency and antisocial behaviour from age 11-16 years will be explored through an analysis of responses to the delinquency scale used in each

datasweep of the BYDS. The section will begin with an analysis of the delinquency and antisocial behaviour trends for the mainstream school cohort of young people participating in the BYDS. This will provide contemporary and comparative insights into this behaviour amongst school aged young people who continued attending school until the age of 16 years. An analysis of the trends for each of the high risk groups of the BYDS will then be presented in order to highlight the emerging trends of delinquency and antisocial behaviour amongst these young people from age 11-16 years.

Table 1. Percentage of young people participating in the BYDS school survey committing at least one delinquent behaviour each year by age

Age of Respondents	At least 1 delinquency item in past 12 months (%)	Males (%)	Females (%)
11/12 years	64	77	49
12/13 years	75	84	67
13/14 years	77	84	71
14/15 years	70	76	65
15/16 years	68	76	60

The first point to make here is the high proportion of all young people who had reported at least one delinquent item or behaviour (see Table 1). In the first year of the study when the young people were aged 11/12 years nearly two thirds (64%) reported at least one delinquent offence. This increased to approximately three quarters in year 2 (75%) when aged 12/13 years and year 3 (77%) when aged 13/14 years. The prevalence then fell slightly in year 4 when the young people were aged 14/15 years to 70% and 68% in the fifth year of the study when aged 15/16 years. At each stage of the research more males than females reported at least one delinquent behaviour. The gender gap was widest in year one when 77% of males reported at least one delinquent item compared with less than half (49%) of all females. During the third year of the study the highest proportion of males (84%) and females (67%) reported at least one delinquent item, this fell to 76% of males and 60% of females in year 5.

The level of delinquency and antisocial behaviour increased steadily during the first three years of the study and was highest by the age of 14 based on the mean number of delinquent offences committed (see table 4). In year 1 this was a mean of 2.1 items rising to 2.8 in year 2 and 3.0 in year 3. It then fell to 2.5 in year 4 and 2.4 in year 5. The most frequent type of delinquency was rowdy behaviour followed by graffiti, theft from home and vandalism, avoidance of payment on public transport and shoplifting. This pattern was consistent across the five years of the study with the highest prevalence reported in the third year of the study (see table 5). Males were more likely to commit each of these offences at each stage of the study but the gender gap narrowed as the study progressed and the young people aged through adolescence.

In relation to more serious delinquency, the prevalence rates of this activity remained comparatively low throughout the five years of the study. The more serious offences were ‘joyriding’ (car theft), arson, burglary, robbery with a weapon, and theft from a car. The most frequent level of serious delinquency was ‘joyriding’ which peaked at 9 percent in the third year of the study with arson peaking at 6 percent in the third year also. Burglary (5%) robbery with a weapon (3%) and theft form a car (4%) also peaked in the third year of the study

amongst the full school cohort. A substantially higher proportion of males committed each of these offences with the gap only narrowing for joy riding (car theft). This analysis provides a baseline of delinquency and antisocial behaviour for school aged young people in Northern Ireland. It provides a useful benchmark upon which to compare young people who are categorised as belonging to high risk groups and who also participated in the BYDS.

Tables 2 and 3 present the numbers of young people who were identified within the high risk categories of the BYDS. It includes the proportion of males in each sample including the proportion of males in the mainstream school survey (approximately 4000 young people each year).

Table 2. Numbers of young people excluded from school identified for inclusion in the study

Survey Year	Participants	Refusals	Absentees	Total
Year 8 (11/12 years)	12 (92%)	3	10	25
Year 9 (12/13 years)	29 (90%)	6	4	39
Year 10 (13/14 years)	48 (88%)	3	15	66
Year 11 (14/15 years)	51 (69%)	4	21	76
Year 12 (15/16 years)	75 (65%)	4	34	113

NB: Proportion of males in brackets.

