

## Accepted Manuscript

Psychoeducational programs for reducing prison violence: A systematic review

Katherine M. Auty, Aiden Cope, Alison Liebling

PII: S1359-1789(17)30034-4  
DOI: doi: [10.1016/j.avb.2017.01.018](https://doi.org/10.1016/j.avb.2017.01.018)  
Reference: AVB 1089

To appear in: *Aggression and Violent Behavior*

Received date: 11 August 2016  
Revised date: 17 January 2017  
Accepted date: 18 January 2017

Please cite this article as: Katherine M. Auty, Aiden Cope, Alison Liebling , Psychoeducational programs for reducing prison violence: A systematic review. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Avb(2017), doi: [10.1016/j.avb.2017.01.018](https://doi.org/10.1016/j.avb.2017.01.018)

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



**Manuscript Title:** Psychoeducational programs for reducing prison violence: A systematic review.

**Authors:** Katherine M. Auty, PhD; Aiden Cope, MPhil; Alison Liebling, PhD

**Author Affiliations:** Prisons Research Centre, Institute of Criminology, Cambridge University, England.

**Contact Information for Corresponding Author:** Dr Katherine Auty, Institute of Criminology, Cambridge University, Sidgwick Avenue, Cambridge CB3 9DA.

Email: ka404@cam.ac.uk

Tel: 01223 746 515

**Declaration of Interest:** None

**Abstract**

Institutional violence presents significant challenges to the accomplishment of legitimate social order in prison. This systematic review examines the effect of psychoeducational programs on violent behaviour in prison. Comprehensive searches of the empirical research literature were conducted to identify randomized and non-randomized studies carried out in the last two decades (1996 – 2016) that compared psychoeducational programs with treatment as usual (TAU). The content of programs was analysed and classified. The design of the studies was subject to a risk of bias analysis and quality assessment. Violent behaviour in prison was measured by institutional reports, inmate self-reports, observer ratings, or using psychometrically-valid scales. We identified 21 separate studies with considerable variations in program quality and evaluation methodology. The majority of programs adopted a cognitive behavioural or social learning approach. There was limited evidence for the efficacy of these programs, although highly-structured programs showed the most promise. Programs that aimed to integrate their treatment ethos into the institutional regime and target specific criminogenic risks also produced evidence of effectiveness in reducing institutional violence. The current evidence base does not provide a clear answer to the '*what works*' question in reducing institutional violence. However, there is evidence that some approaches are more successful than others and this should guide future program design and evaluation.

**Keywords:** Institutional violence, prisons, physical assaults, verbal assaults, social order, intervention, effectiveness.

## Contents

1. Introduction
    - 1.1 Psychoeducational programs to reduce institutional misconduct and violence
    - 1.2 Previous research on their effectiveness
  2. Methods
    - 2.1 Search strategy
    - 2.2 Inclusion criteria
    - 2.3 Data extraction
    - 2.4 Criteria for determining high quality study design
    - 2.5 Criteria for assessing program quality
    - 2.6 Assessing risk of bias
  3. Results
    - 3.1 Description of included studies
    - 3.2 Risk of bias assessment
    - 3.3 Classification of programs
    - 3.4 Assessment of program quality
    - 3.5 Effects on institutional violence by type of program
    - 3.6 Effects on institutional violence by study design
  4. Discussion
- References

## 1. Introduction

Violence is a pervasive feature of the social context of prison life, yet as Bottoms (1999) points out, its study presents a paradox, as the prison environment is experienced on a day to day basis by prisoners and staff as relatively safe. Violence in prisons impacts negatively on the delivery of a consistent daily regime and therefore undermines efforts to provide programs, education and work activities for inmates as well as posing direct risks. In this sense, efforts to reduce prison violence are crucial to the maintenance of everyday social order. Following Gadon, Johnstone, and Cooke (2006a, p. 515), we define institutional violence as “the actual, attempted or threatened harm towards another person within the institutional setting which may include physical, verbal and/or sexual aggression.” Accurately measuring institutional violence poses several problems: institutional record keeping can vary widely and although most institutions now use computerized systems, this data often comes from individual prisoner files maintained on residential units. Furthermore, it is reasonable to assume that a degree of staff discretion applies to the reporting of violent incidents. As Davies (1982) points out, violent acts in prison are on a spectrum ranging from pushing to assault with a weapon and prisoners may be disciplined variously for any of these incidents. Mindful of these concerns, researchers often use psychometrically validated measures of violent behaviour, either in place of, or to supplement, institutional data.

Research into the development and evaluation of correctional programs to reduce prison violence is expanding rapidly against a background of budget cuts, austerity measures, increases in violence, and the drastic pace and scale of change in criminal justice systems in most countries. This has involved the development of treatment philosophies and multimodal programs intended to reduce violence in

institutional settings. Typically these programs include elements of social learning and cognitive behavioural approaches applied to individual and group program sessions, homework, journal entries, peer support, and also specific criminogenic needs, such as substance misuse. Many have questioned the effectiveness of correctional treatment programs (Lab & Whitehead, 1990; Sechrest, 2013), yet others have maintained that treatment is most effective when offenders are attending programs suited to them (Andrews et al., 1990). Successfully administering a treatment program within a correctional facility can also be particularly difficult when the prison regime is in conflict with the treatment ethos of the programs. (Lanza-Kaduce, Parker, & Thomas, 1999, p. 43).

The dominance of behaviourally-oriented programs, such as cognitive behavioural therapy (CBT) has recently been called into question. It is now recognized that the effectiveness of well-established models of treatment can decline over long periods (Johnsen & Friberg, 2015). Newer approaches that utilise some very different techniques are being studied to determine their effectiveness in reducing violent behaviour in prisons. A recent systematic review and meta-analysis (Auty, Cope, & Liebling, 2015) revealed that yoga and mindfulness meditation programs delivered in custodial settings had a positive effect on the psychological wellbeing (Cohen's  $d = 0.46$ ), and behavioural functioning of prisoners ( $d = 0.30$ ). Programs of longer duration had a slightly larger positive effect on behavioural functioning ( $d = 0.424$ ), compared with shorter, more intensive programs ( $d = 0.418$ ).

Research in this area is gathering pace. Studies of treatment within therapeutic communities are accumulating quickly, with reduction in institutional violence being one of several program aims (Blagden, Winder, & Hames, 2016;

Dietz, O'Connell, & Scarpitti, 2003; Gilligan & Lee, 2005). Another recent development in the empirical literature is the evaluation of programs to reduce violence in prison that originate outside the criminal justice sector, such as life coaching (Smyth, 2014) and life skills training (Clark & Duwe, 2015), which focus on leadership skills, and are far less stigmatizing for offenders than traditional programs. Another two important areas of growing interest for prison researchers and policy makers are prison peer mentorship schemes, bullying prevention programs (HMIP, 2016) and faith-based correctional programs aimed at reducing violence (Duwe & King, 2013).

There is some evidence that prison misconduct serves as a reasonable proxy for risk of reoffending (Gendreau, Goggin, & Law, 1997; Hill, 1985; Homant & Witkowski, 2003; Schnur, 1949; Zamble & Porporino, 1988). Therefore, policy and practice have recently changed in a more concerted effort to address the level of violence in prisons in England and Wales. A joint protocol has been developed by the Prison Service, Crown Prosecution Service and the Association of Chief Police Officers (ACPO). Prosecution of the perpetrators of assaults in prison is now established as standard practice, rather than the offence being dealt with by an in-house adjudication, unless there is a good reason not to (Ministry of Justice, 16th November 2014).

### ***1.1 Psychoeducational programs to reduce institutional misconduct and violence***

Several systematic reviews and meta-analyses have focused on the impact of correctional treatment programs on institutional misconduct (French & Gendreau,

2006; Keyes, 1996a; Morgan & Flora, 2002). Recently, the focus has shifted to systematically analysing the situational and cultural factors in prison that may impact upon institutional violence (J.M. Byrne & Hummer, 2008; Gadon, Johnstone, & Cooke, 2006b).

### **1.2 Previous research on their effectiveness**

French and Gendreau (2006) conducted a meta-analysis to evaluate the effectiveness of correctional treatment for reducing institutional misconduct. Interventions were classified as behavioural, non-behavioural, or educational/vocational. They updated previous meta-analyses by Keyes (1996) and Robert D. Morgan and Flora (2002). Previously, Keyes (1996) had found that behavioural programs were more effective than non-behavioural programs in reducing misconduct, and that higher quality studies and younger sample populations produced larger effect sizes. Morgan and Flora (2002) did not produce a separate effect size for prison misconducts but also found that behavioural approaches were most effective. French and Gendreau (2006) extended the knowledge accumulated in these two reviews from 32 studies with 46 effect sizes, to 68 studies with 104 effect sizes.

French and Gendreau (2006) note that 'the majority of studies were published before much was known about the principles of effective correctional treatment' and that almost invariably, information was not reported on the prison context (e.g., crowding, institutional climate) within which the treatment programs operated. The authors also report that 'essential inmate characteristics such as offender risk level and misconduct history were almost always missing' (French and Gendreau (2006: 206). This limited attempts to examine moderators of program effects. Similarly, the



incomplete reporting of non-significant findings limited the estimation of treatment effects. Aside from these limiting factors, the authors conclude that behavioural programs yield larger effect sizes than non-behavioural or educational/vocational programs and are therefore more effective when attempting to reduce prison misconduct. Interestingly, this meta-analysis paralleled findings from meta-analyses conducted on the effects of programs on recidivism. Overall effect sizes from the behavioural programs were similar to the effect that Andrews and Bonta (2003) found when investigating the impact of behavioural programs on recidivism (French and Gendreau (2006). Key similarities were noted in relation to moderating factors, such as the apparent importance of therapeutic integrity, treatment dosage, and separate housing of treatment group inmates. The analysis also showed that the programs which had the largest impact on prison misconduct 'also generated lower recidivism rates' (French and Gendreau (2006, p. 210). The authors conclude that this analysis should direct researchers to conducting primary studies which address some of the problematic areas of program design and delivery highlighted by their meta-analysis.

Gadon et al. (2006b) report on a systematic review on the impact of situational risk factors on institutional violence in prisons and closed psychiatric settings. They identified 48 studies as suitable for the review. The authors had intended to conduct a meta-analysis, but were unable to do so due to the nature of research in this area, including the different methodological approaches adopted by each study. The in-depth systematic review of studies conducted in a prison setting (n = 21) grouped the studies into seven situational variables: prison structure, staff features, temporal aspects, location, crowding, management and programs available for prisoners. The authors found that risk factors related to institutional violence

were: prisoners' security level, busy thoroughfares, under-staffed areas, prisoner mix, staff experience, certain days of the week (e.g...), management approaches and relationships between staff.

Therefore, this review aims to evaluate the evidence base by assessing the effectiveness of programs delivered in an institutional context to reduce violence. Many jurisdictions state a commitment to evidence-based programming and this review may help to incorporate the latest research findings into current practice. Currently, the international evidence-base has accelerated beyond practice. The use of evidence-based programming includes a commitment to rigorous monitoring of all programs to ensure that they are delivered to a high standard. Reporting guidelines for systematic reviews are now commonplace (Liberati et al., 2009; Moher, Liberati, Tetzlaff, Altman, & Group, 2009) resulting in greater standardization and higher quality reporting of studies. Therefore, this study aims to update previous reviews focusing on methodologically high-quality studies that have been published in the last 20 years and specifically addressing the effectiveness of psychoeducational programs for reducing institutional violence.

## **2. Methods**

### **2.1 Search Strategy**

Searches were performed in a range of appropriate databases (PubMed, Applied Social Sciences Index and Abstracts (ASSIA), Web of Science, the Cochrane Database of Systematic Reviews, the Campbell Library, Zetoc, Embase, Medline, PsycINFO). These were selected based on the authors' previous

experience of conducting systematic searches in related topic areas. Systematic searches were created by combining a series of keywords in the most appropriate manner for each database. Keywords were conceived of in the following groups: 'Type of study' ('Experiment\*', 'Quasi', 'Evaluation', 'Random', 'RCT', 'Trial'); 'Intervention type' ('Program\*', 'Intervention', 'Correctional', 'Skills training', 'CBT', 'Behavio\*', 'Behaviour', 'Treatment', 'Mindfulness'); 'Population' ('Prison\*', 'Secure psychiatric unit', 'YOI', 'Young offender institution', 'Jail'); 'Outcomes' ('Violence', 'Assault', 'Attack', 'Fighting'). Searches were restricted to English language abstracts. Test searches were completed to assess the number of relevant studies that would be found. If searching for a basic 'population' or 'outcome' keyword returned few studies, these groups would be searched per keyword in a simple manner. However, keywords were typically searched for in each database in the four groups outlined above, before the groups were combined. Specific combinations depended on the number of studies the initial group searches returned. For instance, some databases returned very large numbers of studies for the more general keywords in the 'type of study' and 'intervention type' groups. In these cases the grouped terms were combined in a systematic manner which allowed a degree of cross-referencing of results.<sup>1</sup>

Further studies were screened for inclusion upon recommendations of experts in the field, as outlined in Figure 1. Searches were also conducted in additional papers that were not eligible for inclusion but appeared promising for further leads, such as reviews of the literature. The online research profiles of several researchers were also searched to identify additional studies. Further searches were conducted using Google and Google Scholar.

---

<sup>1</sup> Full detailed logs of each search and combination of keywords (including all returned papers and dates of searches) are available upon request from the corresponding author.

