



ARCHIVED - Archiving Content

Archived Content

Information identified as archived is provided for reference, research or recordkeeping purposes. It is not subject to the Government of Canada Web Standards and has not been altered or updated since it was archived. Please contact us to request a format other than those available.

ARCHIVÉE - Contenu archivé

Contenu archivé

L'information dont il est indiqué qu'elle est archivée est fournie à des fins de référence, de recherche ou de tenue de documents. Elle n'est pas assujettie aux normes Web du gouvernement du Canada et elle n'a pas été modifiée ou mise à jour depuis son archivage. Pour obtenir cette information dans un autre format, veuillez communiquer avec nous.

This document is archival in nature and is intended for those who wish to consult archival documents made available from the collection of Public Safety Canada.

Some of these documents are available in only one official language. Translation, to be provided by Public Safety Canada, is available upon request.

Le présent document a une valeur archivistique et fait partie des documents d'archives rendus disponibles par Sécurité publique Canada à ceux qui souhaitent consulter ces documents issus de sa collection.

Certains de ces documents ne sont disponibles que dans une langue officielle. Sécurité publique Canada fournira une traduction sur demande.

Campbell Systematic Reviews

2008:7

First published: 21 February, 2008

Last updated: 21 February, 2008

Cognitive-Behavioural Interventions for Preventing Youth Gang Involvement for Children and Young People (7-16)

Herrick Fisher, Paul Montgomery, Frances Gardner



THE CAMPBELL COLLABORATION

Colophon

Title	Cognitive-behavioural interventions for preventing youth gang involvement for children and young people (7-16)
Institution	The Campbell Collaboration
Authors	Fisher, Herrick Montgomery, Paul Gardner, Frances
DOI	10.4073/csr.2008.7
No. of pages	35
Last updated	21 February, 2008

Citation	Fisher H, Montgomery P, Gardner F. Cognitive-behavioural interventions for preventing youth gang involvement for children and young people (7-16). Campbell Systematic Reviews 2008:7 DOI: 10.4073/csr.2008.7
Co-registration	This review is co-registered within both the Cochrane and Campbell Collaborations. A version of this review can also be found on Cochrane Library.
Keywords	

Contributions	Herrick Fisher: original idea, protocol, searching, trial selection, writing review. Paul Montgomery: protocol design, data management and data synthesis, editing review. Frances Gardner: protocol design, trial selection, editing of final review.
Support/Funding	Centre for Evidence Based Intervention, University of Oxford, United Kingdom The Nordic Campbell Center, Danish National Institute of Social Research Denmark
Potential Conflicts of Interest	This review was supported by the Nordic Campbell Center. The review authors have no known conflicts of interest.

Corresponding author	Paul Montgomery The Centre for Evidence-Based Intervention University of Oxford Barnett House 32 Wellington Square Oxford OX1 2ER United Kingdom Telephone: +44 1865 280 325 E-mail: paul.montgomery@socres.ox.ac.uk
-----------------------------	---

Campbell Systematic Reviews

Editors-in-Chief Mark W. Lipsey, Vanderbilt University, USA
Arild Bjørndal, Norwegian Knowledge Centre for the Health Services &
University of Oslo, Norway

Editors

Crime and Justice David B. Wilson, George Mason University, USA

Education Chad Nye, University of Central Florida, USA
Ralf Schlosser, Northeastern University, USA

Social Welfare Julia Littell, Bryn Mawr College, USA
Geraldine Macdonald, Queen's University, UK & Cochrane Developmental,
Psychosocial and Learning Problems Group

Managing Editor Karianne Thune Hammerstrøm, The Campbell Collaboration

Editorial Board

Crime and Justice David Weisburd, Hebrew University, Israel & George Mason University, USA
Peter Grabosky, Australian National University, Australia

Education Carole Torgerson, University of York, UK

Social Welfare Aron Shlonsky, University of Toronto, Canada

Methods Therese Pigott, Loyola University, USA
Peter Tugwell, University of Ottawa, Canada

The Campbell Collaboration (C2) was founded on the principle that systematic reviews on the effects of interventions will inform and help improve policy and services. C2 offers editorial and methodological support to review authors throughout the process of producing a systematic review. A number of C2's editors, librarians, methodologists and external peer-reviewers contribute.

The Campbell Collaboration
P.O. Box 7004 St. Olavs plass
0130 Oslo, Norway
www.campbellcollaboration.org

Cover sheet

Title

Cognitive-behavioural interventions for preventing youth gang involvement for children and young people (7-16)

Reviewers

Fisher, H, Gardner FEM, Montgomery P

Dates

Date edited: 21/02/2008

Date of last substantive update: 15/01/2008

Date of last minor update: 20/02/2008

Date next stage expected 01/01/2008

Protocol first published: Issue 4, 2007

Review first published: Issue 2, 2008

Contact reviewer

Dr Paul Montgomery
University Lecturer
The Centre for Evidence-Based Intervention
University of Oxford
Barnett House
32 Wellington Square
Oxford
UK
OX1 2ER
Telephone 1: +44 1865 280 325
Facsimile: +44 1865 270 324
E-mail: paul.montgomery@socres.ox.ac.uk
URL: <http://www.spsw.ox.ac.uk/cebi>

Contribution of reviewers

Herrick Fisher: original idea, protocol, searching, trial selection, writing review

Paul Montgomery: protocol design, data management and data synthesis, editing review

Frances Gardner: protocol design, trial selection, editing of final review

Internal sources of support

Centre for Evidence Based Intervention, University of Oxford, UK

External sources of support

The Nordic Campbell Center, DENMARK

Published notes

This review is co-registered within the Campbell Collaboration and the Cochrane Collaboration.

Text of review

Synopsis

Research indicates that youth who join gangs are more likely to be involved in delinquency and crime, particularly serious and violent offences, compared to non-gang youth and non-gang delinquent youth. Research also has found that both delinquent youth and youth who join gangs often show a range of negative thoughts, feelings and beliefs compared to non-delinquent peers. Cognitive-behavioural interventions, designed to address these deficits, have had a positive impact on a variety of behavioural and psychological disorders among children and youth. This systematic review was designed to assess the effectiveness of such cognitive-behavioural interventions for preventing youth gang involvement. A three-part search strategy found no randomised controlled trials or quasi-randomised controlled trials of the effectiveness of cognitive-behavioural interventions for gang prevention; four excluded studies examining the impact of Gang Resistance Education and Training (GREAT) were of too poor a quality to be included in analysis. The only possible conclusions from this review, therefore, are the urgent need for additional primary evaluations of cognitive-behavioural interventions for gang prevention and the importance of high standards required of the research conducted to provide meaningful findings that can guide future programmes and policies.

