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Individual cognitive-behavioural anger treatment for people with mild-borderline intellectual disabilities and histories of aggression: a controlled trial

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Individual Cognitive-Behavioural Anger Treatment for People with Mild-Borderline Intellectual Disabilities and Histories of Aggression: A Controlled Trial

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Abstract

Objectives: Anger is a significant predictor and activator of violent behaviour in patients living in institutional settings. There is some limited evidence for the value of cognitive-behavioural treatments for anger problems with people with intellectual disabilities. In this study a newly designed treatment targeted at anger disposition, reactivity and control was provided to intellectually disabled offenders with aggression histories living in secure settings.

Design: Forty detained patients with mild-borderline intellectual disabilities and histories of serious aggression were allocated to specially modified cognitive-behavioural anger treatment (AT group) or to routine care waiting-list control (RC group) conditions.

Methods: AT group participants received 18 sessions of individual treatment. The AT and RC groups were assessed simultaneously at 4 time points: screen, pre- and post-treatment, and at 4-months follow-up using a range of self- and staff-rated anger measures. The effectiveness of the treatment was evaluated using ANCOVA linear trend analyses of group differences on the main outcome measures.

Results: The AT group's self-reported anger scores on a number of measures were significantly lower following treatment, compared to the RC wait-list condition, and these improvements were maintained at follow-up. Limited evidence for the effectiveness of treatment was provided by staffs' ratings of patient behaviour post-treatment.

Conclusions: Detained men with mild-moderate intellectual disabilities and histories of severe aggression can successfully engage in and benefit from intensive an individual cognitive-behavioural anger treatment that also appears to have beneficial systemic effects.

Introduction

Anger control has become a heightened concern in society, and clinical psychological interest in anger is growing (e.g. Beck, 1999; Howells & Day, 2003; Kassinove, 1995). People who are high in anger reactivity are affected by multi-layered issues of emotional distress, as well as disposed toward aggressive behaviour. Pertinent to matters of mental health care, while anger is neither necessary nor sufficient for the activation of aggression, anger has been found to predict physical aggression by psychiatric hospital patients, prior to admission (McNeil, Eisner & Binder, 2003), in hospital (Novaco, 1994; Novaco & Taylor, 2004; Wang & Diamond, 1999) and subsequently in the community after discharge (Monahan et al., 2001). The present study seeks to advance cognitive-behavioural anger treatment by testing its efficacy in a controlled trial with male forensic patients who have mild-borderline intellectual disabilities.

In population studies of aggression among people with intellectual disability, centralised service provider surveys (Harris, 1993; Sigafoos, Elkins, Kerr & Attwood, 1994) and direct carer interview studies (Deb, Thomas, & Bright, 2001; Hill & Bruininks, 1984; Smith, Branford, Collacott, Cooper & McGrother, 1996) have found prevalence rates for aggression of between 11% and 27%. Aggression rates are consistently higher in institutional settings compared with community settings – 38% versus 11% in Harris' (1993) survey for example. Aggressive behaviour has been reported to be the most frequent reason for people to be admitted, and re-admitted, to institutions and to be prescribed antipsychotic and behaviour control drugs (Aman, Richmond, Stewart, Bell & Kissell, 1987; Lakin, Hill, Hauber, Bruininks & Heal, 1983).

Aggression, and by association anger, also presents significant challenges for those providing clinical and other human services. Kiely and Pankhurst (1998) found that staff working in a UK National Health Service intellectual disability service reported almost five times more incidents of patient violence than staff working in a sister psychiatric service. Other studies have found that as a consequence of client aggression, intellectual disability service staff feel annoyed, angry and fearful (Bromley & Emerson, 1995). High rates of staff turnover and 'burnout' have also been reported (Attwood & Joachim, 1994).

A review of cognitive-behavioural treatment (CBT) of anger in people with intellectual disabilities (Taylor, 2002) concluded that, compared with pharmacological and behavioural treatments, these approaches show promise. The great majority of existing anger treatment studies in the intellectual disability field are broadly based on Novaco's (1975, 1993) anger treatment. This approach incorporates Meichenbaum's (1985) stress inoculation paradigm and has cognitive re-structuring, arousal reduction and behavioural skills training as its core components. A number of case- and case-series studies have demonstrated the effectiveness of this approach with people with intellectual disabilities and histories of aggressive behaviour living in hospital and community settings (Black & Novaco, 1993; Howells, Rogers & Wilcock, 2000; Lindsay, Overend, Allan, Williams & Black, 1998; Murphy & Clare, 1991; Rose & West, 1999). Small non-controlled group studies by Moore, Adams, Elsworth and Adams (1997) and King, Lancaster, Wynne, Nettleton and Davis (1999) using CBT anger treatments demonstrated clinically significant post-treatment gains for clients with intellectual disabilities living in the community.

Benson, Johnson Rice and Miranti (1986) and Rose, West and Clifford (2000) conducted studies of group-based anger treatment for community clients that included treatment comparison and wait-list control groups respectively. Although these studies yielded significant improvements following treatment, in the Benson et al. (1986) study there were no differences across the four treatment conditions (self-instruction, relaxation training, problem-solving and a combined condition) following treatment, and the Rose et al. (2000) study design was compromised by some of the wait-list control group being included in the treatment group. In a small "randomised" controlled trial, Willner, Jones, Tams and Green (2002) demonstrated significant reductions in anger for an anger management group compared with a wait-list control group involving community clients with intellectual disabilities. Taylor, Novaco, Gillmer and Thorne (2002), in a small controlled study of *individual* CBT anger treatment involving detained offenders with intellectual disabilities, also found significant treatment effects for treatment group participants compared with those in a no-treatment wait-list control group.

