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## RESEARCH ARTICLE

### Aggression replacement training with adult male offenders within community settings: a reconviction analysis

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This study presents the findings of an evaluation of the Aggression Replacement Training programme as regards the reconviction of male violent offenders within the English and Welsh Probation Service. This study employed a quasi-experimental design which utilised one-to-one matching on key criminogenic variables between an experimental group and a comparison group. The experimental group comprised convicted violent offenders who had been allocated to the programme by probation staff, while the comparison group was sampled from a larger pool of individuals who had been convicted of a violent offence and had subsequently received a community sentence but were not allocated to the programme. Outcome data were analysed using both the 'intention to treat' and 'treatment received' methodologies. The latter methodology allowed comparison of the naturally occurring groups of completers and non-completers with their matched comparisons and each other. The phi effect size correlations indicated a 13.3% decrease in reconviction in the experimental group as compared to the matched comparison group. Additionally, programme non-completers were more likely to be reconvicted than their matched comparisons and programme completers. These findings are discussed in the light of the extant literature, and different interpretations are considered.

**Keywords:** offending behaviour programmes; probation; violent offenders; rehabilitation; reoffending

The development of intervention programmes for adult violent offenders has been limited, according to Polaschek (2006), by the scarcity of multifactorial aetiological theory and the multiplicity of violent offenders' criminogenic needs. The lack of published outcome studies investigating

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whether such programmes are effective in reducing the risk of further violence posed by these individuals has also hampered development. Indeed, in a recent review of programmes for adult violent offenders, Polaschek and Collie (2004) found just nine such evaluations. The Aggression Replacement Training programme (ART), however, is a multi-modal approach to working with aggressive offenders (Goldstein & Glick, 1987; Goldstein, Glick, & Gibbs, 1998) which has attracted a body of research demonstrating its efficacy (Goldstein, 2004). Developed originally for aggressive youths, the programme is also available in a revised format for adult violent offenders. The ART programme is now delivered across North America and Europe within a wide variety of educational and correctional services. The ART programme also boasts its own international organisation, the International Center for Aggression Replacement Training (ICART; Goldstein, Nensen, Daleflod, & Kalt, 2004), which promotes the competent delivery and thorough evaluation of the ART programme on the international stage. The current study is concerned with an evaluation of the adult version delivered to convicted aggressive offenders in community settings in England and Wales.

Goldstein et al. (1998) have suggested that the commission of an aggressive act derives from multiple causes, which can be located both internally and externally to the individual. They argue that the internal influences on an individual's aggressive behaviour can be traced to three factors: first, to a general shortfall in personal, interpersonal, and social-cognitive skills, the combination of which usually ensure pro-social behaviour; second, to the overuse of impulsive and aggressive behaviour coupled with a low level of anger control; third, to a immature, egocentric, and concrete style of moral reasoning. The philosophy of the ART programme is to minimise the occurrence of aggressive acts by reducing the impact of these three internal influences through the promotion of skills acquisition, impulse and anger control, and moral reasoning development. ART therefore comprises three components, delivered to programme participants in equal measures: skillstreaming, the behavioural component; anger control training, the affective component; and moral reasoning training, the values component (Goldstein et al., 1998). Hollin (2004) provides a review of the theory and supporting evidence for these three factors with regard to violence.

The skillstreaming component of ART aims to provide opportunities for the identification, development, and practice of social skills which form pro-social behaviour. Using social learning procedures, programme participants are exposed to a core set of social skills through the modelling of the appropriate behaviour by group leaders. These skills are developed further through role play, discussion, and performance feedback. Skillstreaming also encourages participants to transfer their learning of new skills to real-world settings beyond the group environment.

Anger control training, the second component of ART, has its foundations in the early anger control work of Novaco (1975) and Miechenbaum (1977). This emotion-oriented section of the programme aims to equip the individual with the self-control to manage anger and aggression. These self-control sessions identify personal triggers and the likely consequences of anger and aggression. The increased self-awareness gained from such exercises is then used to develop alternative pro-social coping strategies, such as negotiation, self-talk, or even avoidance of the situations that trigger anger.

The final component of the ART programme addresses the concrete and egocentric thinking typically seen in those who display aggressive behaviour (Antonowicz & Ross, 2005; Barriga & Gibbs, 1996; Liao, Barriga, & Gibbs, 1998; Ross & Fabiano, 1985). This moral reasoning training component enhances offenders' moral reasoning skills so that, alongside their newly acquired social skills and ability to manage their emotions, they also develop the moral reasoning associated with more pro-social behaviour.

