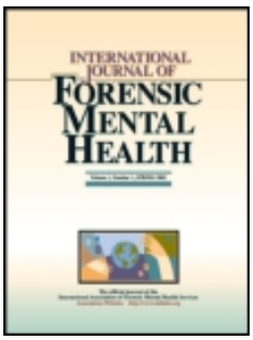

International Journal of Forensic Mental Health

ISSN: 1499-9013 (Print) 1932-9903 (Online) Journal homepage: http://www.tandfonline.com/loi/ufmh20

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To cite this article: Holly A. Wilson (2014) Can Antisocial Personality Disorder Be Treated? A Meta-Analysis Examining the Effectiveness of Treatment in Reducing Recidivism for Individuals Diagnosed with ASPD, International Journal of Forensic Mental Health, 13:1, 36-46, DOI: 10.1080/14999013.2014.890682

To link to this article: http://dx.doi.org/10.1080/14999013.2014.890682

INTERNATIONAL JOURNAL OF FORENSIC MENTAL HEALTH, 13: 36–46, 2014

ISSN: 1499-9013 print / 1932-9903 online
DOI: 10.1080/14999013.2014.890682

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Can Antisocial Personality Disorder Be Treated? A Meta-Analysis Examining the Effectiveness of Treatment in Reducing Recidivism for Individuals Diagnosed with ASPD

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Abstract

The effectiveness of treatment for individuals diagnosed with Antisocial Personality Disorder (ASPD) has been questioned and debated for years. As individuals with ASPD are considerably overrepresented in the criminal justice system, the ability of treatment to reduce recidivism is a prominent concern. The present meta-analysis identified six unique controlled and uncontrolled treatment outcome studies investigating the effectiveness of treatment in reducing general/any recidivism for individuals with ASPD. Results from the controlled studies indicated no significant differences in recidivism rates between individuals with ASPD in treatment and those in treatment as usual; however, the direction of the odds ratios suggested lower recidivism for the treatment groups. Results from the uncontrolled studies suggested equal effectiveness of treatment when comparing individuals with and without ASPD; however, these effects may not be attributable to the treatment in question. Interpretation of these findings and the generalizability of the general offender treatment literature to individuals with ASPD is discussed.

Reporting on results of research

Keywords: ASPD, effectiveness, meta-analysis, recidivism, treatment

Language of the Discipline

Language of the Discipline

The 'treatability' of individuals with Antisocial Personality Disorder (ASPD) has been questioned and debated for decades. It is argued that the impulsivity, self-serving actions, and deceitfulness inherent to the disorder make it difficult, if not impossible, to treat (e.g., Kaylor, 1999; Lock, 2008). Given that prevalence rates of ASPD in male offender populations is estimated around 50% or higher (e.g., Fazel & Danesh, 2002; Singleton, Melzer, & Gatward, 1998; Zinger, 2012) and that individuals with ASPD do not often present in community mental health settings (National Institute for Health and Clinical Excellence [NICE], 2010), the success of treatment is complicated by the likelihood of these individuals receiving treatment in typically underfunded and inherently punitive correctional settings. With the prevention of future criminal behavior as one of two primary goals of correctional systems, the ability of treatment to reduce recidivism for individuals with ASPD is critical.

Antisocial Personality Disorder is most known within the Diagnostic and Statistical Manual of Mental Disorders (DSM–IV-TR /DSM-5) and is characterized by a pattern of disregard for others, repeated unlawful behavior, deceitfulness, and a lack of remorse as demonstrated from a young age. One of the most prominent complaints regarding the conceptualization of the disorder is that the criteria within the DSM-IV-TR, and, to the dismay of many, the most recent DSM-5, focus heavily on behavioral symptoms associated with criminality, rather than underlying psychological processes. Given the lack of clear psychological symptoms, clinicians are tasked with identifying specific aspects of the disorder to treat (e.g., impulsivity, ownership of behavior), rather than treat the disorder as a whole (Livesley, 2007). This also obscures a generalized understanding of what suggests that these individuals are *better*. Is treatment success denoted by an increased concern for others, even while continuing to behave impulsively? Is a reduction in criminal behavior a sign that they no longer "suffer" from ASPD despite continuing to lie and dismiss the safety of others? This lack of

I would like to thank Ashley Ward for her assistance with inter-rater reliability. My gratitude also extends to Dr. Candice Monson for her helpful comments on the manuscript.

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agreement in treatment goals for individuals with ASPD is further confirmed by the sheer number of outcomes that are measured in the ASPD treatment literature, including social and global functioning, offending, adverse events, and employment status (Gibbon et al., 2010). As many have debated the DSM-IV-TR personality disorders (e.g., Livesley, 2007; Westen & Arkowitz-Westen, 1998; Widiger & Corbitt, 1993) and the proposed but rejected personality disorder changes for the DSM-5 (e.g., Lynam & Vachon, 2012), the impact of how ASPD is defined will not be expanded on here. Given the reliance on criminal behavior within the current criteria for ASPD, however, it is no wonder that this disorder is severely overrepresented in the criminal justice system. In light of this, it may be that treatment effectiveness within correctional systems is most easily viewed as a reduction in criminal behavior.