Almost all of the published anger treatment studies involving people with intellectual disabilities have used measures anger intensity as the dependent outcome measure. Little attention has been given to other important dispositional aspects of individuals experience of anger (cognitive, arousal and behavioural) or to the capacity for anger control. Further, with the exception of the pilot study by Taylor et al. (2002), none of the CBT anger studies referred to above have involved people with intellectual disabilities classified as convicted offenders or forensic cases. Allan, Lindsay, MacLeod and Smith (2001) reported on a cognitive-behavioural anger management group for a case series of five women with intellectual disabilities who had been involved with the criminal justice system because of violent assaults. Lindsay, Allan, MacLeod, Smart and

Smith (2003) described a similar approach for six men with intellectual disabilities and convictions for assault. Improvements were recorded for all participants in both studies at the end of treatment.

The current study is an extension of the Taylor et al. (2002) pilot study involving an expanded sample and a fuller set of anger measures. It aimed to evaluate the efficacy of an individual CBT anger intervention for detained men with intellectual disabilities and histories of serious aggression and violence. Participants were assigned to either a wait-list control group receiving routine clinical care (RC), or to a group receiving intensive anger treatment (AT) as an adjunct to routine care. Because of the multidimensional nature of anger, as well as anger intensity, other aspects of anger disposition, including cognitive, arousal and behavioural components, were measured, along with anger control -- reflecting the capacity for anger regulation. It was hypothesised that the AT group would show significantly greater improvement on these measures than the RC group.

Method

Setting

The treatment study was conducted within the in-patient forensic service of a specialist UK National Health Service disability Trust. The service comprises several single sex wards and units providing care, management and treatment to people with mild-borderline ID in medium and low secure and rehabilitation settings. Referrals are received from the courts, prisons and health authorities across the UK.

Research Design

As it was considered unethical to withhold a potentially effective treatment from those who might benefit from it, a delayed wait-list control design was used in this study.

Participants who met the study inclusion criteria were allocated to the AT or RC conditions from an anonymised list by a research assistant psychologist. The therapists available for the study could administer the individual anger treatment to a maximum of ten participants at any one time. Therefore the AT group comprised two sequential cohorts of ten participants. These cohorts provided the treatment (n =10) and comparison (n = 10) groups in a pilot study reporting on the impact of anger treatment on a single self-rated anger provocation inventory (Taylor et al., 2002). An important internal validity issue in the current study was whether the two AT group cohorts were sufficiently alike in composition and responses to treatment to be constituted as a single group for comparison with the RC group. Thus, before combining the data from these pilot study treatment cohorts to form a combined AT condition in the current study, potential differences between the cohorts on a range of key variables were examined. No differences were found with regard to the two AT group cohorts in terms of key demographic, clinical and forensic history characteristics, responses to treatment, or other changes experienced during the treatment period.

Treatment effects were evaluated using analyses of covariance (ANCOVAs) with anger scores as the dependent variables, time of assessment (screen, pre- and post-treatment, and 4-month follow-up) as the within-subjects factor and treatment condition (AT versus RC) as the between-subjects factor. Several features of the study design were aimed at maximising statistical power. These included use of multiple repeated measures, focused contrasts (in the present study, linear trend analysis) and reliable measuring instruments (Hallahan & Rosenthal, 1996). Further, it was noted that using sample sizes similar to that in the current study, and anger interventions based on Novaco's (1975) approach, Stermac (1986) and Rose et al. (2000) obtained large treatment effects in

studies involving forensic patients and community clients with intellectual disabilities respectively. All participants continued to receive treatment as usual. Blind assessment could not be achieved in this study due to resource limitations. To attenuate this problem patient evaluations were conducted by research assistant psychologists rather than by the therapists themselves.

Participants

Inclusion-Exclusion Criteria. The inclusion criteria for study participation were as follows: (a) male between 18 and 60 years of age; (b) full scale IQ between 55 and 80; (c) detained under sections of the Mental Health Act 1983; (d) self-report total score ≥ 90 on the Novaco Anger Scale (NAS; Novaco, 2003); and (e) self-report total score ≥ 55 on the Provocation Inventory (PI; Novaco, 2003). In addition, each patient's clinical team supported their inclusion on the basis that the treatment would contribute significantly towards meeting identified clinical needs. Exclusion criteria were as follows: (a) presence of an active (uncontrolled) Axis I mental disorder – DSM-IV (American Psychiatric Association, 1994); (b) presence of epilepsy that was judged to be intrinsic to the patient's anger/aggression problems; and (c) plans for discharge or transfer during the 6-month period from the beginning of treatment.

Sample Attrition. The forty treatment study participants were male in-patients who had been screened as having clinically significant anger problems using the NAS and PI. All of these patients had acknowledged in structured clinical interviews having a problem, either currently or in the past, with controlling their temper that could impact negatively on their rehabilitation. There were no refusals to take part. Two patients dropped out of treatment for reasons unrelated to the treatment itself. A further two

patients where discharged following completion of their treatment and were lost to follow-up. Therefore, a total of 36 participants completed treatment, post-treatment and follow-up assessments and these patients constitute the study sample (16 in AT and 20 in RC). The four study non-completers are not included in the comparative analyses of this study.