Table 3. Number of young people attending EBD Units and participating in the BYDS

Survey Year	EBD Participants (%)	Proportion of Males in Mainstream School Survey (%)
Year 8 (11/12 years)	10 (90%)	55
Year 9 (12/13 years)	12 (83%)	48
Year 10 (13/14 years)	16 (94%)	48
Year 11 (14/15 years)	10 (90%)	47
Year 12 (15/16 years)	4 (75%)	47

NB: Proportion of males in brackets.

Data on those young people living in state care was only available for years 3-5 of the BYDS. In year three 31 young people lived in state care with 74 per cent males, in year 4 there were 31 young people living in state care (62% males) and 19 in year 5 (58% males).

The first point to make about the High Risk Booster Sample of the BYDS is the smaller numbers of young people who met the criteria for participation in the research. This will go some way to explaining the comparatively small research resource that has been allocated to studying the experiences of these young people in adolescence generally and in the area of delinquency and antisocial behaviour in particular.

The other important point to make here is the high proportion of males who meet the criteria for inclusion in this part of the BYDS, particularly during the first three years of the study. This is particularly significant as the BYDS contained a majority of female participants during the second to fifth years of the mainstream school survey. For this reason an analysis of the gender patterns of delinquency amongst these groups was not undertaken.

Table 4. Frequency of Delinquency

No. of Delinquent items	Year 1 School*	Year 1 Excludees **	Year 1 EBD	Year 2 School*	Year 2 Excludees**	Year 2 EBD	Year 3 School*	Year 3 Excludees **	Year 3 EBD	Year 3 In care
0	36	17	0	25	3	8	23	8	6	16
1-3	41	25	50	42	38	50	41	33	31	29
4-6	15	33	10	21	31	33	23	17	19	16
6-9	5	17	20	7	19	0	10	23	19	23
10+	2	8	10	3	7	0	3	19	25	16
Mean	2.1	2	4.2	2.8	4.7	3.5	3	5.3	5.6	5.0

No. of Delinquent items	Year 4 School*	Year 4 Excludees**	Year 4 EBD	Year 4 In care	Year 5 School	Year 5 Excludees	Year 5 EBD	Year 5 In care
0	30	14	20	24			0	11
1-3	41	35	30	41			75	47
4-6	19	33	20	12			0	26
6-9	8	10	20	21			25	11
10+	3	8	10	3			0	5
Mean	2.5	4.1	4.6	3.4		4.1	2.8	3.0

* School Sample; ** School exclude.

Table 5. Frequency of each delinquent behaviour by type of subsample

Delinquent items	Year 1 School*	Year 1 Excludees**	Year 1 EBD	Year 2 School*	Year 2 Excludees**	Year 2 EBD	Year 3 School*	Year 3 Excludees **	Year 3 EBD
Fare	18	45	50	23	14	8	26	27	31
Shoplift	19	42	50	19	59	42	21	58	50
Rowdy	29	50	40	40	62	42	42	71	63
Joyride	4	17	20	7	21	25	9	38	31
Sch theft	6	8	10	13	14	8	15	8	13
Weapon	15	58	50	18	28	25	17	38	44
Vandal	19	42	30	23	55	33	28	56	63
Burglary	3	8	10	4	17	17	5	27	31
Graffiti	26	42	40	37	62	50	41	65	56
Rob	2	0	0	3	17	0	3	8	19
Hm theft	26	50	30	37	38	33	37	40	25
Arson	4	8	10	6	17	0	7	17	25
Fight	4	50	50	47	55	50	48	65	88
Car theft	3	25	50	3	14	17	48	17	25

Delinquent items	Year 3 In care	Year 4 School*	Year 4 Excludees**	Year 4 EBD	Year 4 In care	Year 5 School	Year 5 Excludees	Year 5 EBD	Year 5 In care
Fare	39	21	14	10	18	28	31	0	53
Shoplift	39	17	31	30	29	15	27	25	21
Rowdy	61	37	61	60	47	34	54	50	37
Joyride	23	9	22	20	18	9	31	0	5
Sch theft	23	10	10	10	15	12	15	0	32
Weapon	32	16	33	50	27	14	31	25	21
Vandal	55	23	47	50	29	22	41	25	26
Burglary	23	4	18	30	6	4	17	0	11
Graffiti	52	38	63	60	44	32	51	75	32
Rob	10	3	12	20	9	3	11	25	11
Hm theft	42	27	20	20	18	25	25	0	26
Arson	29	6	18	30	24	6	16	25	11
Fight	55	4	53	60	50	37	51	25	42
Car theft	19	3	6	10	9	3	14	0	11

* School Sample; ** School excludes.