**Figure 1 about here**

## **2.2 Inclusion Criteria**

All searches were limited to the period 1996 - 2016. This time period allowed limited overlap with previous related reviews while ensuring a manageable number of studies to screen. Although this was a relatively arbitrary cut-off date, it also excluded older studies which, based on the authors' experience, tend to be of lower methodological quality. This search strategy yielded 3,917 studies in the initial searches. A total of 79 studies (including duplicates) were saved into Endnote referencing software following screening of abstract and bibliographic information. After any duplicates were removed, 58 studies remained. Screening was based on the following inclusion criteria (as reflected in the above listed keywords): (1) studies must be experimental or quasi-experimental in design (including a control/comparison group); (2) studies must examine a psychoeducational program that specifically attempts to reduce violence in a prison, young offender institution, or secure psychiatric unit; (3) outcomes examined must be measures of violence committed by prisoners/inmates/patients. One reviewer (AC) assessed the full text articles for inclusion or exclusion. A second reviewer (KA) resolved any uncertainties and contacted corresponding authors to provide clarifying information, where possible. This process resulted in 65 studies being excluded. The most common reason for exclusion was the study not reporting a violence measure at all, or independently of other scales or measures ( $n = 29$ ). Ten studies had no clear comparison group and 12 studies did not evaluate a psychoeducational program. The remaining excluded studies did not consider a specific program or intervention ( $n = 5$ ), were reviews ( $n = 4$ ), were not prison-based ( $n = 1$ ) or were categorized as

'other' reasons for exclusion ( $n = 4$ ). These reasons for exclusion of studies were recorded and are shown in Table 1.

***Table 1 about here***

### ***2.3 Data Extraction***

A data coding proforma<sup>2</sup> was designed to extract the relevant information from the papers. Information on each study was organized under the following headings: full reference, study population/sample and context, program and duration, program description, study objective, outcomes and measures, study design, unit of analysis, and statistical analyses. The form was piloted by the coders (KA & AC) on a random sample of approximately 10 percent ( $n = 6$ ) of the unique papers remaining after screening the abstract and bibliographic information and any inconsistencies were resolved by the first author. The coders then extracted the relevant data from the studies in July 2016. Each completed coding sheet was reviewed by the other coder and inconsistencies were discussed and resolved.

### ***2.4 Criteria for determining high quality study design***

The quality of study design was rated using the University of Maryland's Scientific Methods Scale (Farrington, Gottfredson, Sherman, & Welsh, 2002; Sherman et al., 1998), which classifies evaluation studies according to five levels from 1 = weakest to 5 = highest level of overall internal validity: (1) Correlational evidence; (2) No statistical control for selection bias but some kind of comparison; (3) Moderate statistical control; (4) Strong statistical control; and (5) Randomized experiment (summarized in Welsh & Farrington, 2001). Only studies rated as equivalent to level three or higher were included in this review. So, as a minimum, all

---

<sup>2</sup> A copy of the data coding proforma is available from the first author upon request.

studies compared the program group to a control group, including pre-post and experimental-control comparisons.

### ***2.5 Criteria for assessing program quality***

Based on an extensive review of the 'what works' literature, Lösel (1995, pp. 33-34) lists principles or characteristics of effective programs, many of which have been confirmed in meta-analyses; (1) Theoretically sound conceptualization of program and evaluation, (2) Dynamic assessment of the offender's risk, (3) Intensive service for high risks, (4) Appropriate targeting on the offender's criminogenic needs, (5) Differentiation of criminogenic from non-criminogenic needs, (6) Improving thinking, social skills, and self-control mechanisms, (7) Applying reinforcement contingencies, (8) Strengthening 'natural' protective factors, (9) Neutralizing criminogenic social networks, (10) Matching of offender characteristics with the program and staff, (11) Matching of staff with type of program, (12) Thorough selection, training, and supervision of staff, (13) Improving quality of staff-prisoner relationships, (14) Encouraging staff motivation and consistency, (15) Assessment of adequate program implementation, (16) Realizing high program integrity, (17) Improving institutional climate and positive setting characteristics, (18) Reducing negative incarceration effects, (19) Monitoring of offender change in criminogenic needs, and (20) Providing for measures of relapse prevention. We systematically evaluated program quality, according to these principles. Each item was rated as 0 = not present, 1 = partly present, or 3 = present. An overall score (out of a total of 40) was produced for each study.

### ***Assessing risk of bias***

An assessment of study selection bias was made according to the recommendations of The Cochrane Collaboration (Higgins & Green, 2011). Standard risk of bias assessments were undertaken: sequence generation (selection bias), allocation sequence concealment (selection bias), blinding of participants and personnel (performance bias), blinding of outcome assessment (detection bias), incomplete outcome data (attrition bias), and selective outcome reporting (reporting bias). This required a judgement to be made about specific aspects of the study on the basis of the information provided in each paper. Each potential risk of bias was rated; 'low', 'high', or 'unclear'. When information was unclear or missing attempts to contact corresponding authors for clarification were made.<sup>3</sup>

## Results

### *Description of included studies*

Information on the key study characteristics of the 21 included studies is shown in Table 2. Effect sizes (Cohen's  $d$ ) were calculated where sufficient information was provided. In the last 20 years, interest in the effectiveness of psychoeducational programs in reducing prison violence has been fairly consistent. On average, one study that met the criteria for inclusion was published each year. The sample of 21 included studies came from 20 peer reviewed publications. Thirteen studies were of programs in the USA (Armstrong, 2002; Baro, 1999; Dietz et al., 2003; Goldstein, Dovidio, Kalbeitzer, Weil, & Strachan, 2007; Hogan, Lambert, & Barton-Bellessa, 2012; Lambert, Hogan, Barton, & Stevenson, 2007; Lee &

---

<sup>3</sup> Detailed information on the assessment of risk of bias and supporting evidence is available from the corresponding author.

Gilligan, 2005; Liao et al., 2004; Maglinger, 2013; Morrissey, 1997; Prendergast, Farabee, & Cartier, 2001; Walrath, 2001; Welsh, McGrain, Salamatin, & Zajac, 2007), Three were set in the UK (Evershed et al., 2003; Jotangia, Rees-Jones, Gudjonsson, & Young, 2015; C. Wilson et al., 2013), two came from Australia (Miller, 1996; Watt & Howells, 1999), and one study each came from Canada (R. C. Serin, Gobeil, & Preston, 2009), and the Netherlands (Hoogsteder et al., 2014).

Of the 21 included studies, five were randomized controlled trials, and 16 were non-randomized quasi-experiments. As previously described, only methodologically high-quality studies were considered for inclusion in the review, and there was considerable variation in scientific method scores. For the majority of studies (16) their internal consistency was rated as level 3 (moderate statistical control), and the remainder (5) were rated as level 5 (a randomized experiment). The participants in the majority of studies were males (17). Two studies evaluated programs that were specifically designed for female inmates (Goldstein et al., 2007; Jotangia et al., 2015) and two further studies had both male and female participants (Hoogsteder et al., 2014; Liao et al., 2004).

The number of participants in each study varied considerably; six studies analysed data for less than 50 participants (Evershed et al., 2003; Goldstein et al., 2007; Jotangia et al., 2015; Miller, 1996; Watt & Howells, 1999), five studies had between 50 and 100 participants (Hoogsteder et al., 2014; Maglinger, 2013; Morrissey, 1997; Walrath, 2001; C. Wilson et al., 2013), three studies involved between 100 and 200 participants (Baro, 1999; Lambert et al., 2007; Lee & Gilligan, 2005), three studies involved between 200 and 300 participants (Armstrong, 2002; Hogan et al., 2012; Liao et al., 2004), and two studies had samples larger than 500 (Dietz et al., 2003; Welsh et al., 2007). One of these studies had the advantage of



drawing their sample from a therapeutic community (TC), (Dietz et al., 2003) with relatively stable and compliant populations and the other study made use of intuitional record data only (Welsh et al., 2007) . One study did not report the number of participants in the study (Prendergast et al., 2001).

Amongst the 21 included studies there were 17 different programs evaluated to reduce prison violence, as three programs were evaluated more than once: the Alternatives to Violence Project (Miller, 1996; Walrath, 2001), Skills Training for Aggression Control (STAC) (Watt & Howells, 1999)<sup>4</sup>, and the Cognitive Housing Approach: New Goals Environment (CHANGE) program (Hogan et al., 2012; Lambert et al., 2007). The CHANGE program was a modified version of the Strategies for Thinking Productively (STP) program evaluated in an earlier included study (Baro, 1999).

Data on violent behaviour in prison was collected from two main sources: from official institutional records (either computerized or file-based), and from questionnaire measures. The questionnaire measures used several different methods to collect data: self-report, professionally-rated, peer-rated, and ratings made by an independent observer. Violent behaviour in prison was measured most often using institutional records (Armstrong, 2002; Baro, 1999; Dietz et al., 2003; Hogan et al., 2012; Hoogsteder et al., 2014; Lambert et al., 2007; Lee & Gilligan, 2005; Liau et al., 2004; Maglinger, 2013; Morrissey, 1997; Prendergast et al., 2001; R. C. Serin et al., 2009; Welsh et al., 2007; C. Wilson et al., 2013). Most researchers reported using computerized systems to collect this data.

---

<sup>4</sup> Reports results from two separate studies.

Data on violent behaviour was also captured through the use of self-report scales (and subscales) with proven psychometric properties. Most frequently used was the Aggression Questionnaire (AQ: Buss & Warren, 2000), which was used in two studies: Goldstein et al. (2007) and R. C. Serin et al. (2009) and the Novaco Anger Scale (NAS: Novaco, 1994), which was also used in two studies (Jotangia et al., 2015; Watt & Howells, 1999). Several other measures were also used, such as the Young Adult Self-Report Form (YASR: Achenbach, 1991), as used by Liao et al. (2004), the State-Trait Anger Expression Inventory (STAXI: Spielberger, 1991), (used in; Miller, 1996), the Modified Overt Aggression Scale (MOAS: Kay, Wolkenfeld, & Murrill, 1988) used in Watt and Howells (1999) and finally Jotangia et al. (2015) also used the Disruptive Behaviour and Social Problem Scale (DBSP: Susan Young, Gudjonsson, Ball, & Lam, 2003). Data from these measures was only included in the review if the analysis clearly presented results for a subscale of the measure that captured violent behaviour. Unfortunately, in practice, many studies did not present data for each subscale and were therefore excluded (see Table 1).

On one occasion, a self-report questionnaire was designed by the research team (for example; Walrath, 2001), and in this instance the authors provide data on the questionnaires' internal consistency (Cronbach's alpha). In another study aggression was measured using a professional-rated risk assessment tool: the 'Dealing with Anger' subscale of the Structured Assessment of Violence Risk in Youth (SAVRY: Borum, Bartel, & Forth, 2002; Lodewijks, Doreleijers, de Ruiter, & Wit de-Grouls, 2006). Peer-rated measures were less frequently used; in Goldstein et al. (2007) the Peer Nomination Measure for Relational and Physical Aggression (Crick, 1995; Crick & Grotpeter, 1995; Werner & Crick, 1999). Finally, one study (Evershed et al., 2003) collected data on violent behaviour using an observational

measure (frequency and seriousness) that was blindly rated by an independent psychology student.

Follow-up periods were often quite short. Eleven studies had no follow-up period and collected post-intervention data immediately after the program had finished (Armstrong, 2002; Dietz et al., 2003; Goldstein et al., 2007; Hoogsteder et al., 2014; Lee & Gilligan, 2005; Liao et al., 2004; Maglinger, 2013; Morrissey, 1997; Prendergast et al., 2001; Watt & Howells, 1999). For two studies, the longest follow-up period was three months post-program (Jotangia et al., 2015; Miller, 1996). A follow-up period of six months post-program was most common (five studies; Hogan et al., 2012; Lambert et al., 2007; R. C. Serin et al., 2009; Walrath, 2001; Welsh et al., 2007). Two studies had a follow-up period of nine months (Evershed et al., 2003; C. Wilson et al., 2013), and only one study collected data 12 months after the program was completed (Baro, 1999).

***Table 2 about here***

### ***Risk of bias assessment***

Risk of bias can be present in both study design and methodology. The five randomized controlled trials that were included in the review (Armstrong, 2002; Goldstein et al., 2007; Hogan et al., 2012; Lambert et al., 2007; Liao et al., 2004) should address two important forms of selection bias: ensuring random sequence generation (that allocation of individuals to treatment or control groups is done according to a random process) and allocation concealment (that the allocation sequence is unpredictable by researchers or participants). In practice, four RCTs reported successful random sequence generation. Armstrong (2002) reported that only 83 percent of participants were assigned as randomized. Randomisation was

ineffective due to some individuals refusing treatment and others being placed in the incorrect group and staff deciding against moving them due to ethical concerns. Allocation concealment was successfully achieved by two of the RCTs (Goldstein et al., 2007; Hogan et al., 2012). In the remaining three RCTs it was not clear how randomisation had taken place (Lambert et al., 2007; Liau et al., 2004), or it was reported as not having taken place correctly (Armstrong, 2002).

Non-randomized quasi-experiments often have a much higher risk of bias. Reports of problems in implementing the desired study methodology were fairly commonplace in this group of included studies. This could account for the heterogeneity of findings reported in the studies (see Table 2) and also has important implications for the validity of these findings. Four further assessments of selection bias were undertaken (performance bias, detection bias, attrition bias, reporting bias) and the results are shown in Table 3, together with a summary assessment of the risk that they will overestimate or underestimate the true intervention effect.

The risk of bias posed by performance bias (blinding of participants and personnel) and detection bias (blinding of outcome assessment) proved to be very high, as none of the studies reported achieving either of these. However, given the nature of the setting and interventions, it is difficult to neutralize these forms of bias. Internal validity was also compromised (to a lesser extent) by attrition bias, as 10 studies (48%) reported missing or incomplete data at the post-intervention follow-up, perhaps illustrating the difficulties of conducting controlled studies in institutional environments. Reporting bias (selective reporting) posed the lowest risk to internal validity in our sample of studies; nineteen studies reported results data for all dependent variables described in the study methodology. However, in two studies

the risk was rated as 'unclear', as the dependent variables had not been set out in the methodology (Lee & Gilligan, 2005), or information was reported in summarized form (Watt & Howells, 1999: Study 2).