Treatment Sample Characteristics and Representativeness. Table 1 provides demographic and intellectual functioning data for the treatment study sample partitioned by treatment condition. Data relating to legal and security status, offence history, post-admission assault behaviour and screening anger scores on the NAS and PI for both treatment groups are also presented in Table 1. Data for study non-completers are provided also. The AT and RC groups did not differ significantly on any of these key characteristics, with the exception of WAIS-R Full Scale IQ. On this measure of global intellectual functioning the mean for the AT group was significantly lower than that for the RC group, t (34) = 2.60, $p < .05$.

All participants were detained under sections of the Mental Health Act 1983 and were dispersed throughout the different levels of security of the hospital forensic service. In addition to intellectual disability, 25 out of 36 (69%) participants were noted in hospital records as having co-morbidity for psychiatric conditions including affective, psychotic and personality disorders. These dual diagnoses were distributed evenly between the AT and RC groups.

In terms of their offending histories, only seven (19%) participants did not have any criminal convictions, but in each case there was documented concerns regarding physical violence, sexual aggression, or both. Following admission 22 (61%) of the study sample had been physically violent towards either staff or other patients. Further,

16 (73%) of these 22 assaultive patients (or 44% of the total sample) had carried out physical assaults on two or more occasions post-admission. Compared with the male in-patient population of offenders with intellectual disabilities from which the study participants are drawn, they did not differ markedly on any of the key characteristics relating to demography, intellectual functioning or hospital assault data. However, the study sample's screening NAS Total score (M = 105.3) is ¾ of one standard deviation higher than the mean of 92.4 (SD = 16.6) obtained for the whole hospital male forensic population (Novaco & Taylor, 2004). The same applies to the treatment sample's screening PI Total score (M = 75.0) compared with the hospital population mean of 62.9 (SD = 16.2). These data are unsurprising in that study participants were selected out of the hospital population against treatment study inclusion criteria that specified high self-rated anger scale scores. They do, however, confirm that on average, based on responses to reliable self-report measures, the treatment group participants experienced clinically significant levels of anger.

Informed Consent. A cautious and conservative approach to consent giving was adopted, involving two stages. Participants were first interviewed by the putative therapist and a qualified nurse who knew the patient well. Written information was provided to participants about the research, the treatment, confidentiality issues, and their rights to decline involvement without prejudice to their future care in the hospital. Each of these areas was discussed with the participant in detail. Participants were told that if they consented to take part in the six-session preparatory phase, they would then be asked if they wanted to continue or to opt out before the treatment phase began. The nurse then arranged to speak with the patient again within 36 hours to answer any questions and to

seek written consent. Written consent was again sought after completion of the preparatory phase, at which time the patient was well informed about the treatment.

Treatment

The treatment approach used in the current study, its mode of delivery and steps to ensure treatment validity are described in detail by Taylor, Novaco, Gillmer and Robertson (2004), and Taylor et al. (2002). In summary, treatment was provided by four therapists, all of whom were trained and experienced chartered clinical and forensic psychologists. In addition to weekly peer supervision and the completion of session reports to increase the integrity of the treatment protocol, the first author carried out regular random reviews of therapists' anger treatment files to check on protocol adherence and therapist competence.

A new treatment manual (Taylor & Novaco, 1999) designed specifically for use with people with mild/borderline intellectual disabilities guided the treatment. It was delivered to individual patients by the same therapist over 18 sessions and is based on a detailed analysis and formulation of each patient's anger problems. Eighteen sessions approximated the average amount of therapy delivered to participants in published anger treatment studies involving people with developmental disabilities (see for example Taylor, 2002 for a review) and had been successful with a small number of patients in a case series pilot. Whenever possible, treatment was delivered at the rate of two sessions each week, with a minimum of one session per week in order to maintain therapeutic momentum and prevent drift. Although treatment sessions routinely involved only the therapist and patient, the patient's keyworker nurse or a deputy was involved whenever possible at the end of each session to discuss the patient's progress and any homework tasks to be completed between sessions.

A six-session psycho-educational 'preparatory' phase of anger treatment was provided in this new protocol. This was designed to desensitise patients to any fears that they might have about embarking on intensive psychological therapy, to develop their skills and confidence, and to successfully engage them in the anger treatment (Black, Cullen & Novaco, 1997). The aims of this preparatory phase are: a) to give the patient information on the nature and purpose of anger treatment; b) to encourage motivation to change unhelpful responses to anger by identifying the costs of this behaviour; c) to foster trust and confidence in the therapist and the therapeutic process; d) to emphasise the collaborative nature of the treatment that is aimed primarily at helping the patient achieve better self-control; and e) to develop some basic skills required for successful treatment, e.g. identification of emotions, self-monitoring and recording, and basic relaxation techniques.

On successful completion of the preparatory phase, and if they wished to do so, patients proceeded to the 12-session 'treatment' phase. The core components of this phase, which map onto the key domains of the cognitive model of anger proposed by Novaco (1994), were cognitive re-structuring, arousal reduction and behavioural skills training. The approaches used in this phase of treatment include: a) advanced self-monitoring and recording of anger frequency, intensity and triggers; b) a detailed analysis and formulation of the individual's anger problems; c) construction of a personal anger provocation hierarchy; d) cognitive re-structuring by shifting attentional focus, modifying appraisals and challenging expectations; e) developing arousal reduction techniques through the use of progressive muscular relaxation exercises and calming imagery; f) training problem-solving using role-play rehearsal; g) development of personalised self-

instructions to prompt coping; and h) use of the stress inoculation approach to practice effective coping whilst visualising anger-provoking scenes from the anger hierarchies.