The ART programme has been evaluated across different client groups, settings, and outcomes, resulting in a body of evidence which suggests that ART can be an effective intervention (for a review, see Goldstein, 2004). The first evaluation of ART was conducted within the setting for which it was originally designed – a secure facility for young offenders in New York (Goldstein & Glick, 1987). Statistically significant reductions in both the number and the intensity of post-programme acting out behaviours within the facility were reported for the ART group, as compared to controls. Additionally, when the controls were later provided with ART, this group also showed a reduction in the number and intensity of acting out behaviours.

A further evaluation, with delinquent youths in the community, reported an increase in interpersonal skills competence in those who had participated in the programme (Goldstein, Glick, Irwin, Pask-McCartney, & Rubama, 1989). In a separate study, significant differences were found between those delinquents who had taken part in ART and the controls in terms of three-month re-arrest rates. Positive outcomes have also been reported in evaluations assessing the utility of ART with male delinquents in maximum security settings (Goldstein & Glick, 1987), gang members (Goldstein, Glick, Carthan, & Blancero, 1994), behaviourally disordered offenders within a residential treatment centre (Coleman, Pfeiffer, & Oakland, 1991), young adult offenders within community settings (Curilla, 1990), male and female juveniles displaying antisocial behaviour within a runaway shelter (Nugent, Bruley, & Allen, 1999), and forensic psychiatric patients (Hornsfield, Van Dam Beggen, Leenaars, & Jonkers, 2004).

In conjunction with the original programme developers, probation staff have adapted the programme for use within the English and Welsh Probation Service. In this context, Sugg (2000) reported a one-year

reconviction rate for programme completers of 20.4%, compared to 34.5% for a non-treatment control group. Despite methodological issues relating to the matching of the experimental and control groups, Sugg's evaluation provided evidence of a credible reduction in reconviction for those offenders who complete the adult community version of ART (McGuire & Clark, 2004). Thus, the programme was selected for national implementation in the English and Welsh Probation Service. ART progressed through the offending behaviour programme accreditation procedure (Lipton, Thornton, McGuire, Porporino, & Hollin, 2000; Rex, Lieb, Bottoms, & Goodwin, 2003) prior to implementation.

One of the main problems in the management of community-based offending behaviour programmes is the issue of attrition (Gondolf, 2004; Van Voorhis, Spruance, Ritchey, Listwan, & Seabrook, 2004; Wormith & Olver, 2002). In studies of probation-based offending behaviour programmes, the completion rate of those who were sentenced by the courts to attend programmes was as low as one-third (Hollin et al., 2004, 2005; McMurrin & Theodosi, 2007; Palmer et al., 2007). Emerging evidence also suggests that non-completion of programmes may be associated with higher than expected reconviction rates over subsequent years (Hollin et al., 2004, 2005; McMurrin & Theodosi, 2007; Palmer et al., 2007). For example, Sugg (2000) found that those offenders who had their ART order revoked before completion of the programme had one-year reconviction rates of 65%, compared to the programme completers' rate of 20.4%.

Hollin et al. (2004) identified two different types of programme non-completers: the first is a 'non-completer', who commences the programme but fails to complete it; the second is a 'non-starter', who fails even to attend the first programme session. Briggs and Turner (2003) observed three reasons why an offender may not start on a community-based programme: first, there may be no group available to the offender at the time of his/her order; second, the offender may breach his/her order before commencing the programme; and third, there may be mixture of reasons, such as poor health and missed communications. Such research demonstrates that the explanation for non-completion may be at the individual level, or may be at the level of the institutional organisation. It is sensible when assessing the impact of a programme, therefore, to separate the conceptually different and naturally occurring groups of completers, non-completers, and non-starters. To include all those participants to whom treatment was allocated within one experimental group may mask any effects derived from completion of the programme.

Given the growing body of evidence regarding both the efficacy of completing the ART programme, and the higher than expected rates of reconviction for those who do not complete programmes, this research aimed to answer two questions. First, does ART produce a reduction in reconviction among those who complete the programme? Second, what

effect would be observed among those who started but failed to complete the programme?