Abstract

Background

Many studies document a robust and consistent relationship between gang membership and elevated delinquency, with gang members disproportionately involved in crime compared to non-gang peers. Research also indicates that both delinquent youth and youth who join gangs often show a wide range of deficient or distorted social-cognitive processes compared to non-delinquent peers. Cognitive-behavioural interventions are designed to address cognitive deficits in order to reduce maladaptive or dysfunctional behaviour, and studies have documented their positive impact on a number of behavioural and psychological disorders among children and youth.

Objectives

To determine the effectiveness of cognitive-behavioural interventions for preventing youth gang involvement for children and young people (ages 7-16).

Search strategy

Electronic searches of ASSIA, CINAHL, CJA, Cochrane Library, Dissertations Abstracts A, EMBASE, ERIC, IBSS, LILACs, LexisNexis Butterworths, MEDLINE, NCJR Service Abstracts Database, PsycINFO, and Sociological Abstracts, to April 2007. Reviewers contacted relevant organisations, individuals, and list-servs and searched pertinent websites and reference lists.

Selection criteria

All randomised controlled trials or quasi-randomised controlled trials of interventions with a cognitive-behavioural intervention as the majority component, delivered to youth and children aged 7-16 not involved in a gang.

Data collection & analysis

Searching yielded 2,284 unduplicated citations, 2,271 of which were excluded as irrelevant based on title and abstract. One was excluded following personal communication with investigators. One citation, of a large randomised prevention trial, awaits assessment; personal communication with study authors yielded unpublished reports addressing gang outcomes, but insufficient detail precluded determining inclusion status. Seven remaining reports were excluded as irrelevant because they were narrative reviews or descriptions of programs without evaluations, did not address a gang prevention programme, or did not address a gang prevention program that included a cognitive-behavioural intervention. The remaining four full-text reports excluded because of study design, leading to 0 included studies.

Main results

No randomised controlled trials or quasi-randomised controlled trials were identified.

Reviewers' conclusions

No evidence from randomised controlled trials or quasi-randomised controlled trials exists regarding the effectiveness of cognitive-behavioural interventions for gang prevention. Four evaluations of Gang Resistance Education and Training (GREAT) have been conducted, two of which were part of a US national evaluation, but all were excluded based on study design. Reviewers conclude there is an urgent need for rigorous primary evaluations of cognitive-behavioural interventions for gang prevention to develop this research field and guide future gang prevention programmes and policies.

Background

Definition of a youth gang

There is no unanimously accepted definition for a youth gang, reflecting the reality that there is no universal model of a youth gang. Several characteristics, however, typically distinguish youth gangs from other youth groups or organized crime groups, primarily: participation in criminal activity, typically engaging in a range of criminal offences; and projection of a shared identity, through naming, symbols, colours, or association with physical or economic territory ([Huff 1993](#); [Spergel 1993](#); [Spergel 1994](#); [Howell 1998](#); [Esbensen 2000](#); [White 2002](#); [OJJDP 2004](#); [Carlsson 2005](#)). Most definitions of youth gangs refer to these two characteristics in some way, but also often include specific group characteristics or gang organizational structures that vary across regions. Most gang members in the United States and internationally are adolescents with the peak age of recruitment into gangs and increased criminal involvement between eleven and fifteen in the United States ([Kodluboy 1993](#); [Huff 1998](#); [Hill 2001](#); [OJJDP 2004](#)). Surveys conducted in the United States also find that most gang members are from ethnic or racial minorities, predominately Hispanic and

black/African-American, and the vast majority are male, although the percentage of non-minority gang members and female gang members varies substantially with jurisdiction type and between self-report and law enforcement data ([Moore 1998](#); [Moore 1999](#); [Egley 2000](#); [Egley 2006](#); [Snyder 2006](#)). The definition of a gang used in this review, based on those from the Eurogang Program of Research and the Office of Juvenile Justice and Delinquency Prevention ([OJJDP 2004](#)), is intended to accommodate this diversity of gangs, whilst recognizing their common general attributes. A youth gang is defined as 'any durable, street-oriented youth group whose involvement in illegal activity is part of their group identity' ([Esbensen 2005](#)), excluding prison gangs, ideological gangs, hate groups, and motorcycle gangs ([Huff 1993](#); [Howell 1998](#)).

International prevalence of youth gangs

Most of the research into youth gangs has been conducted in the United States, where the number of active gangs peaked in the mid-1990s with more than 30,000 gangs and 840,000 gang members nationwide ([Moore 1998](#); [Snyder 2006](#)). The most recent data estimate that there are about 24,000 gangs and 760,000 active gang members across the United States ([Snyder 2006](#)). Internationally, gang research has only begun to occur, but street gangs or what are sometimes called 'troublesome youth groups' ([Decker 2005](#)) have been identified in developed and developing countries in South America, Europe, Asia, and Africa ([Covey 2003](#); [Carlsson 2005](#); [Decker 2005](#); [Papachristos 2005](#); [Klein 2006](#)). Preliminary examinations have concluded that the youth gangs in several of these countries mirror the nature, pattern of emergence, and behaviour of the more extensively studied American street gangs ([Klein 1995](#)).

Cognitive-behavioural theories of delinquency

Research indicates that delinquent children and young people often show a range of deficient or distorted social-cognitive processes compared to non-delinquent peers, such as perception of social cues (encoding and representation), selection of solutions to social dilemmas, aggression management, self-control, locus of control, long-term planning, outcome expectations, self-perceptions, empathy and role-taking, and moral reasoning ([Gibbs 1993](#); [Goldstein 1993](#); [Hollin 1993](#); [Lochman 1994](#); [Lipsey 2006](#)). Cognitive development may begin to influence the ability to control social behaviour as early as the first two years of life ([Wasserman 2003](#)) and research has shown that different types of social-cognitive distortions can uniquely contribute to the variance among groups of violent and moderately aggressive children ([Lochman 1994](#)). Several social-cognitive deficits or distortions also have been identified as risk-factors for youth gang involvement, such as lack of refusal skills, social disabilities, deviant attitudes, a fatalistic view of the world, and positive attitudes towards antisocial behaviour or gang membership ([Howell 1998](#); [Maxson 1998](#); [Hill 1999](#); [OJJDP 2004](#)). Some theories of youth gang involvement emphasize these cognitive mechanisms and other individual risk or protective factors, whilst others adopt a more macro approach, drawing on social disorganization, social control, or strain theory.