The first point to make about the patterns of delinquency for these young people is the higher number of delinquent acts committed by young people making up the High Risk Booster Sample of the BYDS at each stage of the research regardless of their age. For all young people regardless of their 'risk' status the mean number of delinquent acts peaked in year 3 of the study when the young people were aged 13/14 years, with a fall in the mean numbers of delinquent acts in the two subsequent years (see Table 4).

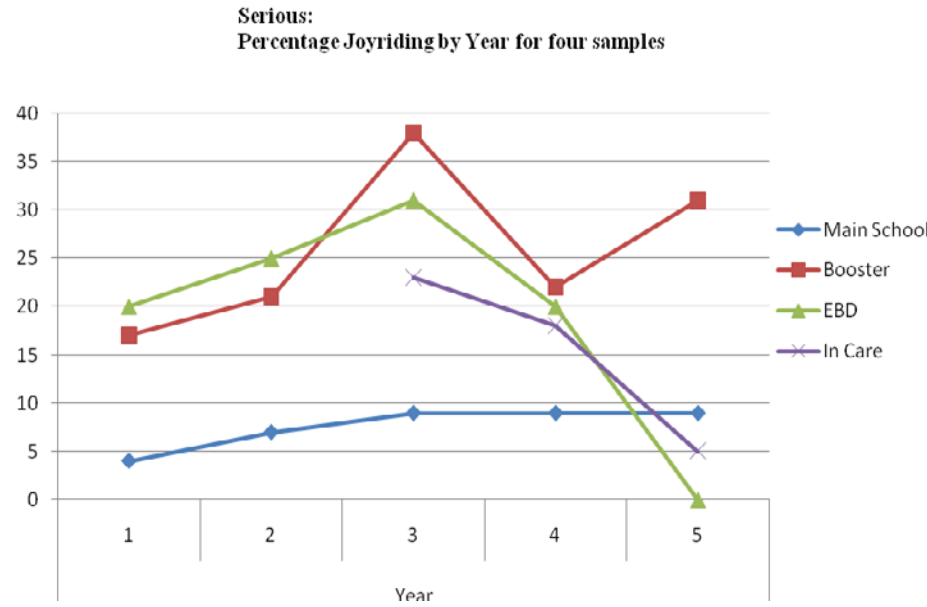

Figure 1. Percentage of joyriding (car theft) by categories of participants in the BYDS.

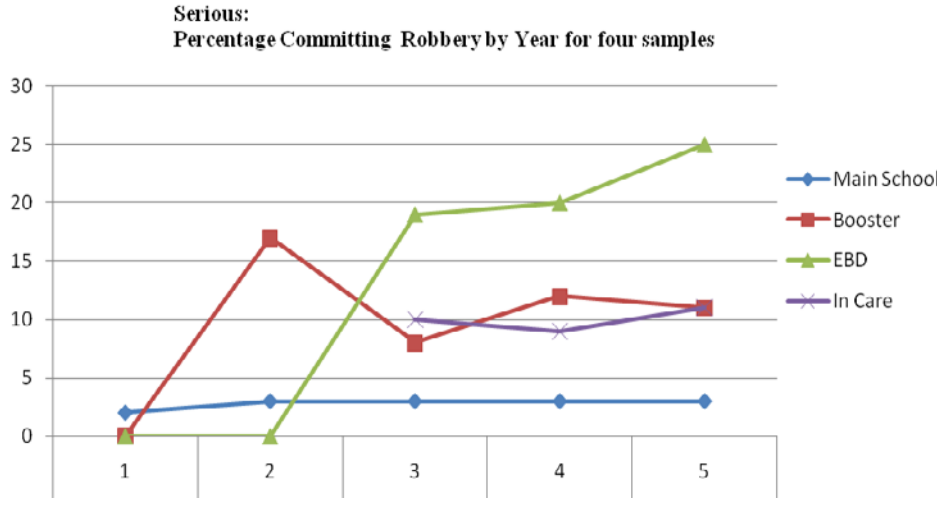

Figure 2. Percentage robbery with a weapon by categories of participants in the BYDS.