## **Method**

### ***Procedure and design***

This study utilised a quasi-experimental design which involved the collection of information relevant to two main groups of individuals. The experimental group comprised 53 convicted offenders who had been sentenced to a community rehabilitation order in 2002 with the requirement to attend ART. These individuals had been allocated to the programme by probation staff because they presented with a medium or medium-high risk of reoffending, as assessed using the Offender Group Reconviction Score-2 (OGRS2; Taylor, 1999), they had convictions for violent offences and an established pattern of interpersonal violent and aggressive behaviour, and they had deficits in at least two of the following areas: pro-violence attitudes and beliefs, moral reasoning, social skills, and anger control. The OGRS2 risk score is an estimate of an individual offender's probability of reconviction within two years based on nine demographic and criminal history variables. These data were gathered from databases and files held by the probation areas responsible for delivering the ART programme, and in each case included the offenders' name, gender, date of birth, index offence, and date of sentence.

The second group comprised a larger pool of 144 individuals from which the comparison group could be selected through one-to-one matching with the experimental group. These individuals were collected from two sources: a database of the national population of offenders on probation, and files held by probation areas. The criteria for offenders' inclusion within this study were that their index offence was classed as a violent offence, that they had been sentenced to a community rehabilitation order without the requirement to attend an offending behaviour programme, and that they were not from the same probation areas as the experimental group. This last criterion was introduced to ensure that the comparison group did not contain individuals who had been considered for, but not allocated to, the ART programme. The data collected for this larger pool comprised the offender's name, gender, date of birth, index offence, date of sentence, and probation order type.

### ***Participants***

As described above, a total of 53 sentenced male offenders with a community rehabilitation order were allocated to the ART programme. An additional 53 male offenders who had not taken part in ART but had been convicted of a violent offence and consequently received a community

penalty formed the matched comparison group. The age of the sample ranged from 18 to 53 years, with a mean of 27.42 years ( $SD = 9.27$ ). The sample had a wide range of previous convictions ranging from 0 to 28 (mean = 5.27,  $SD = 5.33$ ) and a mean OGRS2 score of 45.58 ( $SD = 24.84$ ). The majority of the sample had index offences of a violent nature: 90 violence (84.9%), five (4.7%) criminal damage, two (1.9%) theft and handling stolen goods, 2 (1.9%) motoring offences, one (0.9%) burglary, one (0.9%) drug-related offence, and five (4.7%) other offences (e.g., fraud, forgery, etc.).

### *Measures*

Ten-month reconviction data on the individuals in both the experimental group and the comparison group pool were retrieved from the Offender Index (OI). Longer follow-up periods were available for some participants; however, a uniform follow-up period was selected as favourable for statistical control. To standardise follow-up time, the shortest available period was determined (10 months) and all other follow-up periods were curtailed at this point. The length of follow-up was therefore uniform for all participants (experimental and comparison). The OI is a national database which stores conviction information for all offenders. The data retrieved from this source comprised details of any reconvictions and OGRS2 scores. The OGRS2 risk score was used in the one-to-one matching of the groups (see below).

### *Matching strategy*

Once the OGRS2 risk score had been derived from the Offenders Index, one-to-one matching of the 53 offenders in the experimental group with offenders from the large comparison pool could take place. This procedure reduced the pool of 144 to 53 offenders matched on a one-to-one basis according to offence type, age of the participant, OGRS2 score, and number of previous convictions. All resulting 53 pairs were the same age and had the closest available matches in terms of OGRS2 risk score and number of previous convictions. All OGRS2 risk scores were matched to within 7% and the number of previous convictions were matched either exactly or to within one conviction in the majority of cases (77.36% to within one conviction, 86.79% to within two convictions). The final comparison group of 53 individuals was therefore closely matched, on a one-to-one basis, to 53 individuals in the experimental group on key criminogenic variables.

The mean age, OGRS2 scores, and number of previous convictions for each group are displayed in Table 1. Given the matching procedure the mean ages, OGRS2 scores, and number of previous convictions are all

Table 1. Descriptive statistics by treatment allocation group.

	Experimental ( <i>n</i> = 53)	Comparison ( <i>n</i> = 53)
Age (years)	27.42 <sup>a</sup> (9.32) <sup>b</sup>	27.42 (9.32)
OGRS2 score	45.83 (25.14)	45.34 (24.78)
Number of previous convictions	5.47 (5.73)	5.08 (4.93)

Note: <sup>a</sup>mean; <sup>b</sup>standard deviation.

highly similar. Independent sample *t* tests assessing differences between the two groups on these variables were all non-significant ( $p > .05$ ).