Despite the overrepresentation within the justice system and the significant costs of crime to society (NICE, 2010), there is a paucity of research examining the ability of treatment to reduce recidivism for individuals with ASPD. Recently, two independent reviews of randomized controlled trials (RCT) of the effectiveness of treatment of ASPD were conducted by the National Institute for Health and Clinical Excellence (NICE, 2010) and Gibbon et al., (2010) as a Cochrane Review, with searches ending in 2008 and 2009 respectively. In total, two RCT studies were identified that examined recidivism as a treatment outcome (i.e., Davidson et al., 2009; Woodall et al., 2007). Davidson and colleagues (2009) assessed the effectiveness of CBT compared to treatment as usual for individuals with ASPD and instances of previous physical aggression and Woodall and colleagues (2007) examined a DWI program for offenders with ASPD compared to incarceration. The results of both studies indicated that there was no significant difference in rate of recidivism (Davidson et al., 2009) or time to recidivate (Woodall et al., 2007) between the experimental and control groups; however, both studies demonstrated a trend toward lower recidivism rates for the experimental groups. Given the paucity of controlled trials, both reviews extended their search to include general offender treatment studies because of the high proportion of individuals with ASPD involved in the justice system.

Meta-analyses have repeatedly shown that general offenders can be successfully treated to reduce recidivism (e.g., French & Gendreau, 2006; Landenberger & Lipsey, 2005; Lipsey & Cullen, 2007). However, the treatment of offenders, not surprisingly, is not effective under all circumstances. The Risk-Need-Responsivity (RNR) principles of offender rehabilitation contend that the effectiveness of treatment in reducing criminal behavior is contingent on identifying and addressing an offender's level of risk, areas of need, and responsivity factors (Andrews, Bonta, & Hoge, 1990). Therefore, treatment is expected to be effective insofar as those at highest risk are treated (rather than low-risk offenders), treatment is tailored to the criminogenic needs of the offender (e.g., attitudes, criminal peers), and factors that may interfere with success are addressed (e.g., learning disability). The effectiveness of treatment tailored to these three principles has been demonstrated in several meta-analyses (e.g., Andrews & Bonta, 2010; Hanson, Bourgon, Helmus, & Hodgson, 2009), with the greatest reductions found when treatment adheres to all three. Treatment offered within the criminal justice system and/or with the explicit goal of reducing criminal behavior is often delivered according to the index offence/criminogenic needs and risk level of the offender (e.g., a high-risk sexual offender is placed in high-risk sex offender treatment). Therefore, individuals with ASPD who find themselves in the criminal justice system will likely be placed in treatment for high-risk offenders, not specific to individuals with ASPD, that targets more generally 'antisocial personality traits' such as impulsively, psychological immaturity, and antisocial attitudes (Andrews & Bonta, 2010; Andrews, Bonta, & Hoge, 1990), especially given the lack of correctional treatment specifically developed for individuals with ASPD (e.g., NICE, 2010). Therefore, as suggested by both NICE (2010) and Gibbon and colleagues (2010), this general offender treatment literature does provide some evidence to assist in the treatment of individuals with ASPD, however, the degree to which those results can be generalized to offenders with ASPD and the effectiveness of this general treatment for these offenders remains unclear.

Although it has been argued that nearly half of individuals diagnosed with ASPD do not have serious arrest records (Robins, 1987; Robins, Tipp, & Pryzbeck, 1991), others have noted that 90% of individuals with ASPD are substance-abusing criminal offenders (Messina, Wish, & Nemes, 1999). As individuals with ASPD are overrepresented in the criminal justice system and estimates indicate that *at least* 50% of individuals with ASPD have a criminal record, a discussion focused solely on the reduction of recidivism is warranted. Therefore, the current review aims to examine the existing literature on the effectiveness of treatment in reducing recidivism for individuals with ASPD. Given the select focus of previous reviews on RCTs and the resulting dearth of information, this meta-analysis provides an update to previous reviews and a comprehensive examination of the full state of the literature containing both controlled and uncontrolled studies.

METHOD

Selection of Studies

Computer searches of *PsycINFO, Web of Science, Criminal Justice Abstracts, Journal of Criminology, Crime & Justice, Journal of Research in Crime & Delinquency, Justice*

Quarterly, and DART-Europe E-theses portal were conducted using search terms that were a variation of antisocial personality, APD, ASPD and treat*, therapy, program. These search terms were crossed with terms restricting the search to adults and studies reporting on some form of recidivism. Additional articles were obtained through an examination of reference lists of the collected articles and previous treatment outcome reviews (e.g., Gibbon et al., 2010). Studies were eligible for coding if produced before April 1, 2013.