These key components build during therapy in a logical step-wise manner through the classical cognitive preparation, skills acquisition and skills rehearsal/practice stages of cognitive-behavioural therapy. In this way, towards the end of the 18 treatment sessions they were incorporated into practice as a sequential but integrated and comprehensive approach to coping effectively with anger problems.

The treatment is, by nature, collaborative and interactive. It was, therefore, applied in a manner that reflects these dynamics. Thus, the treatment is guided by protocol, as opposed to protocol-driven, and it is intended to provide a framework within which the therapists and patients can flexibly apply the therapeutic techniques described to meet the needs of individual patients.

Pre- and Post-Treatment Assessment

The participants were administered the following instruments at baseline screening, immediately pre-treatment, following completion of treatment and at 4-months follow-up. To measure anger disposition the NAS and the Anger Expression (AX) scale of the Spielberger State-Trait Anger Expression Inventory (STAXI; Spielberger, 1996) was used. The NAS assesses cognitive, arousal and behavioural aspects of anger. The PI was used to measure disposition to anger reactivity across a range of potentially anger-provoking situations. The Anger-Control subscale of the AX was used as an index of participants' capacity to regulate their anger. The NAS, AX and PI are self-report measures and all were modified for use with clients with intellectual disabilities and were administered in the form of structured interviews. The order of presentation of these measures was randomised across participants.

The Ward Anger Rating Scale (WARS; Novaco, 1994) is completed by ward member of staff who knows the patient well recording judgements concerning the patient's behaviour during the previous seven days. For practical reasons including staff shifts, leave and turnover, it was not always possible for the same member of staff to complete the WARS at each assessment point. The WARS yields an Anger Index concerning patients' affective-behavioural anger attributes during that period.

Novaco and Taylor (2004) investigated the reliability and validity for the modified self- and staff-rated anger measures used in the current study. They found that for an inpatient population of offenders with intellectual disabilities the internal consistency coefficients (Cronbach alphas) for the NAS Total, PI Total and WARS Anger Index were .92, 92, and .95 respectively. The Novaco and Taylor study also provided evidence for the concurrent, discriminant and retrospective validity of these modified scales.

Results

Treatment Group Comparisons

At pre-treatment, the AT group did not differ significantly from the RC group on any of the NAS, AX, PI or WARS measures (see Table 2). Treatment effects were evaluated using analyses of co-variance (ANCOVAs), with post-treatment scores as the dependent variables and treatment condition as the independent variable. Treatment effects were specifically evaluated by testing for between-group differences in linear trend, as progressive decreases in anger were expected across the assessment interval. In all of these analyses, full scale WAIS-R IQ was included as a covariate as it was the only variable to differ significantly in the pre-treatment comparisons of AT and RC groups. For relevant analyses, the effect size measure *r* is presented. This effect size calculation

can be used with any *focused* (as opposed to *omnibus*) *F* test with one degree of freedom in the numerator (Rosnow & Rosenthal, 1988, p. 204). The calculation for the effect size is $r = \sqrt{F/(F + df \text{ error})}$ (Rosnow & Rosenthal, 1988, p. 206). Cohen (1992) suggests that an *r* of .1 should be considered a "small" effect, an *r* of .3 be considered a "medium" effect and an *r* of .5 be considered a "large" effect (p. 157).

Anger Disposition

Table 2 gives the means and standard deviations for the NAS and AX scores for the AT and RC groups at four testing points: screen, pre-treatment, post-treatment, and 4-month follow-up. Repeated measures ANCOVAs were conducted on the NAS and AX indices. Analyses of linear trend found significant interaction effects (testings x treatment condition) for NAS Total and the NAS Arousal subscale, $F(1,33) = 4.74$, $p < .05$, $r = .35$ and $F(1,33) = 6.72$, $p < .05$, $r = .41$ respectively. On these measures, those in the AT condition declined more in anger from pre- to post-treatment than did those in RC, and these gains were maintained at follow-up. However, there were no significant differences in linear trend between the AT and the RC conditions for NAS Cognitive or Behavioural, although the group means following treatment were in the predicted direction. Similarly, the interaction effect for between group differences was not significant for AX ($p = .08$).

Anger Intensity

The test of between group differences in linear trend for PI Total scores was not significant, indicating that those in the AT condition did not improve more significantly over time than those in the RC condition on this summary index (see Table 2). However, there was a significant interaction for the Unfairness/Injustice subscale, $F(1, 33) = 9.88$, $p < .005$, $r = .48$. The anger intensity score for that category of provocations declined significantly more for those in the AT group than for the RC group, and this difference

was maintained at follow-up, as can be seen in Table 2. There were no significant between group differences for the other PI subscales.

Anger Control

Means for STAXI Anger Control are given in Table 2. The test for between group differences in treatment outcome was not significant (p = .08), but the means were in the predicted direction. Those in the AT condition increase following treatment while those in the control condition remain flat.

Staff –Rated Anger Attributes

As can be seen in Table 2, the AT group's scores on the WARS Anger Index are lower following treatment and fall further at 4-month follow-up, while the RC group's scores are a little lower at post-treatment and increase at follow-up. However, the group difference in linear trend was not statistically significant.

Treatment Responsiveness

The proportion of participants whose scores improved pre-post treatment by equal to or more than one standard deviation of the treatment sample (n = 40) intake means was calculated for the self-report and staff-rated anger indices. From Table 3 it can be seen that the percentage of participants whose scores moved by this degree in the desired direction was consistently higher in the AT than in the RC condition, with rates for AT group being double those for RC on PI Total, STAXI AX and WARS Anger Index. Hence, while the planned statistical tests of treatment outcome reported above did not result in statistically significant findings for the latter three measures, the magnitude of treatment gains on these outcome variables is supportive of the AT condition.