### Analysis strategy

This evaluation utilised two outcome measures, both of which were calculated from the reconviction data. The first measure was reconviction within a 10-month period; the second measure was time to reconviction. The outcome measures allowed two different types of analysis: first, an assessment of the impact of group membership on reconviction; and second, whether there were group effects with regard to time to reconviction. The analysis first compared the experimental group with the matched comparison group, which is analogous to an 'intention to treat' design. Then a 'treatment received' analysis was conducted by comparing the completers with their matched comparisons, also considering the effect of programme non-completion.

The effect size correlation or  $\Phi$  (phi) statistic has been calculated within this study to assess the magnitude of the relationship between the independent variable (group membership) and the dependent variable (reconviction). As both variables are dichotomous in nature, the effect size correlation  $\Phi$  was calculated from the single degree of freedom  $\chi^2$  value. The effect size correlation  $\Phi$  can be conceptualised as the percentage difference in outcome success between the groups.

### Results

After the 10-month follow-up period, 47 of the 106 offenders (44.34%) had been reconvicted. The reconviction offences covered a range of crimes: 18 (38.3%) violence, six (12.8%) motoring offences, six (12.8%) criminal damage, five (10.6%) burglary, three (6.4%) theft and handling stolen goods, one (2.1%) drug-related offence, and eight (17%) other offences (e.g., fraud, forgery, etc.).

A total of 27 (50.9%) of the comparison group were reconvicted compared to 20 (39.2%) of the experimental group. Within the experimental



group 15 (28.30%) completed the programme, 13 (24.53%) started the programme but did not complete (non-completers), and 25 (47.20%) did not commence the programme (non-starters). Of these groups, three (20%) of the completers, eight (61.5%) of the non-completers, and nine (36%) of the non-starters were reconvicted within the 10-month follow-up period. Descriptive information relating to the completers, non-completers, non-starters, and matched comparisons shows that the four groups were very similar in terms of age, number of previous convictions, and OGRS2 score (Table 2).

Table 2. Descriptive statistics by treatment received group.

	Completers ( <i>n</i> = 15)	Non-completers ( <i>n</i> = 13)	Non-starters ( <i>n</i> = 25)	Comparison ( <i>n</i> = 53)
Age (years)	28.60 <sup>a</sup> (8.74) <sup>b</sup>	27.31 (12.21)	26.76 (8.23)	27.42 (9.32)
OGRS2 score	44.00 (24.48)	44.92 (26.52)	47.40 (25.74)	45.34 (24.78)
Number of previous convictions	5.40 (4.82)	4.15 (4.49)	6.20 (6.79)	5.08 (4.93)

Note: <sup>a</sup>mean; <sup>b</sup>standard deviation.

### *Experimental vs. comparison analysis*

The impact of treatment allocation was assessed through a comparison of the experimental and comparison groups' reconviction data. The effect size correlation  $\Phi$ , calculated using the formula  $\Phi = \sqrt{(\chi^2(1)/n)}$ , was .133. This indicates a 13.3% decrease in reconviction in the experimental group as compared to the comparison group.

### *Analysis of naturally occurring groups*

#### *Completer and matched comparison analysis*

In order to assess the magnitude of any effect of completion, those in the completer group (*n* = 15) were compared to their matched comparisons (*n* = 15): 20% of the completer group compared to 33% of the matched comparison group were reconvicted within the 10-month period. The effect size ( $\Phi = .151$ ) indicates a 15.1% reduction in reconviction in the completer group compared to their matched comparisons.

#### *Non-completer and matched comparison analysis*

In order to assess the impact of the treatment process on those who dropped out from treatment, a comparison of the non-completers and their matched comparisons was conducted. Eight (61.5%) non-completers and seven

Table 3. Cox regression analysis as function of treatment completion group (completer vs. non-completer) on time to reconviction.

Variable	B	SE of B	Wald	Exp(B)	95% CI for Exp(B)
Group	-1.502	.684	4.820*	.223	.058-.851

\* $p < .05$ .

(53.85%) of the matched comparisons were reconvicted within the 10-month follow-up period. The effect size ( $\Phi = .078$ ) indicated a 7.8% increase in reconviction in the non-completer group compared to their matched comparisons.

*Non-completer and completer analysis*

When comparing non-completers with completers the groups were not matched, so tests for differences between the groups on key variables were conducted. Independent sample *t* tests found no significant differences between the groups in relation to age, previous convictions, or OGRS2 score, indicating that statistical control of these variables was not necessary. The effect size correlation of .424 represents a 42.4% reduction in reconviction in the completer group compared to the non-completer group.