In order to be included in the meta-analysis, a study had to investigate the effectiveness of treatment for individuals with ASPD using a measurement of recidivism. This included controlled trials comparing individuals with ASPD in treatment to individuals with ASPD in a control group. In order to gain as much information as possible regarding existing treatment effectiveness studies considering ASPD, inclusion was also extended to studies that compared the recidivism rates of those with ASPD to those without ASPD within the same treatment program and without a comparison group. The experimental treatment program being evaluated could be treatment designed specifically for individuals with ASPD or nonspecific treatment with participants with ASPD. For controlled studies, comparison groups could include no services, treatment as usual, or alternative treatment that is different in approach and/or content than the treatment of interest. Studies simply comparing doses of the same treatment and those only utilizing individuals with antisocial traits, rather than a diagnosis, were excluded. Studies assessing treatment consisting solely of medication were also excluded. Each study had to consider recidivism as an outcome measure post-treatment, rather than only throughout treatment; this could include reconviction, new arrests, reincarceration, or self-reported criminal behavior. To be included, recidivism must have been reported as the number of participants who re-offended; therefore, studies that only reported time to re-offense (e.g., Woodall et al., 2007) were not included. If more than one index of recidivism was available, it was coded in the order listed above.

Studies had to include sufficient statistical information to calculate an effect size (i.e., odds ratio) and the recidivism rate. Only one effect size was calculated for each treatment program per sample and per outcome measure (e.g., general, violent recidivism). All studies included provided general recidivism as an outcome.

In addition to an examination of previous review articles, abstracts derived from the search were reviewed and retained for further inspection if information within the abstract did not clearly conflict with the inclusion criteria. This resulted in 81 potential studies identified, with the exclusion of 75 studies due to no formal ASPD diagnosis ($n = 4$), no comparison group (i.e., no ASPD waitlist or non-ASPD comparison; $n = 20$), the study did not evaluate a psychological treatment ($n = 7$), or no recidivism information was provided post-treatment ($n = 44$).

Measures and Coding Procedure

Each study was coded by the first author using a coding manual and forms, also developed by the author. Variables coded consisted of study descriptors (e.g., country of origin, research design), sample descriptors (e.g., gender, criminal history), and treatment descriptors (e.g., treatment targets, dose).

For the purposes of this review, randomized controlled trials were considered the most appropriate design through which to assess the effectiveness of treatment in reducing recidivism for individuals with ASPD. Well-designed and implemented matched designs were also considered acceptable, because these designs have demonstrated high internal validity (Heinsman & Shadish, 1996; Shadish & Ragsdale, 1996). Controlled designs, both random and matched, assist in determining whether individuals with ASPD in a particular treatment program re-offend at a lower rate than similar individuals with ASPD who have not been exposed to the experimental treatment. The second type of research design accepted for inclusion was uncontrolled, which compared individuals with and without ASPD within the same treatment program. This design differs in the question it can answer, as it speaks to whether a treatment program works similarly for those with ASPD as it does for those without. Although the inclusion of these studies provides greater information on the current state of the literature, the ability of this type of design to speak to the effectiveness of reducing recidivism is limited as there is no treatment control group; this results in the overall effectiveness of the treatment remaining unknown. In order to comprehensively evaluate the existing literature, however, both types of studies were reviewed.

For studies utilizing a controlled design, quality of study design was coded, as previous meta-analyses have highlighted the impact of research design on outcomes (e.g., Shadish & Ragsdale, 1996; Weisburd, Lum, & Petrosino, 2001). Study quality was coded as successful, somewhat successful, and non-successful. An example of a successful study is a well-executed random assignment or matched design (e.g., no differences between groups found post hoc, sample size greater than 100, follow up greater than 12 months, loss of follow-up data less than 10%). An example of a somewhat successful design is a matched design with no verification of group equivalency or the use of a convenience sample with the controlling of demographic and risk-related variables at the analysis stage. Studies would also be considered somewhat successful if they failed to meet any of the criteria for a successful design. An example of a non-successful study is if there were clear differences in risk-related factors between the two groups and little attempt was made to control for these differences.

To assess the interrater reliability of effect sizes, three of six studies were randomly selected and coded by a second

rater. The second rater was first trained by the author using the three studies not included in the interrater reliability analyses. The intraclass correlation coefficient, using absolute agreement, for the effect sizes was .991 for a single rater and .995 for an average of the two raters, with both raters identifying four effect sizes.

Index of Treatment Effectiveness

Given that both variables of interest are dichotomous (i.e., treatment participation and recidivism), the odds ratio was chosen as the most appropriate measure of treatment effectiveness (Fleiss & Berlin, 2009; Haddock, Rindskopf, & Shadish, 1998). For controlled studies, it represents: (1) the probability of re-offending given participation in the experimental treatment divided by the probability of not re-offending given participation in the same experimental treatment, divided by (2) the probability of re-offending given the comparison group divided by the probability of not re-offending given the comparison group. Therefore, an odds ratio of 1.00 indicates no difference in recidivism rates between individuals with ASPD in the experimental treatment group and those in the control group. Values from 0 to 0.999 suggest that the experimental treatment is more effective than the comparison, whereas values from 1.00 to infinity indicate that the control group treatment (or lack thereof) is more effective in preventing recidivism.