***Table 3 about here***

**Classification of programs**

In their assessment of the evaluation methodology and findings in correctional programs in the last 30 years, Van Voorhis and Brown (2005) identify four categories of programs that seem to work better with offenders: (1) Social learning interventions, (2) Cognitive behavioural approaches, (3) Radical behavioural approaches, and (4) Targeting specific criminogenic needs. They also identify programs where the evidence suggests that they do not seem to be helpful, and may even be harmful: (1) Non-directive, person-centred therapies, (2) Psychoanalysis, (3) Group milieu therapies, (4) Chemotherapies, and (5) "Punishing smarter" models. Applying this framework to the studies in our sample reveals that the majority are best described as multimodal, and therefore combine several approaches that have evidence supporting their efficacy. Some programs successfully utilized other approaches for which there is a much weaker evidence base as adjunctive therapies: 'the contribution of the arts therapies included aiding group cohesion and creativity through music and role-playing of skills (e.g. drama-informed exercises)' (C. Wilson et al., 2013: 359).

As we expected, the majority of programs combined cognitive-behavioural approaches with social learning interventions (Baro, 1999; Evershed et al., 2003; Hogan et al., 2012; Hoogsteder et al., 2014; Jotangia et al., 2015; Lambert et al., 2007; Lee & Gilligan, 2005; Liao et al., 2004; Miller, 1996; Morrissey, 1997; R. C.

Serin et al., 2009; Walrath, 2001; Watt & Howells, 1999; C. Wilson et al., 2013). Several were also targeted at specific criminogenic needs (other than anger/violence) such as associating with delinquent peers (Armstrong, 2002) substance misuse (Dietz et al., 2003; Maglinger, 2013; Prendergast et al., 2001; Welsh et al., 2007) Borderline Personality Disorder and parasuicidal behaviour (Evershed et al., 2003). Several programs described how their participants resided in a specially designated area of the prison, separated from the general population (Armstrong, 2002; Goldstein et al., 2007; Lambert et al., 2007) and several were studies of group milieu therapies (therapeutic communities, or TCs) (Dietz et al., 2003; Maglinger, 2013; Prendergast et al., 2001; Welsh et al., 2007). Some less common approaches were person-centred therapies, such as Moral Reconciliation Therapy (Armstrong, 2002), radical-behavioural approaches, such as Operant Conditioning (Morrissey, 1997), and Rational Emotive Therapy (Hoogsteder et al., 2014).

### **Assessment of program quality**

Most studies in the review featured a theoretically sound conceptualisation of the program and combined this with an equally sound conceptualisation of the evaluation approach (95.2%). Appropriate targeting on the criminogenic offender's needs (83.3%), matching of offender characteristics with the program (78.6%), and the improvement of thinking, social skills and self-control mechanisms (85.7%) were also achieved by most studies, reflecting the predominance of behavioural programs.

Few studies sought to strengthen natural protective factors (19%), neutralize criminogenic social networks (14.3%), dynamically assess offenders' risk (7.1%), or

provide intensive service for high risk offenders (16.7%). Relapse prevention was only incorporated into one study (4.8%), the application of reinforcement contingencies was achieved about one-third of the time (31%), and the monitoring of changes in offenders' criminogenic needs was not achieved by any study (0%)

Staff were well matched to the program (50%), and were also trained and supervised well (47.6%) in about half of the studies. A successful differentiation of criminogenic from non-criminogenic needs was achieved in a similar proportion of studies (47.6%). However, improvements to institutional climate (33.3%) and reduction of negative incarceration effects (26.2%) were less frequently achieved. Finally, encouraging staff motivation and consistency (4.8%), and improving the quality of staff-prisoner relationships (9.5%) was rarely achieved.

Assessment of program implementation was only attempted in five studies (Liau et al. (2004) Serin et al. (2009), Wilson et al. (2013) Hoogsteder et al. (2014) Jotangia et al. (2015), and only one was judged to have realized high program integrity (Jotangia et al. 2015), with four achieving this somewhat. Jotangia et al. (2015) managed to achieve this as follows: 'As a structured manualized program, R&R2MHP fosters consistency in delivery and program integrity. A steering committee, attended by site principal investigators and clinical staff, met regularly to maintain a consistent approach to research and treatment'. Similarly, Wilson et al. (2013) report: 'Group facilitator supervision was provided throughout on a fortnightly basis by an experienced colleague external to the facilitation team. This promoted intervention integrity based on the core modules and responsiveness to the group members, and aided the technical aspects of the delivery of specific manualized techniques.' Serin et al. (2009) reported that, 'to ensure program integrity, the supervising psychologist employed team meetings, group supervision, clinical

supervision meetings, and reviews of the final reports', among other measures. As is clear, with the exception of Liao (2004) the studies that attempted to assess implementation quality and achieved a degree of program integrity are all recent studies.

### ***Effects on institutional violence by type of program***

The violence prevention programs could be classified into two broad categories; (1) those that focused on approaches for which there is a fair amount of evidence of their effectiveness (social learning interventions and cognitive-behavioural approaches), and (2) those that combined group milieu therapies, an approach for which there is limited evidence for its effectiveness, which were combined with approaches that target specific criminogenic needs, and have a much stronger evidence-base.

#### *Social learning and cognitive-behavioural approaches:*

Several studies reported reductions in aggression for the treatment group, but this did not vary according to whether participants were in the treatment group or the TAU control group (Goldstein et al., 2007; Liao et al., 2004). Similarly, using state correctional system data Lambert et al. (2007) found no statistically significant decreases in violent misconduct between program and control groups, either three or six months after the program finished. However, in the follow-up study conducted by Hogan et al. (2012) a multivariate analysis did find group differences in reports of violent misconduct both three and six months after program completion, once they controlled for number of weeks in the program, number of reports for violent



misconduct in the equivalent period prior to the program, and number of violent misconduct reports received during the program.

Further studies utilising a social learning and/or cognitive-behavioural approach also found decreases in violence, but these failed to achieve statistical significance (Hoogsteder et al., 2014; Jotangia et al., 2015; Miller, 1996; R. C. Serin et al., 2009; C. Wilson et al., 2013). Evaluating the same program as Miller (1996), (the Alternatives to Violence Project) in an American prison, Walrath (2001) found that those in the program group were involved in significantly fewer (less than one half) violent confrontations than those in the comparison group, six months post-program. In the case of the two studies reported by Watt and Howells (1999) few comparisons of the angry and aggressive behaviour of the program group and that of the TAU group were statistically significant. This was likely to be due in part to the small sample size of each study ( $n = 31$  in Study 1;  $n = 38$  in Study 2).

Analysing institutional data, Morrissey (1997) found there was a significantly lower frequency of violent incidents and assaults in the program group, compared to the TAU group immediately post-program, as did Baro (1999). Further analyses revealed that difference in assaults came from the Strategies for Thinking Productively (STP) Phase II group, who had successfully passed the Phase I initiation phase (the number violent assaults of those in the Phase I group and the TAU group, who were receiving other self-help programs were almost identical).

#### *Group milieu therapies that target specific criminogenic needs*

For residents of a therapeutic community (TC) targeting those with substance misuse problems, rule violations for violence or the threat of violence were slightly lower, compared to non-treatment residents (73.2% and 79.3%), but this difference

was not statistically significant. However, looking at rule violations for assault or sexual misconduct Dietz et al. (2003) found the observed differences between treatment and non-treatment units were significant. Furthermore, Welsh et al. (2007) found lower instances of serious violence (assault, murder, or rape) in the TC group when compared to the comparison group, even when controlling for other relevant predictors of misconduct (age, prior offence severity, number of months incarcerated pre-treatment and number of months incarcerated post-treatment).

### ***Effects on institutional violence by study design***

#### *Randomized controlled trials*

Results from the randomized controlled trials (RCTs) often showed that violent incidents were lower in the experimental group compared to the control group, but these differences did not often approach conventional levels of statistical significance. Comparing the institutional data of those individuals in the experimental and control groups, Armstrong (2002) found no significant differences in the prevalence or seriousness of serious aggressive or less serious aggressive behaviour. Neither did Liao et al. (2004), Goldstein et al. (2007), or Lambert et al. (2007). As previously stated, only one RCT (Hogan et al., 2012), found group differences in reports for violent misconduct three and six months after program completion.

#### *Non-randomized quasi-experiments*

The results from the non-randomized quasi-experiments were very mixed. Studies such as Miller (1996), Prendergast et al. (2001), R. C. Serin et al. (2009), Evershed et al. (2003), C. Wilson et al. (2013), and Jotangia et al. (2015) all failed to

find significant differences in the violent behaviour of those who had been in experimental versus control groups. The only significant group difference in the two studies reported by Watt and Howells (1999) indicated that the experimental group (in Study 1) reported significantly higher behavioural reaction to provocation when compared to the control group.

Morrissey (1997) however, did find significant differences in the violent incidents and assaults of program and control group participants, as did Baro (1999). Walrath (2001) also found fewer violent confrontations in the program group, when they controlled for the number of violent confrontations prior to starting the program. Dietz et al. (2003) found group differences in the number of violent infractions, as did Lee and Gilligan (2005), Welsh et al. (2007), and Hoogsteder et al. (2014).

## **Discussion**

This systematic review aimed to produce an updated evaluation of the evidence base for the efficacy of programs to reduce institutional violence. In a previous review of programs to reduce prison misconduct, French and Gendreau (2006) speculate as to whether cognitive behavioural approaches will retain their dominance in prison programming with the strongest evidence base for their effectiveness in reducing violent antisocial behaviour. This review examined empirical studies published in the last 20 years and found that cognitive behavioural approaches were still the dominant approach, but were often used in conjunction with other methods, such as social learning. This review found mixed evidence of their effectiveness in reducing incidences of prison violence. Although most studies reported a lower prevalence of violent incidents in the program group, when

compared to the control group, their results often failed to reach conventional levels of statistical significance (Goldstein et al., 2007; Jotangia et al., 2015; Lambert et al., 2007; Liao et al., 2004; Miller, 1996; R. C. Serin et al., 2009; Watt & Howells, 1999; C. Wilson et al., 2013).

The cognitive behavioural approaches that produced significant differences between treatment and control groups built on previous work, such as Hogan et al. (2012), and included a more sophisticated multivariate model than previously used (see Lambert et al., 2007) that controlled for several correlates of institutional violence. The cognitive behavioural program evaluated by Baro (1999) had a staged model, so that only those who successfully completed Phase I of the program could progress to Phase II. This approach would ensure that only highly motivated participants would remain in the treatment group as disruptive and unwilling participants would effectively be screened out. Walrath (2001) also evaluated a staged model (a five-step program), suggesting that highly structured approaches which focus on participants' progress and achievement are ultimately quite effective in reducing prison violence. The cognitive behavioural program that was the subject of the Hoogsteder et al. (2014) study was rated as having the highest quality (it scored 21 out of a possible 40). It was one of the few programs to assess program implementation. This program also distinguished between the criminogenic and non-criminogenic needs of participants, strengthened natural protective factors, and specifically targeted criminogenic factors such as social networks and peer groups, which few other programs managed to do. This suggests that this program was fairly sophisticated in terms of its content and delivery.

Another more successful cognitive behavioural approach evaluated a program that not only attempted to reduce violent incidents, but also overhauled the

disciplinary system. Morrissey (1997) introduced a behavioural point level scheme that gave prison staff several more positive ways of dealing with violent incidents including behavioural contracts and intensive individual program sessions than the previous system of room confinement of up to 24 hours.

Indeed, one of the major findings of this updated review is the potential of therapeutic communities that target specific needs (such as substance misuse) to contribute significantly to the reduction of institutional violence. Of the five studies that were set in a TC, four produced statistically significant reductions in violence in the program group compared to the control group (Dietz et al., 2003; Lee & Gilligan, 2005; Maglinger, 2013; Welsh et al., 2007). The remaining study found reductions that were not statistically significant (Prendergast et al., 2001)

Almost without exception, the evaluation studies provided lengthy descriptions of the content and theory behind their program, but this review revealed that only five studies mentioned monitoring and analysing program implementation (Hoogsteder et al., 2014; Jotangia et al., 2015; Liao et al., 2004; R. C. Serin et al., 2009; C. Wilson et al., 2013), and only one of these was regarded as having high program integrity (Jotangia et al., 2015). French and Gendreau (2006) also reported low therapeutic integrity (or quality) in the majority of studies in their review. It seems that in the last decade few advances have been made in documenting the integrity of program delivery and this should be the focus of future empirical studies.

Secondly, four studies in our sample had female participants in them (Goldstein et al., 2007; Hoogsteder et al., 2014; Jotangia et al., 2015; Liao et al., 2004). Only one program (Goldstein et al., 2007) explicitly described how the program content was adjusted to make it gender appropriate. It seems to be the

case that delinquent girls need different types of interventions compared to boys (refs?). Given the more severe problematic background of girls in the juvenile justice system, it might be even more important to address multiple problems simultaneously. It is likely that gender-specific interventions are necessary, although evidence about the effectiveness of existing gender-specific interventions is still accumulating (Hipwell & Loeber, 2006; Turner, Norman, & Zunz, 1995; Zahn, Day, Mihalic, & Tichavsky, 2009), and should be the focus of future empirical work.

Currently, we seem to know a reasonable amount about which types of programs are quite effective and which types of programs have very limited evidence of effectiveness, or are ineffective or harmful. A promising route for future studies of violence prevention programs in prison would be to attempt to combine elements of those that are known to work (such therapeutic communities, and those as targeting specific criminogenic needs) with those approaches with limited or promising evidence for their effectiveness in reducing violence (such as group milieu therapies). Gilligan and Lee (2005) suggest the creation of 'anti-prisons', or 'centres for human development' based on developing strengths, stronger emphasis on 'healthy living', education and positive feedback. Certainly, the most promising programs seem to combine well implemented and structured interventions with carefully trained and selected staff and healthy, un-prison-like moral climates.