For more serious delinquency e.g. joyriding (care theft), arson, robbery with a weapon, the annual prevalence rates for these behaviours was lower than other types of delinquency (i.e. antisocial behaviour and acquisitive crime). The patterns of behaviour across each

category of young people showed consistently higher prevalence rates across each year of the study for the high risk groups of the BYDS compared with the full school cohort (see Table 5). Figures 1-3 provide examples of this pattern of behaviour for these including comparisons with the mainstream cohort.

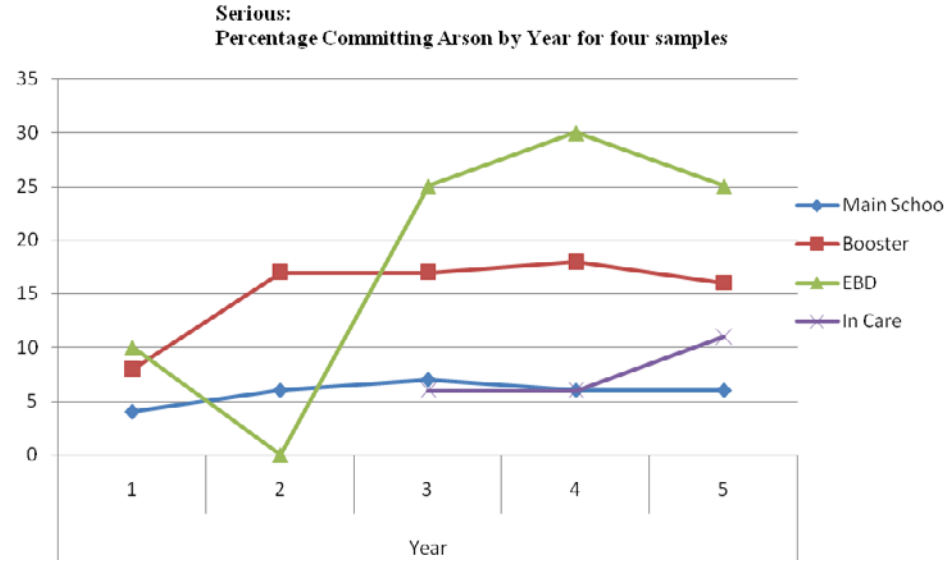

Figure 3. Percentage of arson by categories of participants in the BYDS.

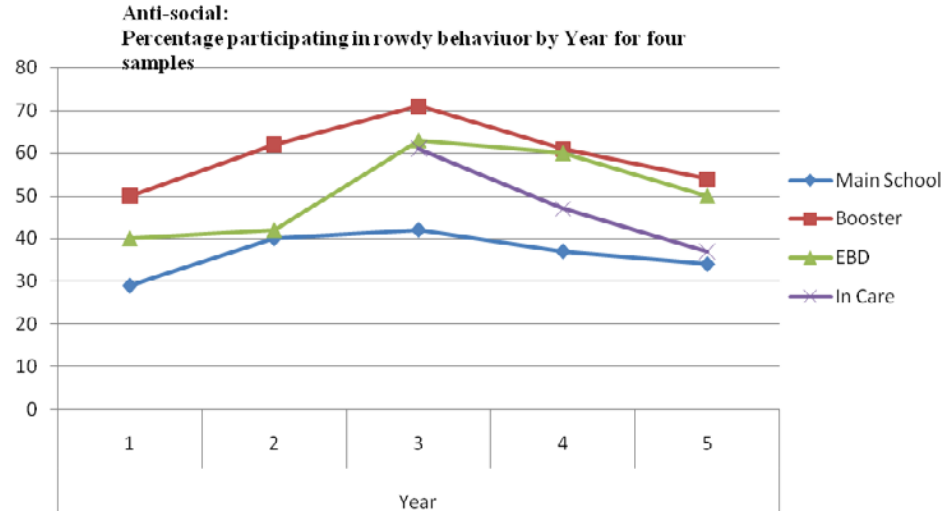

Figure 4. Percentage of rowdy behaviour by categories of participants in the BYDS.