Cognitive-behavioural interventions

Cognitive-behavioural interventions are designed to address these cognitive deficits and learning patterns in order to reduce maladaptive or dysfunctional behaviour ([Connor 2002](#); [DOH 2001](#); [Farrington 2002](#); [Lipsey 2006](#); [Turner 2007](#)). They are skill-based, combining cognitive and behavioural therapy approaches from cognitive and learning theories of delinquency and behaviour change ([DOH 2001](#)). Common techniques include anger management, empathy, social perspective taking, lateral thinking, critical thinking, problem solving, self-control, self-instruction, life skills development, goal setting, moral reasoning, social-information processing, and social skills training ([Gibbs 1993](#); [Goldstein 1993](#); [Hollin 1993](#); [Ribisl 1993](#); [Stephens 1993](#); [McGuire 2000](#); [Connor](#)

[2002](#); [Farrington 2002](#); [Andreassen 2006](#); [Lipsey 2006](#)). Additionally, cognitive-behavioural interventions often include role-play or rehearsal in real situations to consolidate new skills and cognitive processes and may be combined with other intervention strategies, such as recreational interventions or mentoring, in multi-component intervention or prevention programmes ([Connor 2002](#); [Lipsey 2006](#)).

Research indicates that cognitive-behavioural interventions can reduce delinquent and antisocial behaviour among children and youth ([Connor 2002](#); [Farrington 2002](#)). Several meta-analyses have found that cognitive-behavioural programmes are effective for reducing recidivism of juvenile and adult offenders ([Lipsey 2001](#); [Pearson 2002](#); [Landenberger 2005](#); [Wilson 2005](#)). Additionally, research over the past twenty years has shown that cognitive-behavioural programmes can produce positive outcomes for a variety of behavioural and psychological disorders ([DOH 2001](#); [Andreassen 2006](#); [Turner 2007](#)).

Potential of cognitive-behavioural interventions for gang prevention

Cognitive-behavioural interventions also may be effective in preventing youth gang involvement. Such an adaptation of a delinquency-prevention strategy to gang prevention is supported by the overlap between several identified risk-factors for delinquency and for gang involvement, specifically social-cognitive attributes ([Howell 1998](#); [Maxson 1998](#); [Hill 1999](#); [OJJDP 2004](#)). Previous involvement in delinquency, problem behaviour, or violence also has been identified as a strong predictor of later youth gang involvement in longitudinal analyses (ibid); it is possible that by reducing delinquent behaviour, cognitive-behavioural interventions may have a carry-over effect of reducing gang involvement or may impact youth gang involvement in unique ways, independent of any influence on delinquency. Finally, the demonstrated effectiveness of cognitive-behavioural interventions for reducing entrenched problem behaviour indicates the potential potency of the cognitive-behavioural model of behaviour change that may be applicable to youth gang prevention.

Studies of the developmental stages of youth and gang involvement suggest that cognitive-behavioural interventions for gang prevention may have the greatest potential for effectiveness when administered within late childhood and early adolescence, approximately between ages seven and sixteen. This is the period when young people demonstrate decreasing levels of supervision by parents and increasing independence in the community ([Dishion 1999](#)). It includes the period of middle childhood when peer influence is increasingly salient and peer deviant behaviour begins to develop, which appears to be a precursor of involvement in youth gangs ([Howell 1998](#); [Maxson 1998](#); [Hill 1999](#); [OJJDP 2004](#)). It is in these early stages of peer group and gang development that young people may be most responsive to prevention programmes ([Kodluboy 1993](#); [Huff 1998](#); [Hill 2001](#); [Connor 2002](#); [OJJDP 2004](#)).

Although narrative summaries of gang prevention programmes have emerged over the past fifteen years and meta-analyses of cognitive-behavioural interventions for reducing recidivism and other behavioural problems have been conducted, the effectiveness of cognitive-behavioural interventions for preventing youth gang involvement had never been systematically assessed. This review sought to address this important gap in the gang prevention research base and thereby enable practitioners and policy-makers to develop evidence-based interventions in response to a youth gang presence in their community.

Objectives

To assess the effectiveness of cognitive-behavioural interventions for preventing youth gang involvement for children and young people (7-16).

Criteria for considering studies for this review

Types of studies

Studies were eligible for inclusion if allocation to group was by random allocation or quasi-random allocation (for instance, by alphabetical order, by alternating sequence, or by day of the week).

Types of participants

Children and young people aged 7-16 not involved in a gang.

Types of interventions

Cognitive-behavioural interventions, as defined in *Background*.

Programmes combining cognitive-behavioural interventions with other interventions, such as recreational intervention or opportunities provision, were included only if cognitive-behavioural interventions were the majority intervention, i.e. more than 50% of total programming, based on frequency and duration as determined independently by all reviewers (HF, FG and PM). Study authors would have been contacted for more information if there had been any discrepancy between the review authors or if either had estimated that the proportion of cognitive-behavioural intervention programming was between 40% and 60%.

Multi-component intervention programmes that included cognitive-behavioural interventions but had opportunities provision as the majority intervention would have been excluded from this review and considered for inclusion in a separate review (Opportunities provision for preventing youth gang involvement for children and young people (7-16)).

Studies with any other intervention as the majority component were excluded.

The primary control comparison for cognitive-behavioural interventions was no intervention. Comparisons against other interventions, specifically designed for gang or delinquency prevention or other social services or support interventions being delivered to the control group, were included but would have been discussed separately.

Types of outcome measures

Primary outcomes include:

Primary outcomes included:

- 1) Gang membership status (dichotomous); and
- 2) Conviction for gang-related delinquent behaviour and criminal offences, including homicide, assault, robbery, burglary, and drug trafficking.

Secondary Outcomes included:

- 1) Measures of behavioural, cognitive, or social skills, i.e. anger management, empathy, social perspective taking, problem solving, self-control, self-instruction, goal setting, moral reasoning, or social-information processing;
- 2) Delinquent behaviour and criminal offences external to gang activities or committed by an individual not involved in a gang;
- 3) Association with delinquent peers (measured through a peer delinquency scale, as a dichotomous variable, as a percentage of time spent with delinquent peers, or as a percentage of friends who are identified as delinquent);
- 4) Objective and subjective measures of illegal drug abuse;
- 5) Hospitalisation or injury due to a) gang-related activities, or b) delinquent activities, as determined by self-report or hospital record;
- 6) Firearm possession (both conviction and self-report);
- 7) School-reported truancy;
- 8) Achievement of scholastic benchmarks for youth eighteen and under at outcome measurement; and
- 9) Employment status for youth sixteen and older at outcome measurement.

Many of these measures have been selected as predictors of future criminality. As such, it is important that they are both reliable and valid, and therefore, instruments must meet minimum standards: i) the psychometric properties of the instrument should have been described in a book or peer-reviewed journal; and ii) the instrument should be either (a) a self report, or (b) completed by an independent rater or relative.