For the uncontrolled designs, the odds ratio represents: (1) the probability of re-offending for those with an ASPD diagnosis divided by the probability of not re-offending given an ASPD diagnosis, divided by (2) the probability of re-offending given no ASPD diagnosis divided by the probability of not re-offending given no ASPD diagnosis. An odds ratio of 1.00, in this case, suggests no differences in recidivism between those with ASPD and those without. Values from 0 to 0.999 suggest that those with ASPD have lower recidivism rates, whereas values from 1.00 to infinity indicate that the non-ASPD group has lower rates of recidivism.

Effect sizes were weighted by the inverse of the variance in order to allow studies with larger sample sizes to contribute more to the overall odds ratio. Analysis was also performed on the natural log of the odds ratio to normalize the distribution (Hanson and Broom, 2005). Effect sizes were converted back into odds ratios, which were reported. To assess the homogeneity of variance, Cochran's Q statistic was utilized, which follows a chi-square distribution with k-1 degrees of freedom (Hedges & Olkin, 1985; Huedo-Medina, Sánchez-Meca, Marín-Martínez, & Botella, 2006). Q values higher than the predetermined statistical level (e.g., $p = .05$) indicate significant differences among studies (Huedo-Medina et al., 2006). The I^2 statistic was also used to quantify the degree of heterogeneity and represents the ratio of excess dispersion to total dispersion (Higgins, Thompson, Deeks, & Altman, 2003). Small, medium and large proportions of heterogeneity are represented by percentages of 25, 40, and 75 respectively (Huedo-Medina et al., 2006).

The results were presented for both fixed and random effects models. Fixed effect models restrict conclusions to the set of studies observed or those with the exact same parameters, as they fail to consider between-study variability and, therefore, underestimate the uncertainty of results (Hedges & Vevea, 1998; Overton, 1998). Random effects models incorporate a measure of between-study variability, which leads to more conservative and generalizable results but gives less importance to sample size compared to fixed effect models (resembling unweighted averages; Hedges & Vevea, 1998). When the variability between studies is less than would be expected by chance ($Q <$ degrees of freedom), both fixed and random effects models provide the same results. The formulas presented in Hedges (1994) were used to calculate the fixed effect means, standard errors, and moderator analysis. The random effects estimates were calculated using formula 10, 12, and 14 in Hedges and Vevea (1998).

RESULTS

In total, six unique studies met the criteria for inclusion (Davidson et al., 2009; Fridell, Hesse, and Billsten, 2007; Frisman et al., 2009; Krampen, 2009; McKendrick et al., 2006; Messina et al., 1999). Three studies employed a randomized controlled treatment design and three studies utilized an uncontrolled design. Two of the studies utilizing a controlled design (i.e., comparing randomly assigned individuals with ASPD) also met criteria for inclusion in the analysis utilizing uncontrolled designs (i.e., comparing individuals with ASPD to those without; Frisman et al., 2009; McKendrick et al., 2006). All studies were published in a peer-reviewed journal and they derived from four countries, including the United States, Sweden, Germany, and the U.K. The controlled studies and uncontrolled studies were meta-analyzed (Table 1) and are discussed separately.

Controlled Trials

The three controlled trials examined three different treatment programs using 146 individuals with ASPD, 67 in treatment

TABLE 1
Meta-Analysis on the Effects of Treatment on Recidivism for Individuals with ASPD

	Average Odds Ratios and 95% Confidence Intervals (CI)							
	Fixed		Random					
	Odds Ratio	95% CI	Odds Ratio	95% CI	Q	I^2	n	k
Controlled[a]	.66	.66 to 1.65	.51	.12 to 2.19	4.20	52.4	146	3
Uncontrolled[b]	.97	.67 to 1.41	.93	.47 to 1.83	6.39	37.4	611	5

[a]ASPD vs ASPD.
[b]ASPD vs non-ASPD.

TABLE 2
Summary of Studies Utilizing a Controlled Treatment Design Comparing Individuals with ASPD

Study	Role of evaluators/ Program run/owned by	Sample Size (treat/control)/ Research design	Treatment locale/Format[e]/ Dose (average hours)	Control group receives	Treatment focus/ Orientation	Recidivism measure/Length of follow-up	OR
Davidson et al., 2009	One evaluator from same agency that provides services; Researchers	20/21; Random assignment	Community; Individual; 22.5	Treatment as usual	Unknown[a]; CBT	Self-reported physical aggression; 12 months	.882
Frisman et al., 2009[b]	Authors involved in treatment design/training; Non-criminal justice public agency	16/20; Random assignment	Community; Mixed; Dose not reported	Treatment as usual	Substance abuse and mental illness; IDDT through Assertive Community Treatment	Reincarceration; 36 months	.644
McKendrick et al., 2006[c]	Independent evaluators; Criminal justice agency	31/38; Random assignment	Institution; Mixed; 640	Alternative treatment	Substance abuse/ Attitudes/ Mental illness; CBT	Reincarceration[d]; 12 months	.038*

Note. IDDT = integrated dual disorder treatment. OR = Odds Ratio.
[a]Described in study as addressing "beliefs about self and others and behaviours that impair social and adaptive functioning" (p. 571).
[b]Additional treatment information was coded from Essock et al. (2006).
[c]Additional treatment information was coded from Sacks et al. (2003).
[d]Although the study investigated criminal arrests, base rates of recidivism were not reported for that outcome variable, therefore, reincarceration was coded.
[e]Treatment format consisted of individual, group, or mixed.
*$p < .05$.