The frequency of each delinquent behaviour followed a similar pattern to lifetime use as the high risk groups regardless of the subsample of young people. The EBD sample reported more frequent delinquency and antisocial behaviour followed by the school excludees and then the young people living in state care. The frequency of delinquency and antisocial behaviour was higher for each category of high risk cohort than for those attending mainstream school, reaching a high during the fourth year of the study when all the young

people participating in the BYDS were 14/15 years of age. A lower level frequency of each delinquent activity was noted during the fifth year of study when all young people were aged 15/16 years. Figures 4-6 provides examples of these types of behaviour.

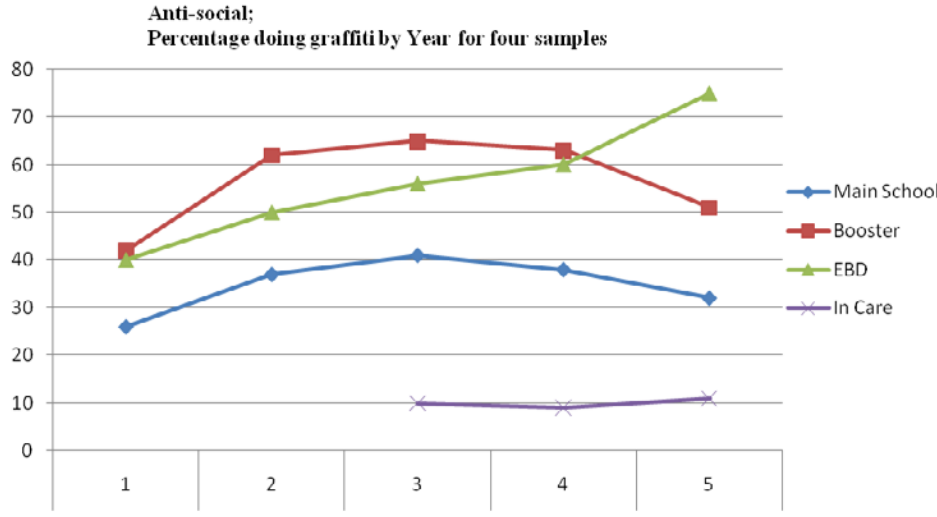

Figure 5. Percentage of graffiti by categories of participants in the BYDS.

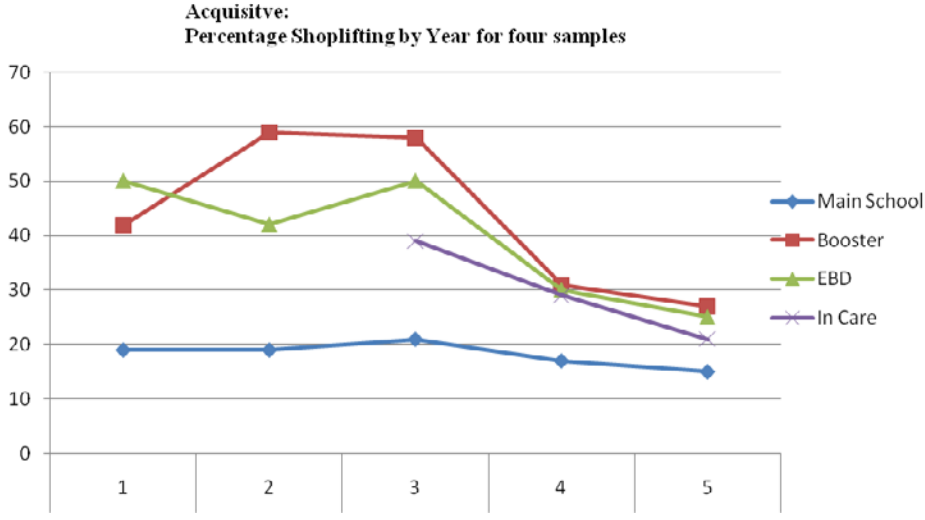

Figure 6. Percentage of shoplifting by categories of participants in the BYDS.