IQ Level and Treatment Responsiveness

Treatment responsiveness may have been a function of IQ level, such that those in the lower IQ range may have been less able to benefit from this cognitive-behavioural intervention. Study participants were partitioned by median split on WAIS Full Scale scores (Median = 69 for the hospital population), with the result being that in the AT condition there were 11 patients below the IQ median and 7 above; for the RC condition, there were 8 below the median and 12 above. Thus, there were proportionately more study participants with higher IQ in the routine care condition than in the anger treatment condition, although the χ^2 for the crosstabulation is not significant.

To investigate whether responsiveness in the anger treatment condition was a function of IQ level, the IQ groupings were examined for differences in anger change scores from pre-treatment to post-treatment and from pre-treatment to follow-up for the NAS, PI, STAXI, and WARS measures. No significant differences were found in pre- to post-treatment change between those in the lower IQ range and those in the higher range. From pre-treatment to follow-up, there was a significant difference in the PI, with greater change occurring for those in the lower IQ grouping, $t\ (14) = 2.30$, $p = .038$. Means for the NAS and STAXI scales also showed greater change for the lower IQ grouping but were not significant. Overall, there was no evidence that responsiveness to the anger treatment was a result of higher IQ range; indeed participants in the lower IQ range were equally responsive to treatment, if not more so.

Discussion

Hospitalised male offenders with intellectual disabilities and forensic histories have significant problems with anger and aggressive behaviour. The present study implemented and evaluated a cognitive-behavioural anger treatment, newly formulated

for persons with intellectual disabilities and for hospitalised patients, and the results offer some support for its efficacy. Compared to study participants in routine care, anger treatment recipients showed a consistent pattern of pre- to post-treatment reductions across the outcome measures. However, significant between group differences in change associated with the anger treatment were only found for NAS Total and its Arousal subscale and for one provocation category index of the PI. Anger treatment participants showed post-treatment improvements on STAXI Anger Expression and its Anger Control subscale and on the staff-rated WARS Anger Index, but these results were not statistically significant.

The failure to find significant between group differences may have resulted from several possibilities: (1) the anger treatment may not have been sufficiently potent to change the long-standing anger dispositions of the recipients; (2) measurement indices and limited statistical power; or (3) treatment gains occurring in routine care were comparable to the specialized anger treatment. The latter possibility is indeed a more complex issue involving a potential confound in the study design.

To address these possibilities, we first conducted post hoc analyses regarding the anger indices for which there were non-significant effects to further examine whether those anger characteristics were resistant to change. In this regard, post hoc paired sample *t* tests (setting alpha at .01) were conducted for each treatment group, comparing pre- and post-treatment means on the AX Total, PI Total, and WARS Anger. There were no significant pre- to post-treatment decreases for the RC group. In contrast, for the AT group, there were significant pre- to post-treatment decreases on AX Total, $t\ (15) = 3.52$, $p = .003$, and on PI Total, $t\ (16) = 3.11$, $p = .007$. The WARS Anger means did not differ significantly. These post-hoc analyses, combined with the pattern of results in the

planned analyses, suggest that the failure to find significant testings x treatment condition effects on some measures may be a function of limited statistical power.

The absence of any significant findings for the staff-rated WARS Anger Index is certainly disconfirming of expectations. This may have been due to a floor effect on this measure. The pre-treatment means for this measure indicate that staff reported low levels of angry behaviour for the seven-day period at screening and pre-treatment, thus making it very difficult to demonstrate improvements on this measure following from treatment. Staff-rated patient anger was low, and there were low rates of overt aggression during these assessment periods. During the pre-treatment interval, two AT and two RC group participants were recorded as having been physically assaultive. During the seven-day post-treatment interval, no incidents of physical assault were recorded for either group. Low base rates of overt aggression in highly supervised and controlled environments negate the possibility of demonstrating treatment effects, as discussed by Black et al. (1997), hence we did not hypothesize that any would be found in our assessment periods. However, effects were expected for staff-rated anger, and the failure to find such effects limits the supportive results to patient self-report psychometric variables and makes salient a methodological shortcoming of insufficient observer-based assessment. This should be rectified in subsequent research on anger treatment with hospitalised patients.

Other methodological shortcomings of the study are: (a) assessments were not done by evaluators blind to the treatment condition; (b) the 4-month follow-up interval is relatively short for evaluation of the maintenance of treatment gains; (c) there was no attention control condition; and (d) the treatment as usual condition occurred in the same overall milieu as the anger treatment, and the routine care may have been affected by the implementation of the anger treatment. Resource limitations pre-empted having blind

assessments, and ethical considerations precluded having an attention control condition or a longer follow-up period, given discharge goals.

With regard treatment as usual, it is clear from the outcome data in Table 2 that the RC group's scores improved on many anger measures during the period that it was waiting for treatment. If improvements in the RC group (and in the AT group) were due to other treatments provided routinely, such as medication, then one would expect to see improvements on anger scores in the baseline period. Paired *t* tests for the self- and staff–rated anger measures showed that there were no significant decreases in scores for either condition during the baseline period. Instead, many of the means increased.