Given the magnitude of the effect size correlation, the relationships between non-completion, completion, and reconviction were explored further. A Cox regression survival analysis was performed to examine the relationship between treatment group (completer and non-completer) and time to reconviction. The addition of treatment group into the analysis led to a significant improvement in the model compared to the constant only model ( $\chi^2[1, n = 28] = 5.56, p < .05$ ). Table 3 shows how the predictor variable contributed to the model, along with the Wald and Exp (B) statistics. The odds ratio for treatment group, .22, indicates (with a negative B value) that the probability of surviving (not being reconvicted within 10 months) increases by 78% when treatment is completed compared to when it is started but not completed. The survival curves for the two treatment groups are shown in Figure 1.

**Discussion**

This study examined the impact of the adult community-based version of the ART programme. Allocation to the ART programme resulted in a 13.3% reduction in reconviction in the experimental group, as compared to matched controls. Rea and Parker (1992) claim that phi statistics of between .1 and .2 are indicative only of a ‘weak association’ between the variables (in this case, between treatment and reconviction). This result, however, is in

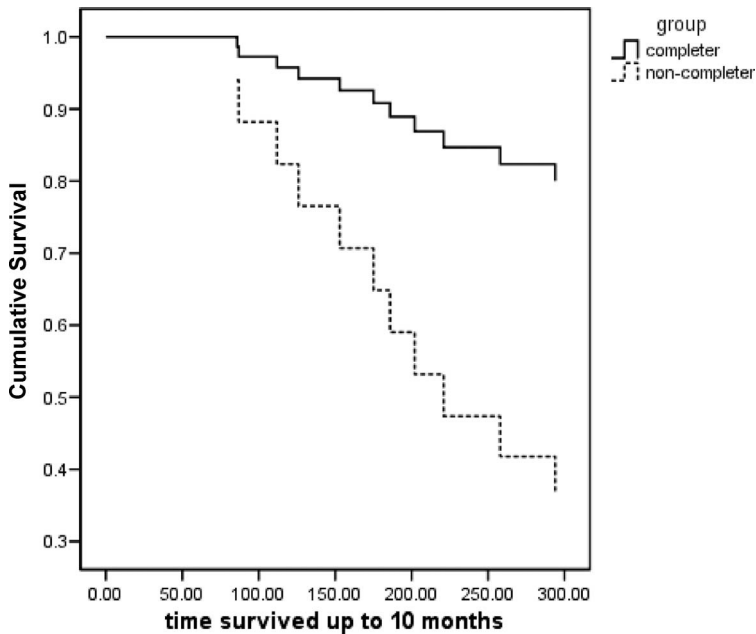


Figure 1. Survival plot for completer and non-completer groups.

line with those of meta-analytic reviews within which the net effect of offender treatment compared to controls approximates a 10% reduction in reconviction rates (Lösel, 1995). Indeed, as McGuire, Mason, and O’Kane (2000) illustrate, this effect size is larger than those obtained for some medical interventions, such as the use of aspirin in the reduction of risk relating to myocardial infarction, and hence such a reduction in reconviction is one that many would surely accept.

The ‘intention to treat’ analysis, however, includes within the experimental group not only those who received the full programme dosage, but also those who dropped out of the programme or never started it. On the removal of the non-completers and non-starters from the analysis, the reduction in reconviction rose from 13.3% to 15.1%. Such findings can be taken to indicate the presence of a modest ‘completion effect’ of the programme; that is, completion of the programme produces a reduction in reconviction relative to matched controls.

An additional finding of this study relates to the low completion rate of the ART programme. Of those allocated to the programme, half failed to start the programme and fewer than 30% completed all sessions. Such low completion rates are in line with other research findings within this field

(Hollin et al., 2002; Hollin et al., 2004; McMahon, Hall, Hayward, Hudson, & Roberts, 2004; Palmer et al., 2007; Stewart-Ong, Harsent, Roberts, Burnett, & Al-Attar, 2004), although there are indications that completion rates for all programmes within England and Wales have recently improved up a level of 70% (Home Office, 2005).

Further examination of those who commenced the programme but failed to complete it showed that the offenders in this group were more likely to be reconvicted than their matched controls. While it is possible that there are some uncontrolled pre-existing differences between the non-completers and their matched controls which could account for the subsequent differences in reconviction, it could also be hypothesised that the process of starting but not completing a programme is in some way damaging to these individuals so as to increase their likelihood of reconviction.