Explaining delinquency in the High Risk Booster Sample of the Belfast Youth Development Study

In contrast to those who were not attending school at the time of the research (school excludees; EBD sample), substantially higher levels of delinquency and antisocial behaviour was reported at all stages of the research. This reached a high of approximately eight out of

ten participants during the third year of the research and remained at this level for the rest of the study. Amongst the school sample, delinquency was comparatively lower at the beginning of the research rising gradually each year until the fourth stage of the study when the young people were aged 14/15 years. At this stage more than four out of ten of the full mainstream school sample reported delinquency year of the research.

These findings are important for several reasons. Firstly, they appear to support the categorization of each subsample of the BYDS as a vulnerable or high risk group to delinquency and antisocial behaviour. Although without a full analysis of all contributing variables it is not possible to call this a causal relationship. Secondly, they highlight the key stage at which the level of lifetime delinquency appears to reach a high noticeably during the fourth year of the study when the young people were aged 14/15 years. These insights are useful for both the timing and individual targeting of intervention initiatives to all school aged young people, regardless of their educational status or the type of education they are receiving.

The general patterns of delinquency and antisocial behaviour appear similar in relation to the age of onset and the development of these behaviours on a more regular basis. For example the levels of more frequent delinquency and antisocial behaviour showed noticeable increases until the around the age of 14 years when it appeared to stabilize as the majority of vulnerable groups reported the highest mean number of delinquent behaviours. However all the traditional high risk samples produced substantially higher levels of delinquency compared with the mainstream sample regardless of whether they were a school based (i.e. 'in care') or non-school sample (i.e. school excludes; EBD sample).

The delinquency and antisocial behaviour trends reported by the high risk subsamples of the BYDS have shown that non school attending young people, and other members of traditional school based vulnerable groups (i.e. those 'in care') were much more likely to engage in delinquent and antisocial behaviour. Other similar patterns were noted amongst each sample of vulnerable young people regardless of their school status. For example the high risk samples were more likely to be male, live in a disrupted family, report indicators of social deprivation and attend non grammar schools. In Northern Ireland academic ability remains the main selection criteria for grammar schools at the end of primary educational when aged 11 years (McCrystal et al, 2006; 2007 a, b).

Developing a Framework for Evidence Based Interventions for High Risk Young People in Adolescence

In this section the implications of the findings presented in this chapter will be discussed in order to provide insights into the structure and timing of prevention initiatives for the reduction of delinquency and its causes amongst high risk young people during adolescence. The timing and placement of interventions within appropriate educational settings is key to their success but this is not always straightforward. The use of instruction approaches that rely heavily on the production and processing of verbal discourse may particularly disadvantage young people who are not attending mainstream school as classroom groups may be unsuitable for teaching them about delinquency and antisocial behaviour. Factors such as reduced information-processing and limited communication abilities make it difficult for these young people to engage in discussion topics and integrate new ideas and

information. The notion of evidence-based practice has proved enormously challenging in mainstream school-based drug education, for example, Wallace and Staiger (1998) and offers increased challenges to the delivery of such initiatives to young people who have stopped attending formal school based education settings.

The area of high risk young people has not been graced with the same level of concern or debate with respect to preparing its young people to deal with these issues in society compared with young people in mainstream education. Given that mainstream settings consist of a heterogeneous group of young people with highly varying levels of academic and psychosocial risk, gaining a better understanding of how to prevent delinquent and antisocial behaviour by high risk young people will help us to reduce some of the variance with respect to the levels of risk experienced by these young people, as well as offering insights to inform practice in both mainstream and special education settings. Perhaps it would be insightful to consider where every young person sits on the continuum of risk versus protective factors. In this way, interventions designed to address delinquency and antisocial behaviour, like other aspects of educational curriculum, can be tailored more specifically to individual learning requirements, and can be measured against meaningful and identifiable outcomes. This approach could be supported by further research to evaluate the effectiveness of health promotion for high risk young people in order to clarify the most appropriate approaches to the development and delivery of delinquency and antisocial behaviour prevention initiatives to deal with such problems.