Instruments used to measure outcomes could have included self-report or official records, such as school, police, probation, or court data. When applicable, self- and other-reported outcome measures would have been analysed separately due to possible divergence, but would not have been ranked in terms of reliability ([Dishion 2005](#)).

When available, behavioural and attitudinal measures of problem behaviour and related constructs, such as those in the National Evaluation of GREAT Student Questionnaire ([Esbensen 1999](#)), would have been included.

Outcomes had to be reported in quantitative terms and include end point (post-intervention) data for both experimental and control groups.

Outcome intervals

Outcomes would have been measured post-intervention, after a short-term follow-up period up to 6 months, after a medium-term follow-up period up to 18 months, and after a long-term follow-up period up to 5 years, as data were available, to assess the durability of the intervention.

Search strategy for identification of studies

A three-part search strategy was undertaken in order to maximise chances of capturing all relevant literature.

I. Electronic search

Databases were searched for published and unpublished studies. No language restrictions were imposed on any results from any search attempts, although most databases were searched in English. No filters based on methodology were applied because test searches indicated that such filters might eliminate relevant studies. A highly sensitive search strategy (a search that was likely to capture all relevant reports) was used rather than a more specific one (a search that would have identified fewer irrelevant papers).

The following databases were searched electronically:

The Cochrane Library (Issue 2, 2007)
MEDLINE (1950 to April Week 3 2007)
ASSIA (1987 to April 2007)
CINAHL (1982 to April Week 4 2007)
Criminal Justice Abstracts (1968 to November 2007)
Dissertation Abstracts (1861 to April 2007)
EMBASE (1980 to 2007 Week 17)
ERIC (1966 to May 2007)
International Bibliography of Social Sciences (IBSS)(1951 to April Week 04 2007)
LexisNexis Butterworth Services (up to April 2007)
LILACS (up to April 2007)
National Criminal Justice Reference Service (up to October 2007)
PsycINFO (1806 to April Week 1 2007)
Sociological Abstracts (Earliest to 2007)

The search strategy used for the Cochrane Library (including The Cochrane Database of Systematic Reviews, Database of Abstracts of Reviews of Effects, The Cochrane Central Register of Controlled Trials, The Cochrane Methodology Register, Health Technology Assessment Database, NHS Economic Evaluation Database, and About The Cochrane Collaboration) was as follows:

[(MeSH descriptor Adolescent explode all trees) OR (youth OR adolescen* OR juvenile OR child OR schoolchild OR boy OR girl OR teen OR (young person*) OR (young people*))]:ti,ab,kw]
AND
[(MeSH descriptor Juvenile Delinquency explode all trees) OR (gang OR delinquen* OR devian* OR (anti NEXT social) OR (youth* NEAR group))]:ti,ab,kw]
AND
[(MeSH descriptor Cognitive Therapy explode all trees) OR ((cognitive NEAR/3 (therapy OR training)) OR (behavio*r NEAR/3 (therapy OR training OR modif*)) OR (skill NEAR/3 training))]:ti,ab,kw]

Terms were modified as necessary for all other databases. See additional [Table 01](#), [Table 02](#), [Table 03](#), [Table 04](#), [Table 05](#), [Table 06](#), [Table 06](#), [Table 07](#), [Table 08](#), [Table 09](#), [Table 10](#), and [Table 11](#).

II. Personal communications

Appropriate government departments, non-governmental organisations, non-profit groups, advocacy groups, user groups, and experts in the field were contacted. Additionally, delinquency prevention and gang oriented email lists (list-servs) were sent a letter requesting assistance in locating studies.

The primary reviewer contacted authors of all included and excluded studies to request details of ongoing and unpublished studies.

III. Hand searching

Relevant websites, including those maintained by users, governments, other agencies, and academics and reference lists from previous reviews and all included and excluded studies were searched by the primary reviewer.

Methods of the review

No trials met inclusion criteria for this review. For information on methods planned in the protocol and archived for use in future updates of this review, please see [Table 14](#).

Description of studies

The search strategy generated 2,284 unduplicated citations. HF and FG checked titles and abstracts for relevance and excluded 2,271 citations as clearly irrelevant. One citation appeared potentially relevant but personal communication with study authors indicated that it was excluded from analysis because it did not address a gang prevention programme with cognitive-behavioural component. Another citation, of a large randomised prevention trial with published reports on other delinquency-related outcomes, also appeared potentially relevant. Personal communication with study authors yielded unpublished reports addressing gang outcomes (conference, slide presentation; [Lacourse 2003](#)), but insufficient detail regarding the study and outcomes prevented determining the study's inclusion or exclusion. Consequently, this citation remains awaiting assessment.

The remaining 11 citations, which one or both reviewers felt might be relevant, were retrieved in full-text.

Both reviewers examined these full-text articles to determine eligibility and excluded 7 as clearly irrelevant, because: they were descriptions of programs or narrative reviews without evaluations (n=3), did not address a gang prevention programme (n=3), or did not address a gang prevention program that included a cognitive-behavioural intervention (n=1). The remaining 4 studies, all of which were evaluations of Gang Resistance Education and Training (GREAT) in the United States, were assessed for inclusion criteria. None qualified as a randomised or quasi-randomised study, and therefore all were excluded from analysis. Their methodology and findings are presented in the Excluded Studies table, the Description of Studies, and the Discussion.

There were zero included studies.

There were no disagreements between reviewers regarding study inclusion or exclusion. However, study authors would have been contacted if further information could have resolved initial disagreements about inclusion and the Review Group Coordinator of the CDPLPG would have been consulted if consensus could not have been reached.

A flowchart of the process of trial selection was made in accordance with the QUORUM statement ([Moher 1999](#)). See [Figure 01](#).

Four studies were assessed for inclusion criteria. None qualified as a randomised or quasi-randomised study, and therefore all were excluded from analysis (please see Table of Excluded Studies).

All excluded studies were evaluations of Gang Resistance Education and Training (GREAT) in the United States. GREAT is a gang prevention programme based on a cognitive approach of behaviour change ([Esbensen 1999](#); [Esbensen 2002](#); [OJJDP 2004](#)). Delivered in schools by uniformed law enforcement officers over nine weeks, the GREAT curriculum includes thirteen lessons designed to teach life skills and give students a sense of empowerment, competency, and usefulness to help them avoid involvement in youth violence and youth gangs ([Esbensen 1999](#); [Lundman 2001](#); [Esbensen 2002](#); [OJJDP 2004](#)).