Table 1. Excluded Studies

Author/date	Reason for Exclusion and Comments
	<b>No Control Group (10)</b>
Belfrage, Fransson, and Strand (2004)	No control group.
Ashcroft (2015)	No control group; also only reports “proven adjudications”, “reported incidents of misconduct” and “recorded incidents of self-harm”
Friedmann, Melnick, Jiang, and Hamilton (2008)	No control group.
Messina, Braithwaite, Calhoun, and Kubiak (2016)	No control group.
Patrick (1998)	No control group.
Woo et al. (2016)	No control group.
Taylor, Novaco, and Brown (2016)	No control group.
N. J. Wilson and Tamatea (2013)	No control group. Violent misconducts reported on p. 502 in relation to follow up testing; otherwise, only “VRS” is used to assess violence - a measure that is part assessment of violence and part risk assessment.
Tew, Dixon, Harkins, and Bennett (2012)	No control group.
Novaco 2015	No control group.
	<b>No Separate Violence Measure (29)</b>
Cullen et al. (2012)	No violence outcome measure- only anger
Di Placido, Simon, Witte, Gu, and Wong (2006)	No specific violence outcome- violence part of “major” institutional offences but not separated out.
Koch et al. (2015)	Only measures of aggression (as an impulse), not violence.
Kubiak, Kim, Fedock, and Bybee (2015)	No measure of violence- anger expression is closest in this study.
D. L. L. Polaschek, Wilson, Townsend, and Daly (2005)	Recidivism data is outcome- community follow up.
Polaschek, Yesberg, Bell, and Dickson (2016)	Recidivism data for outcome.
Queralt, Caballero, Casals, Navarro, and Serra (1997)	Violence not measured separately- disciplinary breaches only- also, seems like a low quality study
Rees-Jones, Gudjonsson, and Young (2012)	No violence outcome measure.
Schippers, Marker, and De Fuentes-Merillas (2001)	Only aggression measured- “40-item self-report questionnaire measures both direct and indirect aggressions in two subscales”
Ralph C Serin, Gobeil, and Preston (2008)	Institutional misconducts and aggression measured but violence not reported separately. However, major misconducts discussed separately.
D. Shelton, Sampl, Kesten, Zhang, and Trestman (2009)	“Disciplinary tickets” reported but no specific offence reported.
Stewart, Gabora, Kropp, and Lee (2014)	No violence outcome- only risk factors and scenarios are used.
Tapp, Fellowes, Wallis, Blut, and Moore (2009)	No violence outcome- only the “clinical outcomes in routine evaluation”, “the psychological inventory of criminal thinking styles” and “social problem solving inventory” are used
Taylor, Novac, Gillmer, Robertson, and Thorne (2005)	No violence outcome- STAXI and Ward anger rating scales (WARS) used- WARS is a measure of patient behaviour over the previous seven days but not confined to violence and no specific incidents are noted.
Walters (1999)	Only “disciplinary reports” are reported as an outcome.

Yip et al. (2013)	Uses the “disruptive behaviour and social problems scale” (DBSP).
S. Young, Chick, and Gudjonsson (2010)	Also uses the DBSP scale (see Yip 2013)
Bensimon, Einat, and Gilboa (2015)	Uses STAXI measures- anger only, not aggression/violence.
Bohus et al. (2004)	Self-harm and STAXI reported but not aggression/violence.
Camp, Daggett, Kwon, and Klein-Saffran (2008)	p. 392- misconducts grouped as too few of one particular offence/type
Reisig (1998)	Main results reported as “serious disorder” and “less serious disorder”; analysis of constructs breaks down to assaults. Study is excluded due to the subjective data and study design.
J.M. Byrne and Hummer (2008)	Violence is reported separately but only for one site. There are nine sites in total. All nine sites have a different combination of culture change interventions.
Glowa-Kollisch et al. (2014)	Says in abstract that violence is reduced but violence is not measured separately.
Incorvaia and Kirby (1997)	Drug use is outcome.
Kinlock, O’Grady, and Hanlon (2003)	Major infractions not violence.
Langan and Pelissier (2001)	No violence outcome.
Robert D Morgan, Winterowd, and Fuqua (1999)	Only disciplinary reports used as an outcome
Deborah Shelton, Kesten, Zhang, and Trestman (2011)	No violence outcome. Risks scores
Trupin, Stewart, Beach, and Boesky (2002)	Behaviours turned into composite scores; (aggression + parasuicide + classroom disruption).
	<b>No Intervention or Program (5)</b>
Bierie (2012)	No intervention- comparison of prison conditions, although violence is used as an outcome measure.
Gonçalves, Dirkzwager, Martins, Gonçalves, and Van der Laan (2016)	Longitudinal study of infractions and correlates.
Innes (1997)	No program.
Peterson-Badali and Koegl (2002)	No program.
Ros, Van der Helm, Wissink, Stams, and Schaftenaar (2013)	No program.
	<b>Reviews (4)</b>
S. C. Wong et al. (2005)	Studies mentioned, but no data.
McMurrin (2013)	Review paper (book chapter).
Muntingh (2009)	No control group.
McGuire (2008)	Review.
	<b>Not Prison-Based (1)</b>
Baglivio, Jackowski, Grenwald, and Wolf (2014)	Not prison-based
	<b>Not a Psycho-Educational Program (12)</b>
Mela and Depiang (2016)	Clozapine study and community-based follow up.
Meyer et al. (2015)	Omega 3 correlational study, looking at relationship between Omega 3 levels and aggression



Zaalberg, Nijman, Bulten, Stroosma, and van der Staak (2010)	Supplements paper. Outcome measure is “aggressive and rule breaking behaviour”.
Byrne & Kelly (2006)	Prison culture change program.
D’Alessio, Flexon, and Stolzenberg (2013)	Measures conjugal visits and sexual violence.
Gesch, Hammond, Hampson, Eves, and Crowder (2002)	Vitamin supplement study, also measure of institutional infractions rather than specific acts of violence.
Hensley, Koscheski, and Tewksbury (2002)	Conjugal visits.
Lucas et al. (2014)	Not a program- condom dispensing machines.
Morris (2015)	Solitary confinement is treatment variable.
Wong & Gordon (2013)	A description of the programme- features a “synopsis of outcome evaluations of VRP”.
Chamberlain (2012)	Measures relationship between prisoner needs (i.e. substance use programmes) and misconducts, not the impact of program.
Shniderman and Solberg (2015)	Discussion of the use of dietary supplements and prescribed psychiatric medication to enable behaviour change in subjects.
	<b>Other (4)</b>
Kubiak, Fedock, Tillander, Kim, and Bybee (2014)	Feasibility study.
Johnson et al. (2016)	Study protocol.
Polaschek and Kilgour (2013)	Not an evaluation- description of programme and its history
Howells et al. (2002)	No data

**References<sup>5</sup>**

- Achenbach, T. M. (1991). *Young Adult Self Report Form*. Burlington, VT: University of Vermont, Department of Psychiatry.
- Andrews, D. A., Zinger, I., Hoge, R. D., Bonta, J., Gendreau, P., & Cullen, F. T. (1990). Does correctional treatment work? A clinically relevant and psychologically informed meta-analysis. *Criminology*, *28*(3), 369-404. doi:10.1111/j.1745-9125.1990.tb01330.x
- \*Armstrong, T. A. (2002). The effect of environment on the behavior of youthful offenders: A randomized experiment. *Journal of Criminal Justice*, *30*(1), 19-28.
- Ashcroft, S. (2015). *Assessing the impact of an intervention that aims to reduce risk with women offenders: An empirical study of the Choices, Actions, Relationships and Emotions (CARE) programme*. MSt Thesis, Institute of Criminology, University of Cambridge.
- Auty, K. M., Cope, A., & Liebling, A. (2015). A Systematic Review and Meta-Analysis of Yoga and Mindfulness Meditation in Prison: Effects on Psychological Well-Being and Behavioural Functioning. *International Journal of Offender Therapy and Comparative Criminology*. doi:10.1177/0306624x15602514
- Baglivio, M. T., Jackowski, K., Grenwald, M. A., & Wolf, K. T. (2014). Comparison of Multisystemic Therapy and Functional Family Therapy effectiveness: A Multiyear Statewide Propensity Score Matching Analysis Of Juvenile Offenders. *Criminal Justice and Behavior*, *41*(9), 1033-1056. doi:10.1177/0093854814543272
- \*Baro, A. L. (1999). Effects of a cognitive restructuring program on inmate institutional behavior. *Criminal Justice and Behavior*, *26*(4), 466-484.

---

<sup>5</sup> References marked with an asterisk are included in this review.

- Belfrage, H., Fransson, G., & Strand, S. (2004). Management of violent behaviour in the correctional system using qualified risk assessments. *Legal and Criminological Psychology, 9*(1), 11-22. doi:10.1348/135532504322776825
- Bensimon, M., Einat, T., & Gilboa, A. (2015). The impact of relaxing music on prisoners' levels of anxiety and anger. *International Journal of Offender Therapy and Comparative Criminology, 59*(4), 406-423. doi:10.1177/0306624x13511587
- Bierie, D. M. (2012). Is Tougher Better? The Impact of Physical Prison Conditions on Inmate Violence. *International Journal of Offender Therapy and Comparative Criminology, 56*(3), 338-355. doi:10.1177/0306624x11405157
- Blagden, N., Winder, B., & Hames, C. (2016). "They Treat Us Like Human Beings" — Experiencing a Therapeutic Sex Offenders Prison: Impact on Prisoners and Staff and Implications for Treatment. *International Journal of Offender Therapy and Comparative Criminology, 60*(4), 371-396. doi:10.1177/0306624x14553227
- Bohus, M., Haaf, B., Simms, T., Limberger, M. F., Schmahl, C., Unckel, C., . . . Linehan, M. M. (2004). Effectiveness of inpatient dialectical behavioral therapy for borderline personality disorder: a controlled trial. *Behaviour Research and Therapy, 42*(5), 487-499. doi:10.1016/s0005-7967(03)00174-8
- Borum, R., Bartel, P., & Forth, A. (2002). *Manual for the Structured Assessment of Violence Risk in Youth (SAVRY)*. Tampa, FL: University of South Florida.
- Bottoms, A. E. (1999). Interpersonal Violence and Social Order in Prisons. *Crime and Justice, 26*, 205-281. Retrieved from <http://www.jstor.org/stable/1147687>
- Buss, A. H., & Warren, W. L. (2000). *The Aggression Questionnaire* Los Angeles: Western Psychological Services.

- Byrne, J. M., & Hummer, D. C. (2008). Examining the Impact of Institutional Culture on Prison Violence and Disorder: An Evidence-Based Review. In J. M. Byrne, F. S. Taxman, & D. C. Hummer (Eds.), *The Culture of Prison Violence* (pp. 40-67). Boston, MA: Pearson/Allyn and Bacon.
- Byrne, J. M., & Kelly, L. M. (2006). *Evaluation of the Implementation and Impact of the Massachusetts Intensive Probation Supervision Project, 1984-1985*: Inter-university Consortium for Political and Social Research (ICPSR).
- Camp, S. D., Daggett, D. M., Kwon, O., & Klein-Saffran, J. (2008). The effect of faith program participation on prison misconduct: The Life Connections Program. *Journal of Criminal Justice*, 36(5), 389-395.  
doi:<http://dx.doi.org/10.1016/j.jcrimjus.2008.07.004>
- Chamberlain, A. W. (2012). Offender Rehabilitation: Examining Changes in Inmate Treatment Characteristics, Program Participation, and Institutional Behavior. *Justice Quarterly*, 29(2), 183-228. doi:10.1080/07418825.2010.549833
- Clark, V. A., & Duwe, G. (2015). An Outcome Evaluation of a Prison-Based Life-Skills Program: The Power of People. *International Journal of Offender Therapy and Comparative Criminology*, 59(4), 384-405. doi:10.1177/0306624x13509444
- Crick, N. R. (1995). Relational aggression: The role of intent attributions, feelings of distress, and provocation type. *Development and Psychopathology*, 7(02), 313-322.  
doi:doi:10.1017/S0954579400006520
- Crick, N. R., & Grotpeter, J. K. (1995). Relational Aggression, Gender, and Social-Psychological Adjustment. *Child Development*, 66(3), 710-722. doi:10.2307/1131945
- Cullen, A. E., Clarke, A. Y., Kuipers, E., Hodgins, S., Dean, K., & Fahy, T. (2012). A Multisite Randomized Trial of a Cognitive Skills Program for Male Mentally Disordered

- Offenders: Violence and Antisocial Behavior Outcomes. *Journal of Consulting and Clinical Psychology*, 80(6), 1114-1120. doi:10.1037/a0030291
- D'Alessio, S. J., Flexon, J., & Stolzenberg, L. (2013). The effect of conjugal visitation on sexual violence in prison. *American Journal of Criminal Justice*, 38(1), 13-26.
- Davies, W. (1982). Violence in Prisons. In P. Feldman (Ed.), *Developments in the Study of Criminal Behaviour*, Vol. 2. Chichester: Wiley.
- Di Placido, C., Simon, T. L., Witte, T. D., Gu, D., & Wong, S. C. (2006). Treatment of gang members can reduce recidivism and institutional misconduct. *Law and Human Behavior*, 30(1), 93.
- \*Dietz, E. F., O'Connell, D. J., & Scarpitti, F. R. (2003). Therapeutic communities and prison management: An examination of the effects of operating an in-prison therapeutic community on levels of institutional disorder. *International Journal of Offender Therapy and Comparative Criminology*, 47(2), 210-223.
- Duwe, G., & King, M. (2013). Can faith-based correctional programs work? An outcome evaluation of the innerchange freedom initiative in Minnesota. *International Journal of Offender Therapy and Comparative Criminology*, 57(7), 813-841.  
doi:10.1177/0306624x12439397
- \*Evershed, S., Tennant, A., Boomer, D., Rees, A., Barkham, M., & Watson, A. (2003). Practice-based outcomes of dialectical behaviour therapy (DBT) targeting anger and violence, with male forensic patients: a pragmatic and non-contemporaneous comparison. *Criminal Behaviour and Mental Health*, 13(3), 198-213.  
doi:10.1002/cbm.542
- Farrington, D. P., Gottfredson, D. C., Sherman, L. W., & Welsh, B. C. (2002). The Maryland scientific methods scale. In L. W. Sherman, D. P. Farrington, B. C. Welsh, & D. L.