These approaches could consist of easily understood material on delinquent behaviour by high risk young people which could provide accurate information on which to develop informed decision-making strategies for making a decision about such behaviour. The delivery of such programmes should include skills based interventions; culturally relevant elements that are delivered alongside initiatives to address other social and health problems faced by these young people. Furthermore, to be effective these programmes should be delivered by appropriately qualified individuals and include issues relevant to their peer group, family and general lifestyle environment in which they life. They should be regularly updated standardized and monitored to assess their value to what can be a changing social environment. In addition individual sessions of short duration can have a negative impact on young people and their attitude towards delinquency and antisocial behaviour, as can threatening messages and wrong information (EMCDDA, 2002). The methods used in teaching need to be age appropriate and may be either interactive or non interactive or both. An important message for the development of effective interventions for high risk young people should be to highlight the methods that are inappropriate as well as those that will work when producing such initiatives.

Young delinquents, particularly in the pre-teenage years, are a group not usually recognised as needing services to prevent them from becoming future serious, violent offenders (Loeber and Dishon, 1983). These young people present potentially serious problems for society generally as they grow up if their delinquency and antisocial behaviour tendencies remain and even become established as may be evident from the increased prevalence of these behaviours noted in the findings from the BYDS. Despite this, they are a group about who comparatively little is known, especially amongst those who are considered particularly vulnerable or at risk to these behaviours in adolescence. The earlier targeted interventions are delivered the more likely they are to be effective, particularly as these young

people can become an expensive burden on society, now and in the future (Farrington et al, 2001) making the timing of such interventions an important issue.

The findings from the BYDS show that to be effective interventions need to be considered before young people leave primary education at age 11 years as many had already reported delinquency and antisocial behaviour by this age, in some cases at quite high levels. This is particularly important when the behaviours associated with delinquency and antisocial behaviour are highlighted particularly the levels of substance abuse associated with this behaviour (McCrystal et al, 2006).

Another significant factor was the dramatic increase in the number of young females reporting delinquency and antisocial behaviour from year 1 to year 2 amongst the mainstream cohort, when the gender balance became much more even and remained so from this point onwards. This may imply that there is increasing evidence for the development and implication of gender specific intervention strategies. However the implications for the gendered nature of interventions was difficult to assess amongst the high risk cohorts of young people due to the predominantly male nature of these groups particularly during the first three years of this study. Consideration should also be given to the development of a series of strategies that are also age specific to the developmental stage at which these young people had reached, as the levels of offending appeared to stabilise and even fall during the final year of the BYDS. The reasons for this were unclear and perhaps require a more qualitative research approach to fully unravel this finding.

To be effective interventions need to take a whole person approach rather than focus only on one particular behaviour like delinquency with particular attention given to the individual needs of the target group. Existing initiatives for adolescents are developed from existing evidence which is usually drawn from school based surveys which undermines their value to those attending EBD units or have been excluded from school. For interventions to be most effective they need to be targeted to the specific needs of recipients, especially when designed for young people vulnerable to drug misuse as their needs may vary with those in mainstream school settings. Targeting the specific needs through an understanding of the experiences of recipients has become a key principle for effective practice in the area of drug prevention that focuses on vulnerable groups (HAS, 2001) a principle that can also be applied to delinquency and antisocial behaviour among these young people. Despite the extensive range of information on risk and protective factors (e.g. Hawkins et al, 1992), there is relatively little known about what works amongst vulnerable or high risk groups (Roe and Becker, 2005). One exception was reported by Smith and Saulnier (1996) who found that interventions with high-risk young people could be effective when programmes were culturally relevant, included outreach and incentives, and involved peers or families.