and 79 in the control groups (see Table 2). All three studies were considered somewhat successful given the criteria described in the Method section. Overall, the recidivism rate for ASPD clients in the experimental treatment ranged from 0% to 35% with an unweighted average base rate of 17.9%. The recidivism rate for ASPD clients in the control group ranged from 20% to 38% with an unweighted average base rate of 28.0%. Two of the three studies found no significant difference between the recidivism rates of those with ASPD in the experimental treatment group and those in the control group; only one study found greater significant effectiveness for those in the experimental group (i.e., McKendrick et al., 2006). The odds ratio for all studies ranged from 0.04 to .88, with an unweighted mean of .52. For fixed effect, the weighted mean was 0.66, 95% CI [0.66, 1.65] (see Table 1). For random effects, the mean was lower at 0.51, 95% CI [0.12, 2.19]. The confidence intervals for both mean odds passed through 1.0 and the variability was not significant ($Q = 4.20$, $df = 2$), indicating that treatment was no more effective in reducing recidivism than the control group. However, the direction of results appeared to be with lower recidivism for those in the treatment group. Given that there are only three studies and moderator analyses are not possible with so few studies and considered unnecessary with non-significant variability, each study will be described here.

Davidson and colleagues (2009) examined male individuals with ASPD reporting physical aggression in the past 6 months referred to either community-based cognitive behavioral treatment or treatment as usual. The focus of the treatment was "beliefs about self and others and behaviors that impair social and adaptive functioning" and was delivered by seven therapists (p. 571). Little information was provided regarding what constituted treatment as usual as the authors noted that it was "whatever treatment they would have received if the trial had not been in place" (p. 570). Although participants were still included in the study if they had previous psychological problems or current substance use problems (although individuals with schizophrenia or bipolar-affective disorder were excluded), no information was provided on the proportion and nature of comborbidities. The authors noted trends in increased positive beliefs about others and less harmful drinking for those in CBT but no significant differences were found in recidivism rates (for CBT and control, rates were 35% and 38% respectively).

Frisman and colleagues (2009) examined the effectiveness of integrated dual disorder treatment (IDDT) through Assertive Community Treatment (ACT) by comparing it to treatment as usual. Individuals with ASPD were eligible for the study if they also had a substance abuse disorder as well as a disorder along the psychosis spectrum, as the authors were attempting to deal with what they considered the most severe clients. The main focus of integrated treatment is on both substance abuse and the presenting mental disorder and, through ACT, is provided in the community by working with

several therapists who retain 24-hour responsibility over the client (Essock et al., 2006). The control group received integrated dual disorder treatment through standard clinical case management, which in this case meant individual therapy in a clinical setting with one therapist and brokering services to other providers. The majority of participants were male and were charged with a criminal offense (86%) or were previously incarcerated (78%). They found no significant differences in observed rates of incarceration between the two groups (19% for treatment and 20% for control) at 24 months after treatment.

Lastly, the only study to show significant treatment effectiveness in reducing recidivism was McKendrick et al. (2006). They assessed the effectiveness of a Modified Therapeutic Community (MTC) compared to standard mental health services with male inmates with ASPD, a mental illness, and chemical abuse. MTC is institution-based and is focused on changing the attitudes, behaviors, and lifestyles related to substance abuse, mental illness, and criminal thinking/behavior using psychoeducation, CBT, medication, and other interventions tailored to the client. Standard mental health services for the control group meant, in this case, individual and group treatment focusing on mental and substance abuse disorders, the use of medication, and CBT. The authors noted that the primary difference between the treatment and control conditions was that MTC incorporated the community as a healing agent and utilized peer support. Ninety-seven percent of the participants had a substance abuse/dependence disorder in addition to ASPD and 91% had an additional Axis I disorder, most often major depression. Twelve months after treatment, results indicated that, although criminal arrests did not differ, individuals receiving MTC were 26 times less likely to be re-incarcerated than those receiving the standard, institutional treatment.

Uncontrolled Trials

Five treatment outcome studies used uncontrolled designs and examined five different treatment programs using 265 individuals with ASPD and 346 individuals without ASPD (see Table 3). Overall, the recidivism rate for participants with ASPD ranged from 0% to 48%, with an unweighted average base rate of 28.3%. The recidivism rate for individuals without ASPD ranged from 9% to 51%, with an unweighted average base rate of 32.0%. The odds ratio for all studies ranged from 0.08 to 2.03, with an unweighted mean of 0.84. For fixed effect, the weighted mean was 0.97, 95% CI [0.67, 1.41] (see Table 1). For random effects, the mean was slightly lower at 0.93, 95% CI [0.47, 1.83]. The confidence intervals for both mean odds passed through 1.0 and the variability was not significant ($Q = 6.39$, $df = 4$), indicating that there were no significant differences in recidivism rates between those with ASPD and those without. Four of five studies resulted in odd ratios that suggest lower recidivism for those with ASPD compared to those without; only one study reported an effect size greater than 1, indicating greater effectiveness for individuals without ASPD. However, all but one effect size failed to reach significance. Given the difficulties in concluding treatment effectiveness in reducing recidivism without a comparison group, the results from these studies should be considered with caution.