- MacKenzie (Eds.), *Evidence-Based Crime Prevention*. (pp. 13-21). New York: Routledge.
- French, S. A., & Gendreau, P. (2006). Reducing Prison Misconducts: What Works! *Criminal Justice and Behavior*, *33*(2), 185-218. doi:10.1177/0093854805284406
- Friedmann, P. D., Melnick, G., Jiang, L., & Hamilton, Z. (2008). Violent and disruptive behavior among drug-involved prisoners: Relationship with psychiatric symptoms. *Behavioral Sciences & the Law*, *26*(4), 389-401. doi:10.1002/bsl.824
- Gadon, L., Johnstone, L., & Cooke, D. (2006a). Situational variables and institutional violence: a systematic review of the literature. *Clin Psychol Rev*, *26*(5), 515-534. doi:10.1016/j.cpr.2006.02.002
- Gadon, L., Johnstone, L., & Cooke, D. (2006b). Situational variables and institutional violence: a systematic review of the literature. *Clin Psychol Rev*, *26*(5), 515-534. doi:10.1016/j.cpr.2006.02.002
- Gendreau, P., Goggin, C. E., & Law, M. A. (1997). Predicting Prison Misconducts. *Criminal Justice and Behavior*, *24*(4), 414-431. doi:10.1177/0093854897024004002
- Gesch, C. B., Hammond, S. M., Hampson, S. E., Eves, A., & Crowder, M. J. (2002). Influence of supplementary vitamins, minerals and essential fatty acids on the antisocial behaviour of young adult prisoners - Randomised, placebo-controlled trial. *British Journal of Psychiatry*, *181*, 22-28. doi:10.1192/bjp.181.1.22
- Gilligan, J., & Lee, B. (2005). The Resolve to Stop the Violence Project: transforming an in-house culture of violence through a jail-based programme. *Journal of Public Health*, *27*(2), 149-155. doi:10.1093/pubmed/fdi018
- Glowa-Kollisch, S., Lim, S., Summers, C., Cohen, L., Selling, D., & Venters, H. (2014). Beyond the Bridge: Evaluating a Novel Mental Health Program in the New York City Jail

System. *American Journal of Public Health*, 104(11), 2212-2218.

doi:10.2105/ajph.2014.302126

\*Goldstein, N. E. S., Dovidio, A., Kalbeitzner, R., Weil, J., & Strachan, M. (2007). Anger management for female juvenile offenders: Results of a pilot study. *Journal of Forensic Psychology Practice*, 7(2), 1-28. doi:10.1300/J158v07n02\_01

Gonçalves, L. C., Dirkzwager, A. J. E., Martins, C., Gonçalves, R. A., & Van der Laan, P. (2016). Institutional Infractions Among Young Prisoners: A Longitudinal Study. *The Prison Journal*, 96(3), 462-484. doi:10.1177/0032885516635777

Hensley, C., Koscheski, M., & Tewksbury, R. (2002). Does participation in conjugal visitations reduce prison violence in Mississippi? An exploratory study. *Criminal Justice Review*, 27(1), 52-65.

Higgins, J. P. T., & Green, S. (2011). *Cochrane handbook for systematic reviews of interventions*. Hoboken, NJ: John Wiley & Sons and The Cochrane Collaboration.

Hill, G. (1985). Predicting recidivism using institutional measures. In D. P. Farrington & R. Tarling (Eds.), *Prediction in criminology* (pp. 96-118). Albany: State University of New York Press.

Hipwell, A. E., & Loeber, R. (2006). Do we know which interventions are effective for disruptive and delinquent girls? *Clinical Child and Family Psychology Review*, 9(3-4), 221-255. doi:10.1007/s10567-006-0012-2

HMIP. (2016). *Life in prison: Peer support A findings paper by HM Inspectorate of Prisons*. London, UK: HMIP.

\*Hogan, N. L., Lambert, E. G., & Barton-Bellessa, S. M. (2012). Evaluation of CHANGE, an Involuntary Cognitive Program for High-Risk Inmates. *Journal of Offender Rehabilitation*, 51(6), 370-388. doi:10.1080/10509674.2012.664254

- Homant, R. J., & Witkowski, M. J. (2003). Prison Deviance as a Predictor of General Deviance: Some Correlational Evidence From Project GANGMILL *Journal of Gang Research, 10*(2), 65-75.
- \*Hoogsteder, L. M., Kuijpers, N., Stams, G. J. J. M., van Horn, J. E., Hendriks, J., & Wissink, I. B. (2014). Study on the Effectiveness of Responsive Aggression Regulation Therapy (Re-ART). *International Journal of Forensic Mental Health, 13*(1), 25-35.  
doi:10.1080/14999013.2014.893711
- Howells, K., Day, A., Bubner, S., Jauncey, S., Williamson, P., Parker, A., & Heseltine, K. (2002). Anger Management and Violence Prevention: Improving Effectiveness. *Australian Institute of Criminology. Trends and Issues in Crime and Criminal Justice, Criminology Research Council.*
- Incorvaia, D., & Kirby, N. (1997). A Formative Evaluation of a Drug-Free Unit in a Correctional Services Setting. *International Journal of Offender Therapy and Comparative Criminology, 41*(3), 231-249. doi:10.1177/0306624x97413003
- Innes, C. A. (1997). Patterns of Misconduct in the Federal Prison System. *Criminal Justice Review, 22*(2), 157-174. doi:10.1177/073401689702200203
- Johnsen, T. J., & Friberg, O. (2015). The effects of cognitive behavioral therapy as an anti-depressive treatment is falling: A meta-analysis. *Psychological Bulletin, 141*(4), 747-768. doi:10.1037/bul0000015
- Johnson, J. E., Miller, T. R., Stout, R. L., Zlotnick, C., Cerbo, L. A., Andrade, J. T., & Wiltsey-Stirman, S. (2016). Study protocol: Hybrid Type I cost-effectiveness and implementation study of interpersonal psychotherapy (IPT) for men and women prisoners with major depression. *Contemporary clinical trials, 47*, 266-274.  
doi:10.1016/j.cct.2016.01.013



- \*Jotangia, A., Rees-Jones, A., Gudjonsson, G. H., & Young, S. (2015). A Multi-Site Controlled Trial of the R&R2MHP Cognitive Skills Program for Mentally Disordered Female Offenders. *International Journal of Offender Therapy and Comparative Criminology*, 59(5), 539-559. doi:10.1177/0306624x13512092
- Kay, S. R., Wolkenfeld, F., & Murrill, L. M. (1988). Profiles of aggression among psychiatric patients. I. Nature and prevalence. *The Journal of Nervous and Mental Disease*, 176(9), 539-546.
- Keyes, D. (1996). *Preventing prison misconduct behavior: A quantitative review of the literature*. Unpublished honor's thesis: University of New Brunswick at Saint John, Canada.
- Kinlock, T. W., O'Grady, K. E., & Hanlon, T. E. (2003). The Effects of Drug Treatment on Institutional Behavior. *The Prison Journal*, 83(3), 257-276.  
doi:10.1177/0032885503256325
- Koch, S. C., Ostermann, T., Steinhage, A., Kende, P., Haller, K., & Chyle, F. (2015). Breaking barriers: Evaluating an arts-based emotion regulation training in prison. *Arts in Psychotherapy*, 42, 41-49. doi:10.1016/j.aip.2014.10.008
- Kubiak, S. P., Fedock, G., Tillander, E., Kim, W. J., & Bybee, D. (2014). Assessing the feasibility and fidelity of an intervention for women with violent offenses. *Evaluation and program planning*, 42, 1-10. doi:10.1016/j.evalprogplan.2013.08.001
- Kubiak, S. P., Kim, W. J., Fedock, G., & Bybee, D. (2015). Testing a Violence-Prevention Intervention for Incarcerated Women Using a Randomized Control Trial. *Research on Social Work Practice*, 25(3), 334-348. doi:10.1177/1049731514534300

Lab, S. P., & Whitehead, J. T. (1990). From "nothing works" to "the appropriate works": The latest stop on the search for the secular grail. *Criminology*, 28(3), 405-418.

doi:10.1111/j.1745-9125.1990.tb01331.x

\*Lambert, E. G., Hogan, N. L., Barton, S., & Stevenson, M. T. (2007). An Evaluation of CHANGE, a Pilot Prison Cognitive Treatment Program. *Journal of Articles in Support of the Null Hypothesis*, 5(1), 1-18.

Langan, N. P., & Pelissier, B. M. M. (2001). The Effect of Drug Treatment on Inmate Misconduct in Federal Prisons. *Journal of Offender Rehabilitation*, 34(2), 21-30.

doi:10.1300/J076v34n02\_02

Lanza-Kaduce, L., Parker, K. F., & Thomas, C. W. (1999). A Comparative Recidivism Analysis of Releasees from Private and Public Prisons. *Crime & Delinquency*, 45(1), 28-47.

doi:10.1177/0011128799045001002

\*Lee, B., & Gilligan, J. (2005). The Resolve to Stop the Violence Project: transforming an in-house culture of violence through a jail-based programme. *Journal of Public Health*, 27(2), 149-155. doi:10.1093/pubmed/fdi018

\*Liau, A. K., Shively, R., Horn, M., Landau, J., Barriga, A., & Gibbs, J. C. (2004). Effects of psychoeducation for offenders in a community correctional facility. *Journal of Community Psychology*, 32(5), 543-558. doi:10.1002/jcop.20018

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P. A., . . .

Moher, D. (2009). The PRISMA Statement for Reporting Systematic Reviews and Meta-Analyses of Studies That Evaluate Health Care Interventions: Explanation and Elaboration. *PLoS Med*, 6(7), e1000100. doi:10.1371/journal.pmed.1000100

Lodewijks, H. P. B., Doreleijers, T. A. H. b., Corine , de Ruiter, C., & Wit de-Grouls, H. (2006).

*SAVRY: Manual of structured risk assessment for violent adolescents*. Assen, The Netherlands: Van Gorcum.

Lösel, F. (1995). Increasing consensus in the evaluation of offender rehabilitation? lessons from recent research syntheses. *Psychology, Crime & Law*, 2(1), 19-39.

doi:10.1080/10683169508409762

Lucas, K. D., Miller, J. L., Eckert, V., Horne, R. L., Samuel, M. C., & Mohle-Boetani, J. C. (2014).

Risk, Feasibility, and Cost Evaluation of a Prisoner Condom Access Pilot Program in One California State Prison. *Journal of Correctional Health Care*, 20(3), 184-194.

doi:10.1177/1078345814530869

\*Maglinger, L. (2013). Assessing the Efficacy of a Modified Therapeutic Community on the

Reduction of Institutional Write-ups in a Medium Security Prison. *US-China*

*Education Review B*, July 2013, 3(7), 538-547.

McGuire, J. (2008). A review of effective interventions for reducing aggression and violence.

*Philosophical Transactions of the Royal Society of London B: Biological Sciences*,

363(1503), 2577-2597.

McMurrin, M. (2013). Treatments for Offenders in Prison and the Community. In M.

McMurrin (Ed.), *Alcohol-Related Violence: Prevention and Treatment, First Edition*.

(pp. 205-225): John Wiley & Sons, Ltd.

Mela, M., & Depiang, G. (2016). Clozapine's Effect on Recidivism Among Offenders with

Mental Disorders. *Journal of the American Academy of Psychiatry and the Law*, 44(1),

82-90. Retrieved from <Go to ISI>://WOS:000372070100011

Messina, N. P., Braithwaite, J., Calhoun, S., & Kubiak, S. (2016). Examination of a Violence

Prevention Program for Female Offenders *Violence and Gender*(In press).

Meyer, B. J., Byrne, M. K., Collier, C., Parletta, N., Crawford, D., Winberg, P. C., . . . Grant, L.

(2015). Baseline Omega-3 Index Correlates with Aggressive and Attention Deficit Disorder Behaviours in Adult Prisoners. *Plos One*, 10(3).

doi:10.1371/journal.pone.0120220

\*Miller, R. J. (1996). Effects of a prison-based program for reducing violence. *Psychiatry, Psychology and Law*, 3(2), 153-162. doi:10.1080/13218719609524885

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & Group, P. (2009). Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The PRISMA Statement. *PLoS Med*, 6(7), e1000097. doi:10.1371/journal.pmed.1000097

Morgan, R. D., & Flora, D. B. (2002). Group psychotherapy with incarcerated offenders: A research synthesis. *Group Dynamics: Theory, Research, and Practice*, 6(3), 203-218. doi:10.1037/1089-2699.6.3.203

Morgan, R. D., Winterowd, C. L., & Fuqua, D. R. (1999). The efficacy of an integrated theoretical approach to group psychotherapy for male inmates. *Journal of Contemporary Psychotherapy*, 29(3), 203-222.

Morris, R. G. (2015). Exploring the effect of exposure to short-term solitary confinement among violent prison inmates. *Journal of Quantitative Criminology*, 1-22.

\*Morrissey, C. (1997). A multimodal approach to controlling inpatient assaultiveness among incarcerated juveniles. *Journal of Offender Rehabilitation*, 25(1-2), 31-42.

Muntingh, L. (2009). *Reducing prison violence: implications from the literature for South Africa*, CSPRI Research Report No. 17. Civil Society Prison Reform Initiative, : University of the Western Cape, South Africa.