The first excluded study ([Palumbo 1995](#)) was a multi-site pre/post-test evaluation of the impact of GREAT among 2,029 students who received the intervention. It was excluded from analysis because the study did not have a comparison group, precluding assessment of potential effects on outcome measures from factors other than the intervention, such as a maturation effect. The study also had no follow-up period, which prevented assessment of the durability of programme effects or the presence of any lag-effects, and the study's exclusively attitudinal outcome measures may not have assessed what they intended to, i.e. students' reported desire to become a gang member may not reflect their ultimate gang membership.

The second excluded study ([Ramsey 2003](#)) used a non-randomised cohort design to assess the impact of GREAT for 7th grade (n=274) students who had received the intervention, compared to 8th grade students (n=148) from the same school who had not received GREAT. The study was excluded because students were not randomised to condition but allocated as a group based on year in school. Additionally, there was no baseline assessment of group characteristics, impeding appraisal of potential group comparability and selection bias. Other methodological limitations include: minimal geographic diversity due to all students coming from one school, which compromised the generalizability of findings; no measure of implementation fidelity or intervention components actually received by participants; and outcomes focusing exclusively on attitudinal change with no behavioural measures.

The two other excluded studies were part of the National Evaluation of GREAT, funded by the United States Bureau of Alcohol, Tobacco and Firearms and the National Institute of Justice. One study ([Esbensen 1999](#)) was a cross-sectional study across eleven cities of 5,935 8th grade students. The study created two ex-post facto comparison groups (students who had participated in GREAT the year before and students who had not). Strengths of this study included its geographic diversity and use of dummy variable sets and progressively restricted samples to control for potential differences among individuals and schools that might bias assessment of programme effect. A fundamental limitation of this study and its reason for exclusion from analysis was that students were not randomised to condition but predetermined based on classroom membership. As the study authors discussed, the tracking system common in United States' schools, in which students are divided into classrooms based on aptitude, can produce substantial heterogeneity across classes that could have created statistically significant differences between comparison groups if only a few classrooms from each school were sampled. This potential for selection bias was compounded by the lack of a baseline assessment of group comparability. This study also suffered from the standard limitations associated with public school surveys-i.e. exclusion of private school, truant, or absent students that could create a population bias-and it did not include a behavioural outcome measure to

directly assess the intervention's intended long-term impact.

The final excluded study and the second part of the National Evaluation of GREAT ([Esbensen 2001](#)) was a four-year longitudinal analysis of 3,568 students from 153 classrooms, 22 schools, and 6 cities across the United States. Allocation to condition occurred on the classroom level and was conducted through an unspecified 'random process' in 15 out of 22 schools. In the other 7 schools, allocation was purposive, due to officer availability or school district restrictions. Results were not available for individual schools, nor could study authors recall or produce documentation as to which schools were randomised and what specific processes were used (communication with study authors via e-mail; message sent by primary reviewer (HF) on 1 June 2007; response from Finn A. Esbensen on 11 June 2007). As such, the study's unclear and at best only partially-randomised allocation process, excluded it from analysis.

Methodological quality of included studies

No randomised controlled trials or quasi-randomised controlled trials were found that fulfilled the inclusion criteria.

Results

No randomised controlled trials or quasi-randomised controlled trials were found that fulfilled the inclusion criteria.

Discussion

This review found no evidence from randomised controlled trials or quasi-randomised controlled trials regarding the effectiveness or ineffectiveness of cognitive-behavioural interventions for gang prevention. Four excluded studies examining Gang Resistance Education and Training (GREAT), found mixed but generally weak indications of programme effect: one case study of students receiving the intervention found a slight, non-significant impact from pre-test to post-test on attitudinal measures, generally in the direction of positive programme effect ([Palumbo 1995](#)); a cohort study found increased gang resistance attitudes from pre-test to post-test among both the intervention and the control group with no differential effect of GREAT participation ([Ramsey 2003](#)); a cross-sectional survey comparing youth who had received GREAT to those who had not found statistically significant differences favouring GREAT participation in nine out of twenty-three peer-group and attitudinal measures and two out of eight behavioural measures (drug use and minor delinquent offences) ([Esbensen 1999](#)); and a longitudinal cohort study similarly comparing youth who had received GREAT to those who had not found statistically significant differences favouring GREAT participation on five out of thirty-two attitudinal and behavioural measures, including risk-seeking behaviour and victimization ([Esbensen 2001](#)) Only two of the studies measured gang membership ([Esbensen 1999](#); [Esbensen 2001](#)) and neither found a statistically significant effect from GREAT participation. However, as discussed in the Description of Studies, study design excluded all of these studies from analysis. Therefore, based on the findings of this systematic review, it is impossible to reach any conclusions regarding the effectiveness or ineffectiveness of cognitive-behavioural interventions for preventing youth gang involvement.

Reviewers' conclusions

Implications for practice

The absence of any randomised controlled trials or quasi-randomised controlled trials of cognitive-behavioural interventions for gang prevention found by this extremely sensitive search strategy makes it difficult to advise practitioners as to future intervention and policy efforts. Four excluded studies evaluating Gang Resistance Education and Training (GREAT), a cognitive-behavioural school-based prevention programme, suggest that there may be only a marginal potential positive impact of such a cognitive-behavioural intervention. However, methodological weaknesses in these excluded studies' designs preclude any definitive conclusions regarding programme effectiveness, ineffectiveness, or harm. As such, the main recommendation for future practice is to demand rigorous primary evaluations that include gang-related outcomes for any existing or developing cognitive-behavioural prevention programmes. Such rigorous evaluations are urgently needed to develop this research field and guide future funding and intervention profiles.

Implications for research

Had any of the four excluded studies been conducted with a more rigorous study design that included randomised or quasi-randomised allocation to condition, their results would have been eligible for inclusion in this systematic review. Had authors of the longitudinal study ([Esbensen 2001](#)) specified allocation processes for each city and/or school, portions of their study also may have been eligible for inclusion. The potential impact of these evaluations was inherently restricted because of their study design. The paucity of research and the insufficient attention to methodological rigour in conducting and funding these evaluations, two of which were executed under the auspices of the United States Bureau of Alcohol, Tobacco, and Firearms and the National Institute of Justice, are unacceptable. Researchers, funding institutions, and policy makers all must demand higher standards of social research to succeed in reducing youth gang involvement and the associated crime and delinquency.

Acknowledgements

Jo Abbott, Trial Search Coordinator of the Cochrane Developmental, Psychosocial and Learning Problems Group, for advice regarding the search strategy. Jennifer Burton, Centre for Evidence-Based Intervention, for editing and formatting.

Potential conflict of interest

This review was supported by the Nordic Campbell Centre. The reviewers have no known conflicts of interest.