There were no significant differences between the completer and non-completer groups in relation to age and criminal history, a comparison of reconviction rates showed a much lower rate of reconviction among the completer group relative to the non-completers. The phi statistic of .424 indicates a relatively strong association between treatment group and reconviction (Rea & Parker, 1992). Simply put, for every two completers reconvicted within the 10-month follow-up period, approximately five non-completers were reconvicted. The survival analysis also indicated that the non-completers were likely to be reconvicted earlier than those in the completer group. These findings are in line with emerging evidence from the field of offending behaviour programme evaluation (Cann, Falshaw, Nugent, & Friendship, 2003; Hanson et al., 2002; Hollin et al., 2004, 2005; Palmer et al., 2007; Robinson, 1995; Van Voorhis et al., 2004). Indeed, it could be argued that this is pattern of findings could be expected when programmes are designed to have an effect only when the full 'dosage' has been delivered (Correctional Services Accreditation Panel, 2003; Rex et al., 2003). Previous studies have found differences between non-completers and completers in relation to the key criminogenic variables of age (Hollin et al., 2004; Van Voorhis et al., 2004), risk (Hollin et al., 2004; Wormith & Olver, 2002), and previous convictions (Hollin et al., 2004), which may explain some of the variation in reconviction rates. However, no such differences were found in this study. Despite comparisons being limited to static factors, the disparity between the groups' reconviction rates gives further weight to the notion of a 'completion effect' and the hypothesised damaging impact of non-completion. From the perspective of service providers, therefore, not only is it necessary to ensure there is an appropriate selection of offenders to the programme, but also it is also vital, once an offender has started a programme, to support him/her to ensure completion.

What does this pattern of results tell us about the effectiveness of the adult community version of the ART programme? The findings could be

indicative of a treatment effect: the programme was successful in its aim to use skillstreaming, anger control training, and moral reasoning training to reduce recidivism. Such an argument would posit that direct application of the skills learnt within the programme has brought about a change in offenders' behaviour and hence lower reconviction rates. However, the findings in relation to the completers may be explained as artefacts of motivation or self-selection: for example, those who complete the programme may be more highly motivated individuals and hence would do well anyway without the intervention (Debidin & Lovbakke, 2005). It would follow that the contents of the programme are irrelevant to the observed outcomes, and hence the sole function of the programme was to separate out those that would do well anyway (the completers) from those that would not (the non-completers and non-starters). This explanation seems unlikely, as it holds that full participation in an intensive intervention has no impact, other than separating out motivated and unmotivated offenders. Indeed, the fact that some completers recidivate while some non-completers do not goes against this view.

It may be more likely that a combination of factors, including motivation to change, individual, situational, and organisational factors, and the effect of the programme, produces the completion effect. Hence, it is a combination of influences that determines whether an individual will complete a programme and subsequently whether they will be reconvicted or not. Howells and Day (2002) have discussed this notion, referring to 'readiness to change': thus, offenders who complete their intervention and subsequently alter their aggressive behaviour may well be those who were ready to change. This is not to say that completers would do well anyway; rather, the readiness to change hypothesis argues that the intervention is necessary in order to facilitate the change in behaviour.

It would be remiss to discuss the findings of this research without commenting on the sample size relative to other work within this field. The sample within this study is small in comparison to other programme evaluation research studies (e.g., Hollin et al., 2008; McGuire et al., in press; Palmer et al., 2007). As an offence-specific programme, however, the ART programme does not attract numbers of participants equivalent to the mainstream general offending behaviour programmes. It is likely that the context of the research environment also had an impact on programme throughput. The research was conducted at a time when the England and Wales Probation Services faced the burden of numerous new initiatives, programme implementation problems, unrealistic projections of the numbers likely to complete programme, and a failure to anticipate complications, such as high levels of programme attrition. As such, the sample size limits the firm conclusions to be drawn from this research; indeed, a number of the comparisons discussed within this paper did not return statistically significant differences. Despite this, the effect sizes, which

are independent of sample size, suggest that the ART programme may be effective with adult males within community settings.

In conclusion, this research has provided some evidence for the efficacy of the ART programme within community settings with aggressive adult offenders in England and Wales, thus adding to the growing body of evidence on 'what works' in reducing offending. Further research would benefit from assessing carefully the reasons for the completion rates and the impact of these on any potential completion effect of the ART programme. Such findings would increase knowledge of the effects of programmes, and would be important management information for those who deliver services to offenders.

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