Krampen (2009) examined the effectiveness of an integrative, community-based psychotherapy using male individuals with a violent criminal record. Treatment incorporated aspects of CBT, relaxation, and psychodynamic methods by emphasizing a common factors approach, focusing on resource activating, master-oriented, and consciousness-creating interventions. Specific targets of treatment (e.g., attitudes, substance use) were not reported in the article, although it was noted that all 28 participants were trained in relaxation. They found that individuals with ASPD were 1.57 times less likely to be re-arrested, although this value did not reach significance.

Messina and colleagues (1999) assessed the effectiveness of a Therapeutic Community in reducing recidivism for those presenting with a substance abuse disorder. Seventy-seven percent of participants with ASPD had a criminal record, 59% without ASPD had a criminal record and 73% of the total sample was male. Therapy consisted of residential, group-based treatment followed by outpatient services and focused primarily on substance use. At 31 months post treatment, the recidivism rate for the ASPD group was 48% and that of the non-ASPD group was 51%, with no significant difference between them. This general effect did not differ according to standard (10 months residential followed by 2 months outpatient care) or abbreviated (6 months residential followed by 2 months outpatient care) length of the same treatment.

Fridell and colleagues (2007) examined the recidivism rates of individuals with a substance use disorder who attended a hospital-based detoxification and rehabilitation program. Sixty-three percent of the total sample had a prior criminal conviction, with higher rates among those with ASPD than those without (88% compared to 54% respectively). The focus of treatment was substance use, however, aside from indicating that the program provided supportive care and individual/group therapy, little information was provided regarding the nature or orientation of the short-term rehabilitation; the primary focus appeared to be on detoxification. They found that after 5 years, those without ASPD were 2 times less likely to be reconvicted than those with ASPD, although this was not significant.

As discussed within the controlled studies, Frisman and colleagues (2009) evaluated the effectiveness of integrated dual disorder treatment through Assertive Community Treatment (ACT) for individuals with a mental illness on the psychosis spectrum and a substance use disorder. Most participants with and without ASPD had a criminal record (86% and 67% respectively). They found that those with ASPD were two times less likely to be reincarcerated than those

TABLE 3
Summary of Uncontrolled Studies Examining Effectiveness of Treatment for Individuals With and Without ASPD

Study	Role of evaluators/ Program run/owned by	Target sample and size (ASPD/non-ASPD)	Comparison group	Treatment locale/Format[c]/ Dose (average hours)	Primary treatment focus/orientation	Recidivism measure/ Length of follow-up	OR
Krampen, 2009	Evaluator involved in design of treatment; Private practice	All individuals engaged in antisocial, violent behavior; 17/11	Individuals with adjustment disorder with disturbances of conduct ($n = 6$) or impulse control disorders ($n = 5$)	Community; Individual; 66	Unknown/ relaxation; Integrative	Rearrest[a]; 60 months	.636
Messina et al., 1999	Independent evaluators; Non-criminal justice public agency	All individuals had substance abuse disorder; 163/169	Individuals without any other disorder or a disorder other than ASPD	Residential followed by community; Mixed; Dose not reported	Substance use; Therapeutic community	Rearrest; 31 months	.908[b]
Fridell et al., 2007[d]	Independent evaluators; Non-criminal justice public agency	All individuals had substance abuse/dependence disorder; 40/84	Individuals with only substance abuse/dependence or substance use disorder and a non-ASPD personality disorder	Hospital; Mixed; Dose not reported	Substance use; Unknown	Reconviction; 60 months	2.03
Frisman et al., 2009	Evaluators involved in treatment design/training; Non-criminal justice public agency	All individuals had a major mental illness in the psychosis spectrum and a substance use disorder; 14/38	Individuals with a major mental illness on the psychosis spectrum and a substance use disorder	Community; Mixed; Dose not reported	Substance use and mental illness; IDDT through Assertive Community Treatment	Reincarceration; 36 months	.467
McKendrick et al., 2006	Independent evaluators; Criminal justice agency	All individuals had a serious mental illness and chemical abuse; 31/44	Individuals with a serious mental illness and chemical abuse	Institution; Mixed; 640	Substance abuse/ Attitudes/ Mental illness; CBT	Reincarceration; 12 months	.079*

Note. IDDT = integrated dual-disorder treatment. OR = Odds Ratio.
[a]The study indicated that it measured 'criminal relapse' using criminal and police records, therefore, this was coded as rearrest.
[b]The odds ratio was calculated based on the outcome of the standard length of treatment, rather than abbreviated.
[c]Treatment format consisted of individual, group, or mixed.
[d] Additional information was coded from Fridell et al., 2008.
*$p < .05$.

without ASPD after three years, although this finding was not significant.