Characteristics of excluded studies

Study	Reason for exclusion
Esbensen 1999	<p>Allocation: Not randomised; cross-sectional study with two ex-post facto comparison groups.</p> <p>Participants: 5,935 8th grade students in eleven cities</p> <p>Intervention: Gang Resistance Education and Training (GREAT).</p> <p>Reported results: Statistically significant differences favouring students who participated in GREAT in all three samples on two out of eight behavioural measures (drug use and minor delinquent offences) and nine out of twenty-three attitudinal and peer-group measures (negative attitudes regarding gangs, number of delinquent friends, number of pro-social peers, commitment to pro-social peers, impulsiveness, self-esteem, school commitment, and maternal and paternal attachment) ($p < .05$, two-tailed); group differences favoured intervention group but were non-significant or significant in only one sample for gang membership, total delinquency, offences against persons, and offences against property; all statistically significant differences represented effect sizes in .10 range.</p> <p>Methodological strengths: Geographic diversity; use of dummy variable sets and progressively restricted samples to control for potential confounds; low rate of attrition.</p> <p>Methodological limitations: Students not randomised to condition, predetermined based on classroom membership; no baseline assessment of group comparability; potential population bias, associated with public school surveys; no behavioural outcome measures.</p> <p>.</p>
Esbensen 2001	<p>Allocation: By classroom, not randomised; allocation processes varied among cities and schools.</p> <p>Participants: 3,568 students from 153 classrooms, 22 schools, and 6 cities across the United States.</p> <p>Intervention: Gang Resistance Education and Training (GREAT)</p> <p>Reported results: At 2 year follow-up: only one statistically significant ($p < .05$) pre-post change comparison, fewer than would be predicted by chance; more than half of pre-post changes indicated unfavourable effect of programme, even within selective analysis sites that demonstrated program fidelity. At 4 year follow-up: comparisons favoured students who received GREAT on 28 out of 32 outcome measures, but statistically significant differences on only 5 measures (risk-seeking behaviour, victimization, positive attitudes towards the police, negative attitudes about gangs, and number of friends involved in pro-social activities, $p < .05$), with an average effect size of .11 for the 5 significant outcomes and .04 across all measures; no significant differences for gang membership, drug use, or minor, person, property or status self-reported delinquency.</p> <p>Methodological strengths: 4 nested levels of analysis and four-level hierarchical model to accommodate residual variance components that reflect systematic variation across higher-level units of analysis; 4 year follow-up period.</p>

	<p>Methodological limitations: Unclear allocation processes: unspecified 'random process' used in 15 out of 22 schools; purposive assignment based on officer availability and school district limitations in 7 out of 22 schools; study does not specify which schools used which processes; study authors could not recall or provide documentation of specific processes.</p>
<p>Palumbo 1995</p>	<p>Allocation: Not randomised; no comparison group. Participants: 2,029 students, majority in 7th grade (n=1,723 at post-test). Intervention: Gang Resistance Education and Training (GREAT). Reported results: Slight, non-significant impact on attitudes, reported resistance skills, knowledge of the curriculum, and percentage of the students reporting wanting to be a gang member, generally in the direction of positive programme effect; no change on self-esteem or percentage of students reporting having friends in a gang. Methodological limitations: No comparison group prevents assessment of potential effects on outcome measures from factors other than the intervention; outcome measures may not assess what they intend or purport to; absence of a follow-up period precludes assessment of durability of programme effects or lag-effects.</p>
<p>Ramsey 2003</p>	<p>Allocation: Not randomised; group allocation to condition based on year in school. Participants: 7th grade students (n=274) who had received intervention and 8th grade students (n=148) from the same school who had not received the intervention. Intervention: Gang Resistance Education and Training (GREAT). Reported results: Both experimental and control groups showed greater gang resistance attitudes at post-test than at pre-test, but there was no evidence of a differential effect of GREAT participation: significant pre-test-post-test main effects were found in both groups for attitudes towards risk-taking behaviour, attitudes towards police officers, impulsivity, immorality and rationalization, perceived benefits and perceived penalties of gang membership, and 11 out of 15 forced choice questionnaire items ($p < .0083$, based on the Bonferroni correction model for multiple ANOVAs), but no significant interactions between any pre-test-post-test and experimental-contrast variables were found, indicating no differential impact of participating in GREAT on pre/post test changes. Methodological limitations: Lack of randomisation and no examination of distribution of potential confounds between groups impedes assessment of baseline comparability and selection bias; minimal geographic diversity compromises generalizability; no measure of implementation fidelity or intervention received by participants limits internal validity; exclusive focus on attitudinal change limits validity and reliability of results.</p>

References to studies

References to excluded studies

Esbensen 1999 {published data only}

* Esbensen F-A , Osgood D. Gang Resistance Education and Training (GREAT): Results from the national evaluation. *Journal of Research in Crime and Delinquency* 1999;36(2):194-225.

Esbensen 2001 {published data only}

* Esbensen F-A, Osgood DW, Taylor TJ, Petersen D, Freng A Peterson, Dana Freng, Adrienne. How Great is G.R.E.A.T? Results from a longitudinal, quasi-experimental design. *Criminology and Public Policy* 2001;1(1):87-118.

Palumbo 1995 {published data only}

* Palumba DJ and Ferguson JL. Evaluating gang resistance education and training (GREAT): Is the impact the same as that of drug abuse resistance education (DARE)? *Evaluation Review* 1995;19(6):597-619.

Ramsey 2003 {published data only}

* Ramsey AL, Rust JO and Sobel M. Evaluation of the gang resistance and training (G.R.E.A.T.) program: A school-based prevention program. *Evaluation* 2003;124:297-309.

References to studies awaiting assessment

Lacourse 2003 {published data only}

Lacourse É, Côté S, Tremblay RE. *A Longitudinal-Experimental Design to Test the Role of Parenting and Peer Developmental Trajectories as a Mediator of Violent Antisocial Behavior during Adolescence*. Washington, DC: Society for Prevention Research., 2003.

** indicates the primary reference for the study*

Other references

Additional references

Andreassen 2006

Andreassen TH, Armelius B, Egelund T, Ogden T. Cognitive-behavioural treatment for antisocial behavior in youth in residential treatment (Protocol). *Cochrane Database of Systematic Reviews* 2006, Issue 1.

Battin 1998

Battin SR, Hill KG, Abbott RD, Catalano RF, Hawkins JD. The contribution of gang membership to delinquency beyond delinquent friends. *Criminology* 1998;36(1):93-116.

Carlsson 2005

Carlsson Y, Decker SH. Gang and youth violence prevention and Intervention: Contrasting the Experience of the Scandinavian Welfare State with the United States. In: *European Street Gangs and Troublesome Youth Groups*. Lanham, MD: Alta Mira, 2005:259-286.