- Novaco, R. W. (1994). Anger as a 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: Chicago University Press.
- Patrick, S. (1998). Differences in inmate-inmate and inmate-staff altercations: Examples from a medium security prison. *The Social Science Journal*, 35(2), 253-263.  
doi:[http://dx.doi.org/10.1016/S0362-3319\(98\)90044-1](http://dx.doi.org/10.1016/S0362-3319(98)90044-1)
- Peterson-Badali, M., & Koegl, C. J. (2002). Juveniles' experiences of incarceration: The role of correctional staff in peer violence. *Journal of Criminal Justice*, 30(1), 41-49.  
doi:[http://dx.doi.org/10.1016/S0047-2352\(01\)00121-0](http://dx.doi.org/10.1016/S0047-2352(01)00121-0)
- Polaschek, D. L. L., & Kilgour, T. G. (2013). New Zealand's special treatment units: the development and implementation of intensive treatment for high-risk male prisoners. *Psychology Crime & Law*, 19(5-6), 511-526.  
doi:10.1080/1068316x.2013.759004
- Polaschek, D. L. L., Wilson, N. J., Townsend, M. R., & Daly, L. R. (2005). Cognitive-behavioral rehabilitation for high-risk violent offenders - An outcome evaluation of the violence prevention unit. *Journal of interpersonal violence*, 20(12), 1611-1627.  
doi:10.1177/0886260505280507
- Polaschek, L. L., Yesberg, J. A., Bell, R. K., Casey, A. R., & Dickson, S. R. (2016). Intensive psychological treatment of high-risk violent offenders: Outcomes and pre-release mechanisms. *Psychology Crime & Law*, 22(4), 344-365.  
doi:10.1080/1068316x.2015.1109088
- \*Prendergast, M., Farabee, D., & Cartier, J. (2001). The impact of in-prison therapeutic community programs on prison management. *Journal of Offender Rehabilitation*, 32(3), 63-78.

- Queralt, J. P., Caballero, J., Casals, A., Navarro, J. C., & Serra, S. (1997). The treatment of aggressive prisoners: A closed regime programme. *Advances in psychology and law: International contributions*, 442-451.
- Rees-Jones, A., Gudjonsson, G., & Young, S. (2012). A multi-site controlled trial of a cognitive skills program for mentally disordered offenders. *BMC psychiatry*, 12.  
doi:10.1186/1471-244x-12-44
- Reisig, M. D. (1998). Rates of Disorder in Higher-Custody State Prisons: A Comparative Analysis of Managerial Practices. *Crime & Delinquency*, 44(2), 229-244.  
doi:10.1177/0011128798044002003
- Ros, N., Van der Helm, P., Wissink, I., Stams, G.-J., & Schaftenaar, P. (2013). Institutional climate and aggression in a secure psychiatric setting. *The Journal of Forensic Psychiatry & Psychology*, 24(6), 713-727. doi:10.1080/14789949.2013.848460
- Schippers, G. M., Marker, N., & De Fuentes-Merillas, L. (2001). Social skills training, prosocial behavior, and aggressiveness in adult incarcerated offenders. *International Journal of Offender Therapy and Comparative Criminology*, 45(2), 244-251.  
doi:10.1177/0306624x01452009
- Schnur, A. C. (1949). Prison conduct and recidivism. *Journal of Criminal Law, Criminology and Police Science*, 40, 36-42.
- Sechrest, L. (2013). *The Rehabilitation of Criminal Offenders; Problems and Prospects*: General Books LLC.
- \*Serin, R. C., Gobeil, R., & Preston, D. L. (2009). Evaluation of the Persistently Violent Offender Treatment Program. *International Journal of Offender Therapy and Comparative Criminology*, 53(1), 57-73. doi:10.1177/0306624x07313985

- Shelton, D., Kesten, K., Zhang, W., & Trestman, R. (2011). Impact of a Dialectic Behavior Therapy—Corrections Modified (DBT-CM) Upon Behaviorally Challenged Incarcerated Male Adolescents. *Journal of Child and Adolescent Psychiatric Nursing*, 24(2), 105-113. doi:10.1111/j.1744-6171.2011.00275.x
- Shelton, D., Sampl, S., Kesten, K. L., Zhang, W. L., & Trestman, R. L. (2009). Treatment of Impulsive Aggression in Correctional Settings. *Behavioral Sciences & the Law*, 27(5), 787-800. doi:10.1002/bsl.889
- Sherman, L. W., Gottfredson, D. C., MacKenzie, D. L., Eck, J., Reuter, P., & Bushway, S. D. (1998). *Preventing Crime: What Works, What Doesn't, What's Promising. (Research Brief)*. Washington, DC: US National Institute of Justice.
- Shniderman, A. B., & Solberg, L. B. (2015). Cosmetic Psychopharmacology for Prisoners: Reducing Crime and Recidivism Through Cognitive Intervention. *Neuroethics*, 8(3), 315-326. doi:10.1007/s12152-015-9242-7
- Smyth, G. (2014). Coaching desistance? Life coaching for offenders in a 'who works' environment. *Probation Journal*, 61(4), 365-380. doi:10.1177/0264550514548255
- Spielberger, C. D. (1991). *Revised research edition manual for the State-Trait Anger Expression Inventory* Florida: Psychological Assessment Resources.
- Stewart, L. A., Gabora, N., Kropp, P. R., & Lee, Z. (2014). Effectiveness of Risk-Needs-Responsivity-Based Family Violence Programs with Male Offenders. *Journal of Family Violence*, 29(2), 151-164. doi:10.1007/s10896-013-9575-0
- Tapp, J., Fellowes, E., Wallis, N., Blud, L., & Moore, E. (2009). An evaluation of the Enhanced Thinking Skills (ETS) programme with mentally disordered offenders in a high security hospital. *Legal and Criminological Psychology*, 14(2), 201-212. doi:10.1348/135532508x336178

- Taylor, J. L., Novac, R. W., Gillmer, B. T., Robertson, A., & Thorne, I. (2005). Individual cognitive-behavioural anger treatment for people with mild-borderline intellectual disabilities and histories of aggression: A controlled trial. *British Journal of Clinical Psychology, 44*, 367-382. doi:10.1348/014466505x29990
- Taylor, J. L., Novaco, R. W., & Brown, T. (2016). Reductions in aggression and violence following cognitive behavioural anger treatment for detained patients with intellectual disabilities. *Journal of Intellectual Disability Research, 60*(2), 126-133. doi:10.1111/jir.12220
- Tew, J., Dixon, L., Harkins, L., & Bennett, A. (2012). Investigating changes in anger and aggression in offenders with high levels of psychopathic traits attending the Chromis violence reduction programme. *Crim Behav Ment Health, 22*(3), 191-201. doi:10.1002/cbm.1832
- Trupin, E. W., Stewart, D. G., Beach, B., & Boesky, L. (2002). Effectiveness of a Dialectical Behaviour Therapy Program for Incarcerated Female Juvenile Offenders. *Child and Adolescent Mental Health, 7*(3), 121-127. doi:10.1111/1475-3588.00022
- Turner, S., Norman, E., & Zunz, S. (1995). Enhancing resiliency in girls and boys: A case for gender specific adolescent prevention programming. *Journal of Primary Prevention, 16*(1), 25-38. doi:10.1007/BF02407231
- Van Voorhis, P., & Brown, K. (2005). *Evaluability Assessment: A tool for program development in corrections, Monograph Prepared for: National Institute of Corrections.*
- \*Walrath, C. (2001). Evaluation of an Inmate-Run Alternatives to Violence Project The Impact of Inmate-to-Inmate Intervention. *Journal of interpersonal violence, 16*(7), 697-711.



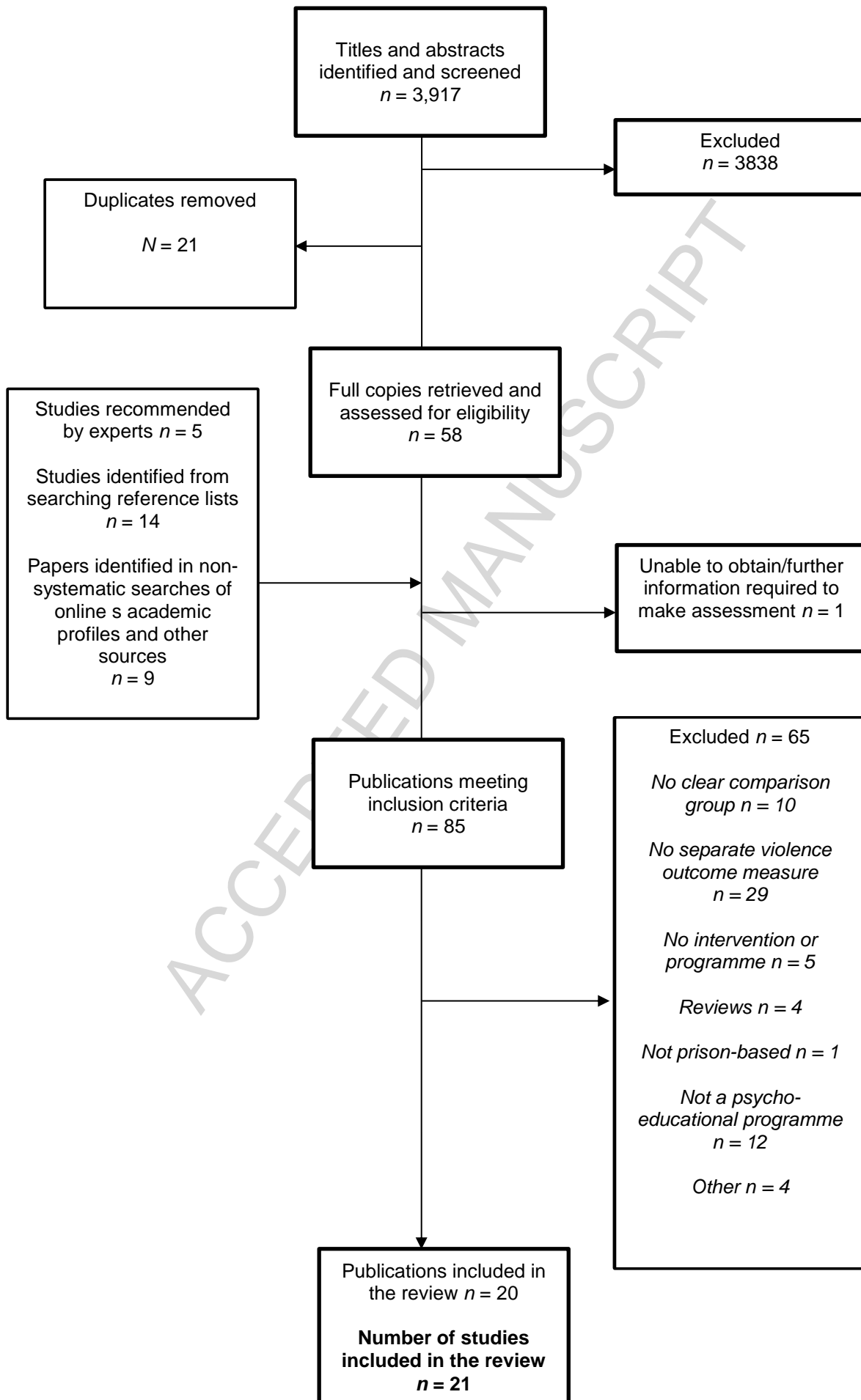
- Walters, G. D. (1999). Short-term outcome of inmates participating in the lifestyle change program. *Criminal Justice and Behavior*, 26(3), 322-337.
- \*Watt, B. D., & Howells, K. (1999). Skills training for aggression control: Evaluation of an anger management programme for violent offenders. *Legal and Criminological Psychology*, 4(2), 285-300.
- \*Welsh, McGrain, P., Salamatin, N., & Zajac, G. (2007). Effects of Prison Drug Treatment On Inmate Misconduct: A Repeated Measures Analysis. *Criminal Justice and Behavior*, 34(5), 600-615. doi:10.1177/0093854806296897
- Welsh, B. C., & Farrington, D. P. (2001). Toward an Evidence-Based Approach to Preventing Crime. *The Annals of the American Academy of Political and Social Science*, 578, 158-173. Retrieved from <http://www.jstor.org/stable/1049873>
- Werner, N. E., & Crick, N. R. (1999). Relational aggression and social-psychological adjustment in a college sample. *Journal of Abnormal Psychology*, 108(4), 615-623.
- Wilson, C., Gandolfi, S., Dudley, A., Thomas, B., Tapp, J., & Moore, E. (2013). Evaluation of anger management groups in a high-security hospital. *Criminal Behaviour and Mental Health*, 23(5), 356-371. doi:10.1002/cbm.1873
- \*Wilson, N. J., & Tamatea, A. (2013). Challenging the 'urban myth' of psychopathy untreatability: the High-Risk Personality Programme. *Psychology Crime & Law*, 19(5-6), 493-510. doi:10.1080/1068316x.2013.758994
- Wong, S. C., Veen, S. V., Leis, T. A., Parrish, H., Gu, D., Liber, E. U., & Middleton, H. L. (2005). Reintegrating seriously violent and personality-disordered offenders from a supermaximum security institution into the general offender population. *International Journal of Offender Therapy and Comparative Criminology*, 49(4), 362-375. doi:10.1177/0306624x05274501

- Wong, S. C. P., & Gordon, A. (2013). The Violence Reduction Programme: a treatment programme for violence-prone forensic clients. *Psychology Crime & Law*, *19*(5-6), 461-475. doi:10.1080/1068316x.2013.758981
- Woo, Y., Stohr, M. K., Hemmens, C., Lutze, F., Hamilton, Z., & Yoon, O.-K. (2016). An empirical test of the social support paradigm on male inmate society. *International Journal of Comparative and Applied Criminal Justice*, *40*(2), 145-169. doi:10.1080/01924036.2015.1089518
- Yip, V. C.-Y., Gudjonsson, G. H., Perkins, D., Doidge, A., Hopkin, G., & Young, S. (2013). A non-randomised controlled trial of the R&R2MHP cognitive skills program in high risk male offenders with severe mental illness. *BMC psychiatry*, *13*, 267-267. doi:10.1186/1471-244x-13-267
- Young, S., Chick, K., & Gudjonsson, G. (2010). A preliminary evaluation of reasoning and rehabilitation 2 in mentally disordered offenders (RR2M) across two secure forensic settings in the United Kingdom. *Journal of Forensic Psychiatry & Psychology*, *21*(3), 336-349. doi:10.1080/14789940903513203
- Young, S., Gudjonsson, G., Ball, S., & Lam, J. (2003). Attention Deficit Hyperactivity Disorder (ADHD) in personality disordered offenders and the association with disruptive behavioural problems. *The Journal of Forensic Psychiatry & Psychology*, *14*(3), 491-505. doi:10.1080/14789940310001615461
- Zaalberg, A., Nijman, H., Bulten, E., Stroosma, L., & van der Staak, C. (2010). Effects of Nutritional Supplements on Aggression, Rule-Breaking, and Psychopathology Among Young Adult Prisoners. *Aggressive Behavior*, *36*(2), 117-126. doi:10.1002/ab.20335

Zahn, M. A., Day, J. C., Mihalic, S. F., & Tichavsky, L. (2009). Determining What Works for Girls in the Juvenile Justice System: A Summary of Evaluation Evidence. *Crime & Delinquency*, 55(2), 266-293. doi:10.1177/001128708330649

Zamble, E., & Porporino, F. J. (1988). *Coping, Behavior, and Adaptation in Prison Inmates*: Springer-Verlag.