It will not be sufficient, however, to amass only a quantitative data base. In this respect, a clearer understanding of the role played by delinquent behaviour, during the adolescent and early adult years of this population will provide an important foundation for future research. To this end, studies that employ in-depth interviews with the young people themselves, their parents, teachers, and community carers are needed. Whilst the BYDS has highlighted a number of relevant issues to delinquency and antisocial behaviours amongst high risk young people, its reliance on quantitative research methods makes it difficult to define all the key issues and their operationalisation.

CONCLUDING REMARKS

The majority of empirical evidence on delinquency and antisocial behaviour in adolescence has been gathered from school-based surveys. The existing literature has shown that some young people are at a higher level of risk to delinquency and antisocial behaviour. Despite this, a limited information base exists on delinquency and antisocial behaviour amongst these young people. The reasons for this include difficulties with obtaining relevant data on delinquency and antisocial behaviours, developing appropriate measuring instruments to meet their varying levels of literacy for both cross sectional and longitudinal research. In addition the relatively small numbers of high risk young people means the findings are often not generalizable to the majority of young people in mainstream school. Initiatives designed to keep all young people within mainstream education further ensures the numbers in this population remain small. In order to fully address their needs for targeted and appropriate intervention strategies, a valid empirical base is necessary as an initial step. Having identified the difficulties involved in obtaining such empirical based evidence the example of the high risk booster sample of the BYDS overcame these difficulties showing it is possible to develop an appropriate empirical base upon which delinquent prevention strategies can be developed for high risk young people.

The findings from high risk booster sample of the BYDS have highlighted a number of challenges for policy makers and practitioners with responsibility for addressing the delinquent behaviour among young people considered to be vulnerable to this behaviour. Firstly is the identification of the scale of the problem. The high risk booster sample of the BYDS has highlighted the scale of delinquency amongst its target population and in doing so the importance of researching the issue throughout the developmental period of adolescence. An understanding of the scale of this challenge is a necessary prerequisite for determining the scope and level of intervention required which also has resource implications and often an inhibitory effect on such research. The findings from the high risk booster sample of the BYDS have provided important insights into the scale of the problem as well as when interventions may have maximum impact during adolescence. The findings support early intervention at the beginning of postprimary education particularly before the age of 14 years with evidence suggesting interventions may be necessary at primary school level before young people reach the age of 11 years. However it is even more difficult to identify and target high risk young people at this stage.

The second key challenge is the design and development of targeted education and prevention initiatives to address the level of intervention required. All mainstream schools are required to deliver personal health and social education to their pupils but such programmes are not developed for the specific needs of those who stop attending mainstream school. The challenge here includes both the identification of these young people and delivering targeted interventions.

A further challenge is the delivery of targeted initiatives to those most in need as many of the high risk booster sample were not regular school attenders or in receipt of school based interventions. Monitoring the impact of such interventions through effective evaluations that assess their short and longterm impacts on the delinquency and antisocial behaviors of recipients are also required to ensure such interventions are ‘fit for purpose’. The high risk booster sample of the BYDS has demonstrated an ability to engage and track groups of

vulnerable young people throughout adolescence. Perhaps the key challenge to the success of the issues raised here is making such assessments feasible through addressing the resource implications of delivering the suggestions made here. As the specific details of resource requirements are not yet known it is difficult to calculate this. However, it is clear that some additional requirements will be necessary for example the design and operationalisation of age related targeted interventions.

Interventions for addressing delinquency and antisocial behaviour should ideally be empirically based. The empirical base for delinquency among vulnerable young people at risk to delinquency is comparatively limited. This means that our knowledge base upon which the most appropriate interventions are based remains incomplete. The high risk booster sample of the BYDS has highlighted the potential value of undertaking research with young people who are considered vulnerable to delinquency and antisocial behaviour. In doing so it has highlighted potentially appropriate intervention approaches and in doing so increased this knowledge base for both practitioners and policy makers as well has indicating the timing when the delivery of such interventions may have their greatest impact.

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