Connor 2002

Connor DF. *Aggression and antisocial behaviour in children and adolescents: Research and treatment*. New York: The Guilford Press, 2002.

Counsell 1994

Counsell C, Clarke M, Slattery J, Sandercock P. The miracle of DICE therapy for acute stroke: fact or fictional product of subgroup analysis? *BMJ Clinical Research* 1994;309(6970):1677-1681.

Covey 2003

Covey HC. *Street gangs throughout the world*. Springfield, IL: Charles C Thomas, 2003.

Dane 1998

Dane A, Schneider B. Program integrity in primary and early secondary prevention: Are implementation effects out of control? *Clinical Psychology Review* 1998;18:23-45.

Decker 2005

Decker SC, Weerman FM. *European street gangs and troublesome youth groups*. Lanham, MD: Alta Mira, 2005.

Deeks 2005

Deeks J, Macaskill P, Irwig L. The performance of tests of publication bias and other sample size effects in systematic review of diagnostic test accuracy was assessed. *Journal of Clinical Epidemiology* 2005;58(9):882-893.

Delgado 2004

Delgado M, Llorca J. Bias. *Journal of Epidemiology and Community Health* 2004;58(8):635-641.

Dishion 1999

Dishion TJ, Capaldi DM, Yoerger K. Middle childhood antecedents to progressions in male adolescent substance use: An ecological analysis of risk and protection. *Journal of Adolescent Research* 1999;14(2):175-205.

Dishion 2005

Dishion TJ, Nelson SE, Yasui M. Predicting early adolescent gang involvement from middle school adaptation. *Journal of Clinical Child and Adolescent Psychology* 2005;34(1):62-73.

DOH 2001

DOH. In: Treatment choice in psychological therapies and counselling: Evidence-based clinical practice guideline. Care Guideline. London: Department of Health, 2001.

Egger 1997

Egger M, Davey Smith G, Schneider M, Minder, C. Bias in meta-analysis detected by a simple, graphical test. *BMJ Clinical Research* 1997;315(7109):629-634.

Egley 2000

Egley A Jr. Highlights of the 1999 National Youth Gang Survey. In: Fact Sheet. Washington, DC: US Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2000.

Egley 2006

Egley A Jr, Howell JC, Major AK. National Youth Gang Survey 1999-2001. In: OJJDP Summary. Washington DC: US Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2006.

Esbensen 2000

Esbensen F-A. Preventing adolescent gang involvement. Bulletin. Washington, DC: US Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2000.

Esbensen 2002

Esbensen F-A, Freng A, Taylor TJ, Petersen D, Osgood DW. National Evaluation of the Gang Resistance Education and Training (G.R.E.A.T.) Program. In: Reed WL, Deckers SH, editor(s). Responding to Gangs: Evaluation and Research. Washington DC: National Institute of Justice, US Department of Justice, 2002.

Esbensen 2005

Esbensen F-A, Weerman FM. Youth gangs and troublesome youth groups in the United States and the Netherlands; a cross-national comparison. *European Journal of Criminology* 2005;2(1):5-37.

Farrington 2002

Farrington DP. Developmental criminology and risk-focussed prevention. In: Maguire M, Morgan R, Reiner R, editor(s). *The Oxford Handbook of Criminology*. Oxford: Oxford University Press, 2002:657-701.

Gibbs 1993

Gibbs JC. Moral-cognitive interventions. In: Goldstein AP, Huff CR, editor(s). *The Gang Intervention Handbook*. Champaign, IL: Research Press, 1993.

Goldstein 1993

Goldstein AP. Gang intervention: A historical review. In: Goldstein AP, Huff CR, editor(s). *The Gang Intervention Handbook*. Champaign IL: Research Press, 1993.

Higgins 2002

Higgins J and Thompson S. Quantifying heterogeneity in a meta-analysis. *Statistics in Medicine* 2002;21(11):1539-1558.

Higgins 2003

Higgins J, Thompson S, Deeks J, Altman D. Measuring inconsistency in meta-analyses. *BMJ Clinical Research* 2003;327(7414):557-60.

Higgins 2005

Higgins J, Green S. *Cochrane Handbook for Systematic Reviews of Interventions*. The Cochrane Library. 3 edition. Chichester, UK: John Wiley & Sons, Ltd, 2005.

Hill 1999

Hill KG, Howell JC, Hawkins JD, Battin-Pearson SR. Childhood risk factors for adolescent gang membership: Results from the Seattle Social Development Project. *Journal of Research in Crime and Delinquency* 1999;36(3):300-322.

Hill 2001

Hill KG, Lui C and Hawkins JD. In: Early precursors of gang membership: A study of Seattle youth. Bulletin. Washington, DC: US Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 2001:5.

Hollin 1993

Hollin CR. Cognitive-behavioural interventions. In: Goldstein AP, Huff CR, editor(s). The Gang Intervention Handbook. Champaign, IL: Research Press, 1993.

Howell 1998

Howell, JC. Youth Gangs: An Overview. Bulletin. Washington, DC: US Department of Justice, Office of Juvenile Programs, Office of Justice and Delinquency Prevention, 1998.

Huff 1993

Huff CR. Gangs in the United States. In: Goldstein AP, Huff CR, editor(s). The Gang Intervention Handbook. Champaign, IL: Research Press, 1993.

Huff 1998

Huff CR. Comparing the criminal behaviour of youth gangs and at-risk youths. Research in brief. Washington, DC: United States Department of Justice, Office of Justice Programs National Institute of Justice, 1998.

Juni 2001

Juni P, Altman DG, Egger M.. Systematic reviews in health care: Assessing the quality of controlled clinical trials. BMJ Clinical Research 2001;323(7303):42-46.

Klein 1995

Klien MW. The American street gang: Its nature, prevalence, and control. New York: Oxford University Press, 1995.

Klein 2006

Egley A Jr, Maxson CL, Miller J, Klein MW. Street gangs: A cross-national perspective. In: The modern gang reader. Los Angeles, CA: Roxbury Publishing Company, 2006.

Kodluboy 1993

Kodluboy DW, Evenrud LA. School-based interventions: Best practices and critical issues. In: Goldstein AP, Huff CR, editor(s). The Gang Intervention Handbook. Research Press: Champaign, IL, 1993.

Landenberger 2005

Landenberger NA, Lapsey MW. The positive effects of cognitive-behavioural programs for offenders: A meta-analysis of factors associated with effective treatment. *Journal of Experimental Criminology* 2005;1:451-476.

Lipsey 2001

Lipsey MW, Chapman GL, Landenberger NA. Cognitive-behavioral programs for offenders. *The Annals of the American Academy of Political Science* 2001;578:144-157.