ACCEPTED MANUSCRIPT

**Figure 1.** Flow chart of study selection process

**Table 2** Characteristics and results of included studies

Citation	Participants and setting	Program	Outcomes and measures	Follow-up period	Results and effect sizes (Cohen's <i>d</i> )
<b>Randomised Controlled Trials (Maryland Scientific Methods Scale=5)</b>					
Armstrong (2002)	<i>Participants:</i> inmates from a county jail (N=256). <i>Sex:</i> males. <i>Age:</i> M=20 years (range 15-22). <i>Setting:</i> Youthful Offender Unit, county jail, Maryland, USA.	<i>Moral Reconation Therapy (n=129), TAU (n=127).</i>	<i>Serious aggressive violations. Less serious aggressive violations.</i> Criminal justice information system data and written records in inmate files.	Immediately post-intervention.	No significant differences between experiment and control groups in frequency or prevalence of serious aggressive ( $\beta=-0.4966$ ; $p=0.1299$ ; $d=-0.126$ ) and ( $\beta=-0.1664$ ; $p=0.4800$ ; $d=-0.078$ ) or less serious aggressive violations ( $\beta=-0.2366$ ; $p=0.4562$ ; $d=-0.019$ ) or ( $\beta=-0.2479$ ; $p=0.2934$ ; $d=-0.108$ ) controlling for: age, ethnicity, time incarcerated, prior arrests for violence, property, drugs or other offences.
Liau et al. (2004)	<i>Participants:</i> resident felony offenders (N=276), without convictions for sexual offences, arson or violence (<3 years). <i>Sex:</i> 71% male, 29% female. <i>Age:</i> M=29.9 years (range 18-61). <i>Setting:</i> Alvis House, a community corrections facility providing halfway housing and non-residential programs, Midwest, USA.	The psycho educational component of the EQUIP program (n=144), comparison (n=132).	<i>Misconduct – major, severe, serious, and minor.</i> Incident reports filed by staff. <i>Externalising problems.</i> Young Adult Self-Report Form (YASR) - Problem scales.	Immediately post-program.	Participants in the EQUIP psychoeducation group reported significantly fewer number of serious violations compared to the control group $F(1,275)=4.25$ , $p<0.05$ , $\eta=0.015$ , $d=0.2484$ . There were not any significant differences in the major, severe, and minor violation categories. For all participants, there were significant reductions in self-reported aggression scores $F(1,202)=7.59$ , $p<0.01$ , $\eta=0.036$ , $d=0.3320$ . However, reductions did not differ based on group (time, group, and gender).
Goldstein et al. (2007)	<i>Participants:</i> inmates in a residential post-adjudication facility (N=5). <i>Sex:</i> females. <i>Age:</i> M=15.8 years (range 14-18). <i>Setting:</i> juvenile justice facility, USA.	Anger Management for Female Juvenile Offenders (AMFJO) (n=3), TAU control (n=2).	<i>Physical aggression. Verbal aggression. Anger. Hostility. Anger total.</i> The Aggression Questionnaire	Immediately post-intervention.	A mixed model, repeated measures ANOVA was conducted to examine changes in levels of anger and aggression between pre- and post-test for the treatment and control conditions. With respect to anger,

			<p>(AQ).  <i>Verbal aggression.</i>  <i>Indirect (Relational) aggression.</i>  Peer Nomination Measure for Relational and Physical Aggression.</p>	<p>girls in the treatment condition improved from pre- to post-treatment, and girls' anger in the control condition remained the same, yielding a large effect size (<math>d = 1.4972</math>) but not significant results (<math>F(1, 3) = 2.69, p = 0.20</math>). In terms of overall aggression, girls' scores in the treatment condition improved while girls' scores in the control condition worsened, but these results were not significant (<math>F(1, 3) = 3.03, p = 0.18, d = 1.589</math>). While there were no significant main effects of either condition (<math>F(1, 3) = 0.25, p = .66, d = 0.4565</math>) or time (<math>F(1, 3) = 5.51, p = .10, d = 2.1428</math>) on verbal aggression, there was a significant interaction between treatment condition and time (<math>F(1, 3) = 13.61, p = .04, d = 3.3677</math>); results revealed that youth in the treatment condition improved slightly, while youth in the TAU condition worsened on measures of verbal aggression from pre- to post-treatment. On measures of physical aggression, girls in both the treatment and TAU control conditions worsened from pre- to post-treatment, but findings were not significant (<math>F(1, 3) = .11, p = .76, d = 0.3028</math>). On measures of indirect aggression (relational aggression), girls in the treatment condition improved from pre- to post-treatment, and girls in the control condition worsened slightly, but these results were not statistically significant (<math>F(1, 3) = 8.09, p = .07, d</math></p>
--	--	--	--	--

					= 2.5965). Participants in both conditions improved on measures of hostility from pre- to post-treatment, but these differences were not statistically significant ( $F(1, 3) = .01$ , $p = .92$ , $d = 0.0913$ ).
Lambert et al. (2007)	<i>Participants:</i> inmates meeting the following criteria: a) 26 years old or younger; b) points indicating Level V classification (i.e., high security level classification); c) no GED or high school diploma; and d) no current mental health problems or issues (N=136). <i>Sex:</i> males. <i>Age:</i> M=20.87 years (range 17-26). <i>Setting:</i> a Midwestern prison, USA.	<i>The Cognitive Housing Approach: New Goals Environment (CHANGE) Program</i> (n=68). <i>Control</i> (n=68) no treatment condition.	<i>Violent misconduct.</i> State correctional system data.	3 months and 6 months post-intervention	General Linear Models showed that participating in the CHANGE program had not statistically significant effect on official violent misconduct reports received either three months $F(3)=2.94$ , $p<0.06$ , $d=0.2941$ or six months after the completion of the program $F(5)=2.69$ , $p<0.10$ , $d=0.2813$ .
Hogan et al. (2012)	<i>Participants:</i> medium or maximum security inmates drawn from the entire state correctional system meeting the following criteria: a) under the age of 26; b) points indicating Level V classification (i.e., high security level classification); c) no serious or deadly assaultive misconducts; and d) no current mental health problems or issues (N=213). <i>Sex:</i> males. <i>Age:</i> M=20.87 years. <i>Setting:</i> high level security Midwestern prison, USA.	<i>The Cognitive Housing Approach: New Goals Environment (CHANGE) Program</i> (n=122). <i>Control</i> (n=91) no treatment condition.	<i>Violent misconduct.</i> State correctional system data.	3 months and 6 months post-intervention	Univariate analysis using the general linear model was conducted. Participating in the CHANGE program had no statistically significant effect on official misconduct reports received either 3 ( $F=0.25$ ; $p=ns$ , $d=0.0693$ ) or 6 months ( $F=1.53$ ; $p=ns$ , $d=1.53$ ) after the completion of the program. Multivariate analyses were conducted. CHANGE inmates were lower in the number of violent misconduct reports 3 months ( $\beta=0.18$ ; $P<0.01$ ), and 6 months after the program ( $\beta=0.78$ ; $P<0.01$ ), even after controlling for weeks in the program, number of violent misconduct reports 3 or 6 months prior to the program, and the number of violent misconduct reports during the program.
<b>Non-Randomised Quasi-Experiments (Maryland Scientific Methods Scale =3)</b>					

Miller (1996)	<i>Participants:</i> inmates with absence of major mental disorder and a literacy standard sufficient for the written homework (N=15). <i>Sex:</i> males. <i>Age:</i> M=29 years (range 21-46). <i>Setting:</i> Barwon Prison, Victoria, Australia.	<i>The Alternatives to Violence Project</i> (n=7). <i>Comparison</i> (n=8). Undertaking education courses.	<i>Expression of angry feelings toward other persons or objects</i> (Anger Expression-Out). A subscale of the State-Trait Anger Expression Inventory (STAXI).	Upon program completion and 3 months post-program.	Anger Out showed change in the predicted direction (decrease), but failed to achieve significance.
Morrissey (1997)	<i>Participants:</i> juvenile offenders who have committed very serious crimes against the person or chronic offenders (N=77). <i>Sex:</i> males. <i>Age:</i> M=16 years, 4 months. <i>Setting:</i> Worcester Juvenile Secure Treatment Unit, Massachusetts, USA.	A multimodal treatment approach that utilises a broad range of behavioural, cognitive-behavioural, and psychological skills training methods (n=41). TAU (n=36) different regime relying on room confinement from 2-24 hours, staff discretionary points system, fewer (problem-specific) interventions, less rewards for appropriate behaviour.	<i>Violent incidents, assaults on residents, assaults on staff.</i> Incidents reports filed by staff, Program Director's monthly reports.	Immediately post-intervention.	When behaviors from Group A were compared to Group B by means of a t-test, significant differences were found for violent incidents (t=2.36; p<0.05; d=0.539), assaults on residents (t=2.43; p<0.05; d=0.555), and assaults on staff (t=2.43; p<0.05; d=0.555).
Baro (1999)	<i>Participants:</i> inmates from a prison. (N=123). <i>Sex:</i> males. <i>Age:</i> M=no data. <i>Setting:</i> Michigan Reformatory, Iona, Michigan, US	Strategies for Thinking Productively (STP) Phase I (n=41), Phase II (n=41), TAU; other self-help programs (n=41).	<i>Assaults.</i> (Assault and battery of another prisoner, staff member, or another person). Data were collected from inmate files, program records, and the state-wide Michigan Department of Corrections computerised information system.	1 year after program completion.	Kruskal-Wallis tests revealed significant differences between the groups with regard to assaults ( $X^2(2, 123)=6.354, p=0.42$ ). The difference is assaults comes from the STP Phase II group (d=-0.4502). Whereas the number of assaults in the "Other" and the STP Phase I groups were 21 and 20, inmates in the STP Phase II group committed only 6 assaults (d=-0.0223).



					Data were transformed into ordinal levels of misconduct. 88% of those in the STP Phase II group spear not to have committed any assaults during the follow-up year. By comparison, 75% of those in the "Other" group and 63% of those in the STP Phase I group did not commit assaults. Gamma test results were significant ( $p < 0.05$ ). ( $Y = -0.283$ , $SE = 0.138$ , $p < 0.53$ ).
Watt et al. (1999). Study 1.	<i>Participants:</i> inmates with a history of violent offending (N=31). <i>Sex:</i> males. <i>Age:</i> M=26.84 years. <i>Setting:</i> a maximum and minimum security prison, Perth, Western Australia.	The Skills Training for Aggression Control (STAC) (n=18), TAU (n=13).	<i>Self-reported Anger Behaviour.</i> Measured using the revised NAS.	Immediately post-program.	2 X 2 split plot ANOVAs (SPANOVAs) were conducted on the NAS scales with time (pre-test and post-test) and condition experimental and control) as the independent variables. An alpha level of .01 was employed to reduce family-wise error. For the NAS, the only significant main effect was for condition on the NAS Behavioural Scale ( $F(1,27) = 7.46$ , $p = .01$ , $d = 0.9941$ ), which indicated that the experimental group reported significantly higher behavioural reaction to provocation than the control group independent of time.
Watt et al. (1999). Study 2.	<i>Participants:</i> inmates with a history of violent offending (N=38). <i>Sex:</i> males. <i>Age:</i> M=28.76 years. <i>Setting:</i> a maximum and minimum security prison, Perth, Western Australia.	The Skills Training for Aggression Control (STAC) (n=19), TAU (n=19).	<i>Self-reported Anger Behaviour.</i> Measured using the NAS-M. <i>Aggressive behaviour.</i> Modified Overt Aggression Scale (MOAS).	Immediately post-program.	Results tended to indicate significant main effects for trait anger, with high trait anger participants reporting more angry behaviour ( $p = 0.0002$ ) on the NAS-M ( $d = 0.0602$ ). Comparisons between experimental and control groups on aggression measured by the MOAS and frequency of incident reports indicated no significant effects on the behavioural measures. This

					appeared owing to the low frequency of incidents on both measures.
Prendergast et al. (2001)	<p><i>Participants:</i> inmates with a history of substance abuse, with 6-18 months left to serve, no infractions for violence or weapons, not a member of a prison gang, no pending felonies, no immigration and naturalisation holds (N=no data).</p> <p><i>Sex:</i> males.</p> <p><i>Age:</i> M=no data.</p> <p><i>Setting:</i> California Substance Abuse Treatment Facility and State Prison, Corcoran, USA.</p>	California Substance Abuse Treatment Facility – Substance Abuse Program (SATF-SAP) (n=no data), TAU (n=no data).	<p><i>Violence or the threat of violence.</i></p> <p>California Department of Corrections rule violations (115s).</p>	Throughout 12 month treatment period (immediately post-program).	Over the twelve-months combined, the percentage of serious disciplinary actions in the treatment facilities was somewhat lower than that in the non-treatment facilities (73.2% and 79.3%, respectively).
Walrath (2001)	<p><i>Participants:</i> inmates serving sentences of 3 months or longer (N=94).</p> <p><i>Sex:</i> males.</p> <p><i>Age:</i> M=30 years (range 18-51).</p> <p><i>Setting:</i> medium-security corrections facility in Maryland, USA.</p>	<i>The Alternatives to Violence Project</i> (n=53). <i>Comparison</i> (n=41).	<p><i>Violent confrontations.</i> Self-report 10-item questionnaire.</p> <p>Frequency of involvement in last month.</p>	6 months post-intervention	Poisson Regressions were used to assess the impact of the intervention for the AVP group as compared to the non-AVP group at 6-month follow-up, controlling for baseline characteristics. The incident rate ratio for the number of confrontations at 6 months postintervention, controlling for the number of confrontations preintervention, was .432, $p < .0005$ (CI = .319 to .583). In other words, the AVP group reported .43 times (fewer than one half) the number of confrontations reported by those who did not receive the intervention, controlling for age, pretest confrontation score, type of sentence, and length of sentence. The incident rate ratio for number of postintervention confrontations turned violent did not reach significance.
Evershed et al.	<i>Participants:</i> forensic patients who met the criteria for borderline	Dialectical Behavioural Therapy	<i>Violent observed behaviours (frequency and seriousness).</i>	9 months post-	The frequency of violence-related behaviour for both groups decreased