However, *following* the introduction of cognitive-behavioural anger treatment to the AT group, decreases in anger scores occurred in both treatment conditions. Direct care staff involvement in the treatment project may have led to positive changes in the way that they responded to patients' anger problems, including those of patients in the RC group waiting to enter treatment. In addition, participants in the AT group may have transmitted some of their knowledge and skills to others living in the same clinical areas awaiting treatment. Our clinical observations indicate that both of these processes occurred. It is also possible that the AT group participants, in receiving the specialised treatment and learning how to cope more effectively with angry situations, became less antagonistic on the wards and thereby lowered general levels of hostility in the enclosed living environments that they shared with RC group participants. Hypothetically, there are thus several possible channels for spill over or diffusion of treatment program effects.

The treatment effect obtained on anger intensity reported for provocations in the category of unfairness or injustice merits further comment. These are situations that this patient group find particularly provocative. For both the AT and RC conditions, unfair or

unjust situations evoke the most intense anger prior to treatment (see Table 2). It should be no surprise that people with the life experiences of this group, in addition to their current status as detainees in secure settings, are acutely sensitive to such perceived violations and react sharply with feelings of justified anger.

One significant clinical achievement of the current study was the successful engagement and sustained motivation of forensic clients who present special challenges. These difficulties are often related to the inherent threat such clients present, their impatience and impulsiveness, and the positive functions of their anger (including self-image enhancement) which causes it to be deeply embedded and difficult for them to release. These issues can create obstacles in establishing therapeutic alliances and inducing clients to see anger as a legitimate treatment target. It is thus noteworthy that only 2 of the 20 AT group participants dropped out before completing the treatment phase, which seems to be a low rate of withdrawal, given the clinical complexity of the cases and the intensive nature of the treatment. This client population is not adverse to anger interventions. Rose et al. (2000) reported that 5 out 30 community clients in a group anger management programme dropped out.

The anger treatment is a multi-component intervention, and the differential efficacy of treatment components merits further examination. This would require a more complex study design incorporating comparison groups that isolated components such as self-monitoring, cognitive restructuring, arousal reduction, and behavioural coping skills. The present findings do indicate that a specialized CBT anger treatment, modified for intellectual disabilities clients, can engage and motivate them to work constructively on the self-control of anger. Despite the methodological limitations of the current study, the

results sound an optimistic note for clinical work with angry men with intellectual disabilities and histories of serious aggression who are detained in forensic settings.

References

Allen, R., Lindsay, W.R., MacLeod, F. & Smith, A.H.W. (2001). Treatment of women with intellectual disabilities who have been involved with the criminal justice system for reasons of aggression. *Journal of Applied Research in Intellectual Disabilities, 14,* 340-347.

Aman, M. G., Richmond, G., Stewart, A. W., Bell, J. C., & Kissell, R. (1987). The Aberrant Behavior Checklist: Factor structure and the effect of subject variables in American and New Zealand facilities. *American Journal on Mental Deficiency, 91*, 570-578.

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington: Author.

Attwood, T., & Joachim, R. (1994). The prevention and management of seriously disruptive behavior in Australia. In N. Bouras (Ed.), *Mental health in mental retardation: Recent advances and practice* (pp. 365-74*).* Cambridge: Cambridge University Press.

Beck, A. T. (1999). *Prisoners of hate: The cognitive basis of anger, hostility, and violence*. New York: Harper Collins.

Benson, B. A., Johnson Rice, C., & Miranti, S. V. (1986). Effects of anger management training with mentally retarded adults in group treatment. *Journal of Consulting and Clinical Psychology, 54*, 728-729.

Black, L. (1994). Helping people with learning difficulties express anger in socially acceptable ways: The development of a treatment intervention and outcome measures. Unpublished doctoral dissertation. University of St. Andrews, Fife.

Black, L. & Novaco. R. W. (1993). Treatment of anger with a developmentally disabled man. In R. A. Wells & V. J. Giannetti (Eds.), *Casebook of the brief psychotherapies* (pp. 143-58). New York: Plenum Press.

Black, L., Cullen, C., & Novaco, R.W. (1997). Anger assessment for people with mild learning disabilities in secure settings. In B. Stenfert Kroese, D. Dagnan, & K. Loumidis (Eds.), *Cognitive behaviour-therapy for people with learning disabilities* (pp. 32-52). London: Routledge.

Bromley, J., & Emerson, E. (1995). Beliefs and emotional reactions of care staff working with people with challenging behavior. *Journal of Intellectual Disability Research, 39*, 341-352.

Cohen, J. (1992). The power primer. *Psychological Bulletin, 112*, 155-159.

Deb, S., Thomas, M., & Bright, C. (2001). Mental disorder in adults with intellectual disability.2: The rate of behaviour disorders among a community-based population between 16 and 64 years. *Journal of Intellectual Disability Research, 45*, 506-514.

Hallahan, M. & Rosenthal, R. (1996). Statistical power: Concepts, procedures, and applications. *Behavior Research and Therapy, 34*, 489-499.

Harris, P. (1993). The nature and extent of aggressive behaviour amongst people with learning difficulties (mental handicap) in a single health district. *Journal of Intellectual Disability Research, 37*, 221-242.

Hill B.K., & Bruininks R.H. (1984). Maladaptive behavior of mentally retarded individuals in residential facilities. *American Journal of Mental Deficiency, 88*, 380-387.

Howells, K., & Day, A. (2003). Readiness for anger management: clinical and theoretical issues. *Clinical Psychology Review*, *23*, 319-337.

Howells, P.M., Rogers, C. & Wilcock, S. (2000). Evaluating a cognitive/behavioural approach to anger management skills to adults with learning disabilities. *British Journal of Learning Disabilities, 28*, 137-142.

Kassinove, H. (1995). *Anger disorders: Definition, diagnosis, and treatment*. Washington, DC: Taylor and Francis.