Lastly, McKendrick and colleagues (2006) also provided information comparing inmates with ASPD to those without in their evaluation of a Modified Therapeutic Community (MTC) in treating substance abuse, mental illness, and criminal thinking/behavior. They found that those with ASPD were nearly 13 times less likely to be reincarcerated after 12 months than those without ASPD, as none of those with ASPD were reincarcerated.

DISCUSSION

This review was undertaken to summarize all existing literature on the effectiveness of treatment in reducing recidivism for individuals diagnosed with Antisocial Personality Disorder. Both controlled and uncontrolled studies were meta-analyzed and results were similar in suggesting no significant differences when comparing treated individuals with ASPD to 'untreated' individuals with ASPD and similarly treated individuals without ASPD. One of the most notable findings of this review was the paucity of studies identified for inclusion.

The meta-analytic results of the controlled studies indicated that there was no significant difference in recidivism rates between individuals with ASPD within the experimental treatment and those treated as usual or receiving alternative treatment. This could be interpreted as confirming the 'untreatability' of those with ASPD. However, the odds ratios suggested lower rates of recidivism for those in treatment and

it could simply be that studies did not have sufficient power to detect significant differences in rates (i.e., total *N* of 146). Criticisms levied against statistical testing have also emphasized the utility of understanding the size of the differences rather than focusing only on their statistical significance (e.g., Carver, 1978). Given the personal and financial costs of criminal behavior (e.g., NICE, 2010), it could be argued that any decrease in risk to recidivate, regardless of statistical significance, is valuable and worthy of note. Using the more conservative random effects model, failure to be included in the experimental treatment groups increased the likelihood of recidivating by 96%. Much more research is needed before firm conclusions can be made, especially given the small number of studies contributing to the mean effect size; however, this preliminary evidence suggests that treatment could be beneficial.

The one controlled study that did show significant differences between the treated and alternatively treated groups appeared relatively different compared to the other studies. For example, McKendrick and colleagues' (2006) treatment program was offered to a more homogeneous group (all current inmates), was the only study to list attitudes as a treatment target, and treatment was offered in an institution rather than the community. The provision of offender-specific treatment in this case may have increased its effectiveness, as the reduction of recidivism was a primary treatment goal (given their inmate status); the other two programs, however, were offered within community, mental-health settings, where recidivism reductions may have been a secondary goal (despite the high proportion of individuals with a criminal record). It was also the only program to compare treatment to alternative treatment, rather than treatment as usual, although the alternative treatment within this study is often considered standard for offenders seeking treatment (McKendrick et al., 2006). The authors noted that the primary difference between the treatment and alternative group was the involvement of the community in the experimental group as a healing agent and reliance on peer self-help (Mckendrick et al., 2006). As restorative justice and the role of community healing has been demonstrated to reduce recidivism for offender groups with even greater effectiveness when coupled with good treatment (e.g., Rugge & Wilson, 2013), it could be that the inclusion of this component increased the effectiveness of standard CBT offered to the control group.

The authors of this study found that, although there were no differences between groups for criminal arrests, those in the experimental group were significantly less likely to be reincarcerated. It could be that, although the treated group re-offended at the same rate as the control, their offences may have been less serious and, therefore, less likely to result in jail time. Given that time spent in jail further increases an individual's risk to re-offend (e.g., Huizinga, Schumann, Ehret, & Elliot, 2003; Smith, Goggin, and Gendreau, 2002), this remains an improvement; however, given that the nature of the re-offence was not reported in this particular study, this explanation is speculative.

The tentative question the uncontrolled studies are designed to answer is whether treatment has the same effect on individuals with ASPD as it does on those without. The meta-analytic results derived from five studies indicated that there are no significant differences between the recidivism rates of those with and without ASPD in the same treatment program. This suggests that treatment is, in fact, equally effective for individuals, regardless of ASPD status. However, given the limitations of this type of design, results from the uncontrolled studies should be considered with caution. For example, it is difficult to ensure equivalence of samples regarding recidivism when one is, by definition, more 'criminal' than the other. This is evidenced by the fact that, regardless of other risk factors, merely being diagnosed with ASPD increases an individual's risk to re-offend (e.g., Andrews, Bonta, & Wormith, 2004). Therefore, the results of the meta-analysis, which suggest equivalent recidivism rates, may be attributed to factors other than treatment effectiveness. It could be that those with ASPD are re-offending at the same rate as they would without treatment and that treatment served to increase the recidivism rates of those without ASPD. In fact, the results derived from Frisman and colleagues (2009) seem to support this hypothesis.

As one of two studies within the uncontrolled analyses that also provided a control group, Frisman et al., (2009) provided the opportunity to examine the effectiveness of treatment compared to treatment as usual for both individuals with ASPD and those without. They found that not only did those without ASPD in the experimental treatment recidivate more than those with ASPD in the same treatment, but they recidivated more than those without ASPD in the treatment as usual group. Given that the integrated dual disorder treatment tested in this study is designed to assist the most severe clinical groups (Frisman et al., 2009), it could be that the inclusion of those without ASPD served to worsen them as the intervention may have been too intensive. This is supported by the risk principle of rehabilitation, indicating that providing intense treatment to those who are at lower risk to re-offend may actually increase their risk (Andrews et al., 1990). Therefore, it appears that this treatment assisted those with ASPD (according to the controlled results), but worsened those without. The benefits of treatment for those with ASPD, however, can only be confirmed by more, and more rigorous, studies.