(2003)	<p>personality disorder, none were experiencing symptoms of mental illness (BPD) (N=17).  Sex: males.  Age: M=34.76 years (range 21-52).  Setting: personality disorder service in a high security hospital, UK.</p>	<p>(DBT) targeting anger and violence (n=8).  Comparison group (n=8) treatment as usual (TAU).</p>	<p>Blindly rated by an independent psychology student.</p>	<p>treatment.</p>	<p>over time but no significant differences were evident. On the seriousness of violence-related behaviours, ANOVA revealed an interaction effect (<math>F = 8.05, p &lt; 0.00, d = 1.4186</math>) with the DBT group engaging in less serious behaviour than the TAU group initially (<math>F = 6.45, p = 0.024, d = 1.2698</math>), at the mid assessment phase (<math>F = 10.21, p = 0.0006, d = 1.5977</math>), and post treatment (<math>F = 43.99, p = 0.000, d = 3.3162</math>).</p>
Dietz et al. (2003)	<p><i>Participants:</i> inmates from an in-prison TC, at least 18 years old, a history of drug/alcohol abuse, mental health clearance, no convictions for sexual offences or pending disciplinary actions. (N=774).  Sex: males.  Age: M=36.6 years.  Setting: medium/high-security prison, Delaware, US.</p>	<p>KEY South TC (n=118), non-treatment group (n=656).</p>	<p><i>Institutional disorder.</i>  Incident reports (122s), Class 1 violations (assault or sexual misconduct).</p>	<p>Throughout 12-year treatment period (immediately post program)</p>	<p>The observed differences between the treatment and nontreatment units in violent infractions were significant (<math>p &lt; .001</math>).</p>
Lee & Gilligan (2005)	<p><i>Participants:</i> inmates assigned to one of two open dormitories, most with a history of violence (N=105).  Sex: males.  Age: M=30.4 years (range 19-54).  Setting: San Francisco County Jail, USA.</p>	<p>Resolve to stop the Violence Project (RSVP) (n=52).  Comparison group (n=53).</p>	<p><i>Violent incidents.</i> Sheriff's Department Records.</p>	<p>15 months post-program inception.</p>	<p>A two-tailed t-test was performed to assess the difference in in-custody overall and violent incident rates. The programme dorm had a violent incident rate of 3.6 per cent of the control dorm (<math>T = -3.17; p &lt; 0.05; d = -0.6187</math>)</p>
Welsh et al. (2007)	<p><i>Participants:</i> inmates with a high need for a drug treatment program (N=1,073).  Sex: males.  Age: M=no data.  Setting: five medium and Maximum security Pennsylvania state prisons, USA.</p>	<p>TC drug treatment (n=294), comparison (n=779).</p>	<p><i>Violent misconduct.</i> Class A incidents (assault, murder, rape)  Data were obtained from the Department of Corrections (DOC) Misconduct Database.</p>	<p>6 months post-program.</p>	<p>Generalized linear modelling (GLM) repeated measures techniques (split-plot or mixed-model repeated measures approach used).  Class A (most serious) Misconduct: Significant between-participants predictors included age (younger inmates), prior offense severity (more</p>

					serious criminal history), number of months incarcerated pretreatment (more time, higher misconduct), number of months incarcerated posttreatment (more time, higher misconduct), and participation in the TC group (lower misconduct). The TC effect remained strong and significant even when controlling for other relevant predictors of misconduct ( $F=13.90$ , $p<0.05$ , $\eta=0.097$ ).
Serin et al. (2009)	<i>Participants:</i> inmates with a history of violence. <i>Sex:</i> males. <i>Age:</i> no data. <i>Setting:</i> Dorchester Institution, New Brunswick or Collins Bay Institution, Ontario, Canada.	The Persistently Violent Offender Program (PVO) (n=70), met referral criteria for PVO, but received to Anger and Emotion Management (AEM) (n=33), control (n=105) received AEM, attrition group (n=48)	<i>Physical aggression.</i> <i>Verbal aggression.</i> Aggression Questionnaire (Buss & Perry). <i>Major misconducts (violent acts).</i> Offender Management System data and file data.	Questionnaire measures were completed upon program completion. Six months after program completion misconducts were recorded.	Scores were assessed for differences using a series of repeated-measures analyses of variance, with group membership as the between-subject variable and pre- and postscores on each measure as the within-subject variable. Many changes in the treatment targets were in the expected directions - Physical Aggression: ( $F=0.08$ , $p=ns$ , $\eta=0.00$ ), Verbal Aggression: ( $F=0.50$ , $p=ns$ , $\eta=0.01$ ). However, none of the measures differed significantly from the time before program participation to that after program participation or by program group, thereby demonstrating that there was no group or time differences on these measures. Involvement in major misconducts (e.g., assaults, hostage takings, escapes) did not differ over time.
Maglinger et al. (2013)	<i>Participants:</i> inmates serving sentences of 3 months or longer (N=94). <i>Sex:</i> males.	The Addiction Recovery and commitment to Healing (ARCH) and	<i>Institutional write-ups for violent incidents</i>	4 year period	A one-way, category by dorms, repeated measures ANOVA was performed on the data of this study. The results indicate the write-ups for

	<p>Age: M=30 years (ARCH TC); M=28 years (general population comparison group).          Setting: Green River Correctional Complex, a medium security prison, central city, Kentucky, USA.          [The clients in the ARCH TC program were screened to meet DSM-IV-TR criteria for substance dependency only.]</p>	<p>(modified)          Therapeutic Community (TC) program (n=no data)          General population dorms (n=no data)</p>			<p>Dorm 3 (TC) were significantly fewer (F (4, 24) = 5.61, p &lt; 0.002). This test was not done separately for violent incidents.</p>
Wilson et al. (2013)	<p><i>Participants:</i> offender patients detained in a high-security psychiatric hospital under the UK Mental Health Act. (N=112).  <i>Sex:</i> males.  <i>Age:</i> M=36.6 years.  <i>Setting:</i> High-security psychiatric hospital.</p>	<p>Anger management group completers (n=48), TAU waiting list group (n=64).</p>	<p><i>Verbal aggression (the use of inappropriate words or behaviour causing distress and/or constituting harassment towards a person).</i>  <i>Physical aggression (the intentional application of force against a person without lawful justification, resulting in physical injury or personal discomfort).</i>          Institutional incidents are recorded on a centralised electronic incident report form. Incidents are recorded immediately after the event, and the report is countersigned to promote reliability</p>	<p>3-month intervals following completion of the group (3, 6, &amp;9)</p>	<p>Participants who completed the group had significantly fewer incidents of physical aggression at 7–9 months follow-up (Z =2.140, p = 0.032, d=0.7) when compared with the post-group incident trends for non-completers; yet, there had been no such differences prior to the group commencing. Incidents of verbal aggression were more frequent among participants who dropped out than among completers at 7–9months (Z = 2.240, p=0.025, d=0.33), as were physically aggressive incidents at 1–3months (Z = 2.338, p = 0.019, d=0.34) post-group. These were not noted prior to the intervention. No statistically significant differences for reported incidents rates were found when comparing completers with the waiting list comparison group. Completers had fewer incidents of physical aggression at 7–9months than the waiting list comparison group (d = 0.20).No other comparative improvements were observed.</p>

Hoogstead er et al. (2014)	<p><i>Participants:</i> incarcerated juvenile offenders (N=91).  <i>Sex:</i> 59 males; 4 females (Re-ART), 20 males, 8 females (TAU).  <i>Age:</i> M=17.0 years (Re-ART), M=16.64 (TAU).  <i>Setting:</i> secure juvenile justice institution, the Netherlands.</p>	<p>Response Aggression Regulation Therapy (Re-ART) (n=63), TAU (n=28) received a standard intervention (EQUIP).</p>	<p><i>Aggressive incidents.</i> Registered by prison staff members in a computer program of a Dutch judicial registration system.  <i>Aggression.</i> The item of the Structured Assessment of Violence Risk in Youth (SAVRY) 'Dealing with Anger'.</p>	<p>3 months after starting the program, immediately post-program.</p>	<p>the Re-ART group had a showed significantly less aggression than the TAU group, which is reflected by lower scores on aggression-related Assertiveness Skills (reported by the juveniles) and Dealing with Anger. The effects sizes (ES) ranged from <math>d = 0.84</math> to <math>d = 2.36</math>. A small effect (<math>d = 0.35</math>) was found for Aggression-related Assertiveness Skills (reported by the mentors). There were no significant differences in the number of aggression incidents between the TAU group and the Re-ART group after three months (first measurement). However, a significant post-test difference was found: <math>F(1, 84) = 7.08</math>, <math>p = .009</math>, <math>d = 0.70</math>. Fewer incidents were registered in the Re-ART group than in the TAU group (measured during the treatment period). In both the Re-ART group and TAU group more aggression-incidents were registered in juveniles receiving EQUIP (main-effect): <math>F(1, 85) = 4.09</math>, <math>p = .05</math>. The means and standard deviations were as follows: Re-ART and EQUIP (<math>n = 23</math>, <math>M = 0.86</math>, <math>SD = 0.65</math>); TAU and EQUIP (<math>n = 11</math>, <math>M = 1.59</math>, <math>SD = 1.04</math>); Re-ART and no EQUIP (<math>n = 40</math>, <math>M = 0.60</math>, <math>SD = .66</math>); TAU and no EQUIP (<math>n = 17</math>, <math>M = 0.96</math>, <math>SD = 0.63</math>).</p>
Jotangia et al. (2015)	<p><i>Participants:</i> patients detained under the UK Mental Health Act (N=38). Inclusion criteria for participants were (1) aged between</p>	<p>The Reasoning and Rehabilitation Mental Health Program (R&amp;R2MHP) (n=18);</p>	<p><i>Anger experience.</i> Behavioural domain of Novaco Anger Scale and Provocation Inventory (NAS-PI), a 16-item</p>	<p>Upon program completion and 3</p>	<p>ANCOVA - Compared group participants with TAU: No significant differences were found on the primary outcome measure of</p>

	<p>18 and 65, (2) had a current diagnosis or history of severe mental illness (e.g., schizophrenia, schizoaffective disorder, bipolar disorder), (3) a history of violent or antisocial behavior leading to the current treatment episode, (4) not having participated in R&amp;R or a similar program previously, (5) absence of learning disability and a history of neurological illness and/or traumatic brain injury, and (6) proficiency in English language sufficient to allow participation in the program. Exclusion criteria included patients who were mentally unstable and/or who posed a risk of violence to the researcher.  Sex: females.  Age: M=38.94 years (range 21-57). (R&amp;R2MHP group); M=37.90 years (range 21-59) (TAU group)  Setting: Five medium-secure and one low-secure forensic facilities in southeast England, UK.</p>	TAU (n=20).	<p>scale.  <i>Disruptive behaviour.</i>  Disruptive behaviour factor of The Disruptive Behaviour and Social Problem Scale (DBSP), an 8-item scale.</p>	months post-program.	<p>violence, as assessed by the NAS-PI; total scores (<math>d=0.1217</math>), Behavioral domain (<math>d=0.3055</math>), or disruptive behavior on the ward assessed by the DBSP staff ratings (<math>d=-0.4623</math>)</p>
--	--	-------------	--	----------------------	---

**Table 3.** Risk of Bias – A Summary

	Random sequence generation (selection bias)	Allocation concealment (selection bias)	Blinding of participants and personnel (performance bias)	Blinding of outcome assessment (detection bias)	Incomplete outcome data addressed (attrition bias)	Selective reporting (reporting bias)
<b>Randomised Controlled Trials</b>						
Armstrong 2002	?	-	-	-	+	+
Liau et al. 2004	+	?	?	-	+	+
Goldstein et al. 2007	+	+	?	?	-	+
Lambert et al. 2007	+	?	?	?	+	+
Hogan et al. 2012	+	+	?	?	+	+
<b>Randomised Controlled Trials</b>						
Miller 1996	-	-	-	-	-	+
Morrissey 1997	-	-	-	-	?	+
Baro 1999	-	?	?	?	+	+
Watt et al. 1999 Study 1	-	-	-	-	-	+
Watt et al. 1999 Study 2	-	-	-	-	-	?
Prendergast et al. 2001	-	-	-	-	?	+
Walrath 2001	-	-	-	-	-	+
Evershed et al. 2003	-	-	-	-	-	+
Dietz et al. 2003	-	-	?	?	+	+
Lee & Gilligan 2005	-	?	-	-	+	?



Welsh et al. 2007	-	-	?	?	-	+
Serin et al. 2009	-	-	?	?	-	+
Maglinger et al. 2013	-	-	?	?	+	+
Wilson et al. 2013	-	-	-	?	-	+
Hoogsteader et al. 2014	-	-	?	?	+	+
Jotangia et al. 2015	-	-	-	?	-	+
<b>SUMMARY</b>						
Low risk of bias (%)	<b>19</b>	<b>10</b>	<b>0</b>	<b>0</b>	<b>42</b>	<b>90</b>
Unclear risk of bias (%)	<b>5</b>	<b>19</b>	<b>48</b>	<b>52</b>	<b>10</b>	<b>10</b>
High risk of bias (%)	<b>76</b>	<b>71</b>	<b>52</b>	<b>48</b>	<b>48</b>	<b>0</b>

**+** Low risk of bias

**?** Unclear risk of bias

**-** High risk of bias