Kiely, J., & Pankhurst, H. (1998). Violence faced by staff in a learning disability service. *Disability and Rehabilitation, 20*, 81-89.

King, N., Lancaster, N., Wynne, G., Nettleton, N. & Davis, R. (1999). Cognitive-behavioural anger management training for adults with mild intellectual disability. *Scandinavian Journal of Behaviour Therapy, 28*, 19-22.

Lakin, K. C., Hill, B. K., Hauber, F. A., Bruininks, R. H., & Heal, L. W. (1983). New admissions to a national sample of public residential facilities. *American Journal on Mental Retardation, 88*, 13-20.

Lindsay, W. R., Allan, R., MacLeod, F., Smart, N. & Smith, A.H.W. (2003). Long-term treatment and management of violent tendencies in men with intellectual disabilities convicted of assault. *Mental Retardation, 41*, 47-56.

Lindsay, W. R., Overend, H., Allan, R., Williams, C., & Black, L. (1998). Using specific approaches for individual problems in the management of anger and aggression. *British Journal of Learning Disabilities, 26*, 44-50.

McNeil, D. E., Eisner, J. P., & Binder, R. L. (2003). The relationship betweenaggressive attributional style and violence by psychiatric patients. *Journal of Consulting and Clinical Psychology*. *71*, 399-403.

Meichenbaum, D. (1985). *Stress Inoculation Training*. Oxford: Pergamon Press.

Moore, E., Adams, R., Elsworth, J., & Lewis, J. (1997). An anger management group for people with a learning disability. *British Journal of Learning Disabilities, 25*, 53-57.

Monahan, J., Steadman, H. J., Silver, E., Appelbaum, P. S., Robbins, P.C., Mulvey, E. P., et al. (2001). *Rethinking risk assessment: The MacArthur study of mental disorder and violence*. Oxford: Oxford University Press.

Murphy, G. & Clare, I. (1991). MIETS: A service option for people with mild mental handicap and challenging behaviour or psychiatric problems. 2. Assessment, treatment, and outcome for service users and service effectiveness. *Mental Handicap Research, 4*, 180-206.

Novaco, R.W. (1975). *Anger Control: The Development and Evaluation of an Experimental Treatment*. Lexington, MA: Heath.

Novaco, R.W. (1988). Novaco Provocation Inventory. In M. Hersen & A.S. Bellack (Eds.), *Dictionary of behavioral assessment techniques* (pp. 315-17). New York: Pergamon.

Novaco, R.W. (1993). Stress inoculation therapy for anger control: A manual for therapists. Unpublished manuscript, University of California, Irvine.

Novaco, R.W. (1994). Anger as a risk factor for violence among the mentally disordered. In J. Monahan & H.J. Steadman (Eds.), *Violence and mental disorder: Developments in risk assessment* (pp. 21-59). Chicago: University of Chicago Press.

Novaco, R. W. (2003). *The Novaco Anger Scale and Provocation Inventory (NAS-PI)*. Los Angeles: Western Psychological Services.

Novaco, R.W., and Renwick, S.J. (2002). Anger predictors and the validation of a ward behavior scale for anger and aggression. Submitted for publication.

Novaco, R. W., & Taylor, J. L. (2004). Assessment of anger and aggression in male offenders with developmental disabilities. *Psychological Assessment, 16*, 42-50.

Rose, J. & West, C. (1999). Assessment of anger in people with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities, 12*, 211-224.

Rose, J., West, C. & Clifford, D. (2000). Group interventions for anger in people with intellectual disabilities. *Research in Developmental Disabilities, 21*, 171-181.

Rosnow, R.L. & Rosenthal, R. (1988). Focused tests of significance and effect size estimation in counseling psychology. *Journal of Counseling Psychology, 35*, 203-208.

Sigafoos, J., Elkins, J., Kerr, M., & Attwood, T. (1994). A survey of aggressive behavior among a population of persons with intellectual disability in Queensland. *Journal of Intellectual Disability Research, 38*, 369-381.

Smith, S., Branford, D., Collacott, R. A., Cooper, S.-A., & McGrother, C. (1996). Prevalence and cluster typology of maladaptive behaviours in a geographically defined population of adults with learning disabilities. *British Journal of Psychiatry, 169*, 219-227.

Spielberger, C. D. (1996) *State–Trait Anger Expression Inventory Professional Manual*. Florida: Psychological Assessment Resources, Inc.

Stermac, L.E. (1986). Anger control treatment for forensic patients. *Journal of Interpersonal Violence, 1*, 446-457.

Taylor, J.L. (2002). A review of assessment and treatment of anger and aggression in offenders with intellectual disability. *Journal of Intellectual Disability Research, 46* (Suppl. 1), 57-73.

Taylor, J.L. & Novaco, R.W. (1999). Treatment of anger control problems in people with developmental disability: A manual for therapists. Unpublished manuscript, Northgate & Prudhoe NHS Trust.

Taylor, J.L., Novaco, R.W., Gillmer, B.G. & Robertson, A. (2004). Treatment of anger and aggression. In W.R. Lindsay, J.L. Taylor & P. Sturmey (Eds.), *Offenders with developmental disabilities*. Chichester: Wiley.

Taylor, J.L., Novaco, R.W., Gillmer, B. & Thorne, I. (2002). Cognitive-behavioural treatment of anger intensity among offenders with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities, 15*, 151-165.

Wang, E. W., & Diamond, P. M. (1999). Empirically identifying factors related to violence risk in corrections. *Behavioral Sciences and the Law*, *17*, 377-389.