For uncontrolled studies, the general effectiveness of the treatment as a whole is considered according to outcomes that can be measured pre- and post-treatment. For all but one study (i.e., Fridell et al., 2007), the results indicated that the entire sample experienced positive changes on other outcome measures, such as increased job adjustment (Krampen, 2009), social integration (Krampen, 2009), and reductions in substance use (Frisman et al., 2009; McKendrick et al.,

2006; Messina et al., 1999). Fridell and colleagues (2007) found that those with ASPD, along with increased recidivism, were also more likely to have current heavy drug use problems after 5 years; however, the change in drug use for those without ASPD was not provided. Therefore, given that the focus of their stay within the hospital was on detoxification, it may be that treatment was not effective generally.

Summary and Next Steps

Although the effect sizes within this meta-analysis suggest that individuals with ASPD may benefit from treatment (most notably results derived from the controlled trials), many more studies (with larger sample sizes) are needed to confidently conclude that individuals with ASPD can be successfully treated and, moreover, to determine under what circumstances the greatest reductions in recidivism arise. The caution with which conclusions regarding the effectiveness of treatment in reducing offending for individuals with ASPD are made is highlighted by the fact that the included studies utilized very diverse samples, undermining the generalizability of results, and not a single study appeared to evaluate the effectiveness of a treatment program specifically designed for individuals with ASPD. The sheer paucity of studies meeting the inclusion criteria for this review is noteworthy and, despite seeing a trend, using effect sizes, in 'treatability,' it is clear that we do not know much about reducing recidivism for individuals with ASPD.

Given the focus of the six studies in this review, the investigation of treatment effectiveness for those with ASPD has been primarily restricted to those with a substance use problem and treatment specifically attempting to target substance use. As it has been previously noted that as many as 90% of individuals with ASPD have a substance abuse problem (Messina et al., 1999), targeting this criminogenic need will likely assist in reductions in recidivism. However, substance use is not a requirement for an ASPD diagnosis, therefore, it is likely that without addressing other criminogenic factors more closely tied to the disorder, such as procriminal attitudes, these individuals will remain at higher risk to offend.

The lack of focus on criminogenic needs (aside from substance use) found in nearly all included studies is not an issue restricted to studies examining treatment for ASPD and in samples where not all participants have criminal records. A recent review of treatment outcome studies for mentally disordered offenders also found that, even when the focus of treatment is on an offender population, treatment was not focused on recidivism-related factors (Morgan, Flora, Kroner, Mills, Varghese, & Steffan, 2012). The authors found that nearly 85% of the treatment offered to offenders in their review focused solely on the mental illness and did not address factors related to criminal behavior. Studies have consistently shown that psychopathological factors do not significantly influence offending behavior (Bonta, Blais, & Wilson, 2013; Bonta, Law, & Hanson, 1998); therefore, there should be little expectation that recidivism will be reduced if factors associated with recidivism are not addressed. There is also little evidence to suggest that those with ASPD cannot benefit from the considerable literature on the treatment of non-mentally disordered offenders, which likely contains an unknown proportion of individuals with ASPD (Gibbon et al., 2010). Only one study, of the six in this review, investigated treatment offered in a correctional setting with the explicit goal of reducing recidivism (i.e., McKenzie et al., 2006). Not surprisingly, this study showed the greatest difference in recidivism rates.

Given the behavioral symptoms associated with the DSM-5's ASPD, it may be that ASPD status is simply a proxy for very high risk, as many studies have shown that those offenders with ASPD have lengthier and more severe criminal history backgrounds, as well as greater dysfunction in areas that are typically associated with recidivism (e.g., substance use, employment/education deficits) than offenders without ASPD (e.g., Black et al., 2010; McKendrick et al., 2006; Messina et al., 1999). It may be that individuals with ASPD will benefit from the same level and intensity of treatment that is proven effective with high-risk offenders generally; treatment that is also targeting the offender's criminogenic needs and responsivity factors. This approach is in line with treatment designed for individuals with psychopathic traits (i.e., Wong & Hare, 2005), utilizing a cognitive-behavioral approach to treat these offenders using the RNR treatment model, which has not yet been tested with individuals with ASPD.

As there are too few studies in this review to comment on specific orientations (although most studies utilized CBT), to further investigate the applicability of general offender treatment to those with ASPD, future treatment for these individuals should be designed around the risk, need, and responsivity principles of offender rehabilitation. This review has also highlighted a need to design and evaluate treatment specifically for individuals with ASPD, as they appear to be primarily treated using existing treatment programs. Additionally, and given current practices, the literature would also benefit from the reporting of results by ASPD status for studies in correctional settings investigating treatment effectiveness more generally. Given clinicians' hesitations in working with individuals with ASPD (e.g., Davidson & Tyrer, 1996), it is no surprise that so little research has been done; however, the importance of working with these individuals and the current, albeit mild, evidence suggesting that they could be treated should be strong motivation to try.

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