Willner, P., Jones, J., Tams, R. & Green, G. (2002). A randomised controlled trial of the efficacy of a cognitive-behavioural anger management group for clients with learning disabilities. *Journal of Applied Research in Intellectual Disabilities, 15*, 224-235.

Table 1
Patient Characteristics and Anger Screening Data for Treatment Groups

Patient Characteristics and Screening Data	Anger Treatment (n = 16)	Routine Care (n = 20)	Study Non-Completers (n = 4)
Mean Age in years	29.4 (7.6)	29.9 (8.6)	27.8 (4.6)
Mean Length of stay in hospital in years	4.62 (4.0)	4.6 (3.7)	4.2 (2.2)
Mean WAIS-R Full Scale IQ	67.1 (4.5)	70.7 (4.0)	72.7 (0.5)
Mean WORD Basic Reading Age in years	7.8 (2.3)	9.5 (3.1)	9.5 (5.0)
Mental Health Act 1983			
treatment section (s.3)	5	4	0
hospital order (s.37)	5	8	2
hospital order with restriction (s.37/41)	6	5	2
other sections	0	3	0
Ward security level			
medium security	4	7	0
acute low security	3	3	1
rehabilitation	9	10	3
Previous convictions			
for violence	4	6	3
for sexual offences	6	8	2
for fire-setting	3	7	0
for other offences	9	11	4
none	3	4	0
Mean number of Assaults since admission	2.3 (2.9)	1.5 (1.8)	0.7 (0.9)
Mean NAS Total	104.4 (12.3)	106.1 (14.0)	92.5 (20.8)
Mean PI Total	72.2 (12.1)	76.4 (15.7)	70.0 (25.5)

Note. Standard deviations are given in parentheses for mean values.

Table 2

Treatment Group Means (and Standard Deviations) for Screen, Pre and Post-treatment, and Follow-up Anger Scale Measures

		AT Group (n = 16)				RC Group (n = 20)			
	Measure	Screen	Pre-treatment	Post-treatment	4-month follow-up	Screen	Pre-treatment	Post-treatment	4-month follow-up
NAS									
	NAS Total	106.75 (10.43)	104.37 (12.33)	95.69 (12.69)	94.81 (13.15)	105.45 (10.72)	106.10 (14.03)	99.40 (14.24)	100.55 (11.96)
	Cognitive	36.69 (3.63)	36.06 (4.27)	33.25 (3.79)	33.06 (3.92)	35.75 (3.89)	36.06 (4.27)	33.35 (4.93)	34.05 (3.17)
	Arousal	35.37 (4.60)	34.06 (5.25)	31.56 (5.25)	31.12 (5.39)	34.35 (4.60)	35.85 (6.61)	33.30 (5.36)	33.60 (4.97)
	Behavioural	34.69 (4.47)	34.25 5.26	30.87 (5.28)	30.26 (5.70)	35.35 (4.58)	35.15 (6.01)	32.75 (6.08)	32.90 (5.25)
STAXI									
	AX	38.94 (6.32)	42.37 (10.38)	32.87 (12.75)	31.37 (10.54)	40.25 (6.71)	39.65 (11.06)	38.35 (11.10)	35.25 (8.93)
	Anger-Control	16.44 (2.48)	16.31 (4.21)	18.37 (5.55)	18.44 (4.03)	17.40 (4.37)	17.70 (5.76)	17.75 (4.91)	17.75 (4.77)
PI									
	PI Total	70.62 (9.75)	73.19 (12.15)	62.00 (15.92)	64.19 (17.32)	74.65 (16.00)	76.40 (15.69)	70.70 (16.29)	69.15 (15.47)
	Disrespect	14.56 (2.97)	15.37 (3.67)	13.44 (2.99)	13.50 (4.00)	15.05 (3.41)	15.75 (3.96)	14.60 (3.57)	13.80 (3.61)
	Unfairness	16.62 (2.42)	16.25 (2.09)	13.81 (3.71)	14.56 (3.46)	15.00 (3.87)	16.10 (2.65)	15.85 (3.62)	14.75 (3.67)
	Frustration	14.18 (2.64)	13.69 (3.34)	11.56 (3.72)	12.44 (4.32)	15.80 (3.69)	15.20 (3.64)	13.85 (3.83)	13.95 (3.78)
	Annoying Traits	11.87 (2.70)	13.75 (3.59)	11.75 (4.69)	11.75 (4.39)	14.95 (3.75)	14.70 (3.73)	12.60 (4.90)	13.30 (3.67)
	Irritations	13.37 (3.30)	13.75 (3.79)	11.44 (3.86)	11.94 (3.71)	13.85 (4.28)	14.65 (3.74)	13.80 (3.04)	13.35 (3.65)
WARS Anger Index		7.69 (6.02)	7.94 (6.74)	4.69 (4.03)	4.37 (5.78)	8.25 (5.68)	8.50 (7.42)	6.75 (6.42)	7.25 (6.33)

Table 3

Proportion of Treatment Groups Participants' Scores that Improved Pre-Post Treatment by Equal to or More than One Standard Deviation of Study Sample Intake Mean Scores

	AT Group (n = 18)	RC Group (n = 20)
NAS Total	33%	25%
PI Total	33%	15%
STAXI		
AX	44%	20%
Anger-Control	22%	15%
WARS Anger Index	50%	25%

Note. Percentages are the proportion of participants in each group whose scores improved pre-post treatment by $\geq$ one standard deviation of the mean sore of the pre-treatment means for the study sample (n = 40) on each outcome measure.