Lipsey 2006

Lipsey MW, Landenberger NA. Cognitive-behavioural programs for juvenile and adult offenders: A meta-analysis of controlled intervention studies. *The Campbell Collaboration* (www.campbellcollaboration.org) 2006 (October):21.

Lochman 1994

Lochman JE, Dodge KA. Social-cognitive processes of severely violent, moderately aggressive and non-aggressive boys. *Journal of Consulting and Clinical Psychology* 1994;62(2):366-74.

Lundman 2001

Lundman RJ. *Prevention and control of juvenile delinquency*. New York: Oxford University Press, 2001.

Maxson 1998

Maxson CL, Whitlock ML, Klein MW. Vulnerability to street gang membership: Implications for practice. *Social Service Review* 1998;March:70-91.

McGuire 2000

McGuire J. *Cognitive-behavioural approaches: An introduction to theory and research*. Communication Directorate. London: Home Office, 2000.

Moher 1999

Moher D, Cook D, Eastwood S, Olkin, I, Rennie D, Stroup D. Improving the quality of reports of meta-analyses of randomised controlled trials: the QUOROM statement. *Lancet* 1999;354:1896-1900.

Montgomery 2005

Montgomery P, Gardner F, Operario D, Mayo-Wilson E, Tamayo S, Underhill K. In: The Oxford Implementation Reporting Index: The development of an indicator of treatment fidelity in systematic review of psycho-social interventions (poster). Melbourne: XIII Cochrane Colloquium, 22-26 October, 2005.

Moore 1998

Moore JP and Terrett CP. Highlights of the 1996 national youth gang survey. Fact Sheet. US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention: Washington, DC, 1998.

Moore 1999

Moore JP and Cook IL. Highlights of the 1998 National Youth Gang Survey. In: Fact Sheet. Washington, DC: US Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 1999.

MRC 2000

MRC. A framework for development and evaluation of RCTs for complex interventions to improve health. London: Medical Research Council, 2000.

OJJDP 2004

OJJDP. Gang Prevention. Model Programs Guide Version 2.5 2004.

Oxman 1992

Oxman A and Guyatt G. A consumer's guide to sub-group analyses. *Annals of Internal Medicine* 1992;116(1):78-84.

Papachristos 2005

Papachristos AW. *Gang World*. *Foreign policy* 2005;147(Mar/Apr):48-55.

Pearson 2002

Pearson FS, Lipton DS, Cleland CM, Yee DS. The effects of behaviour/cognitive-behavioural programs on recidivism. *Crime and Delinquency* 2002;48(3):476-495.

Ribisl 1993

Ribisl KM, Davidson WS. Community change interventions. In: Goldstein AP, Huff CR, editor(s). *The Gang Intervention Handbook*. Champaign, IL: Research Press, 1993.

Snyder 2006

Snyder HN, Sickmund M. Juvenile Offenders and Victims: 2006 National Report. Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention, 2006.

Spergel 1993

Spergel IA, Curry GD. The national youth gang survey: A research and development process. In: Goldstein AP, Huff CR, editor(s). The Gang Intervention Handbook. Champaign, IL: Research Press, 1993.

Spergel 1994

Spergel I, Curry D, Chance R, Kane C, Ross R, Alexander A, Simmons E, Oh S. Gang suppression and intervention: Problem and response. Research Summary. Washington, DC: US Department of Justice, Office of Juvenile Justice and Delinquency Prevention, 1994.

Stephens 1993

Stephens RD. School-based interventions: Safety and security. In: Goldstein AP, Huff CR, editor(s). The Gang Intervention Handbook. Champaign, IL: Research Press, 1993.

Sterne 2001

Sterne JA, Egger M. Funnel plots for detecting bias in meta-analysis: guidelines on choice of axis. *Journal of Clinical Epidemiology* 2001;54(10):1046-1055.

Stinchcomb 2002

Stinchcomb JB. Promising (and not-so-promising) gang prevention and intervention strategies: A comprehensive literature review. *Journal of Gang Research* 2002;10(1):27-46.

Thornberry 1997

Thornberry, TP, Burch JHI. Gang members and delinquent behavior. *Bulletin*. Washington, DC: US Department of Justice, Office of Justice Programs, Justice and Delinquency Prevention, 1997.

Turner 2007

Turner W, MacDonald GM, Dennis JA. Cognitive-behavioural training interventions for assisting foster carers in the management of difficult behaviour. *Cochrane Database of Systematic Reviews* 2007, Issue 1.

Wasserman 2003

Wasserman GA, Keenan K, Tremblay RE, Coie JD, Herrenkohl TI, Loeber R, Petechuk D. Risk and protective factors of child delinquency. Child Delinquency Bulletin Series. Washington, DC: US Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention, 2003.

White 2002

White R. School Strategies to Deal with Gangs; trends & issues in crime and criminal justice. 6 edition. Canberra: Australian Institute of Criminology, 2002.

Wilson 2005

Wilson DB, Bouffard LA, MacKenzie DL. A quantitative review of structured, group-oriented, cognitive-behavioral programs for offenders. Criminal Justice and Behaviour 2005;32(2):172-203.

Yusuf 1991

Yusuf S, Wittes J, Probstfield J, Tyroler HA. Analysis and interpretation of treatment effects in subgroups of patients in randomised clinical trials. JAMA 1991;266(1):93-98.

Additional tables

01 ASSIA searched 1987 to April 2007

ASSIA

1. ASSIA, Applied Social Science Index & Abstracts (1987 to April 2007) was searched using CSA and the following terms:

[((young people) or adolescen* or child* or boy* or girl*) or KW=(youth* or adolescen* or juvenile* or child* or schoolchild* or boy* or girl* or teen*)]

and

[DE=(delinquen* or devian* or (juvenile crime) or (antisocial behavio*r) or gangs or (criminal gangs) or (street gangs) or (youth gangs)) or KW=(gang* or (youth within 3 group*) or delinquen* or devian* or anti*social)]

and

[DE=((cognitive therapy) or (cognitive-behavo*ral factors) or (behavio*ral training) or (behavio*r modification) or (behavio*r therapy) or (cognitive behavio*r therapy) or (psychological skills training) or (social skills training) or (cognitive skills training)) or KW=((cognitive within 3 therap*) or (cognitive within 3 training) or (behavio*r within 3 therap*) or (behavio*r within 3 training) or (behavio*r within 3 modif*) or (skill* within 3 training))]

02 CINAHL searched 1982 to April Week 4 2007

CINAHL

CINAHL, Cumulative Index to Nursing and Allied Health (1982 to April Week 4 2007) was searched using OVID and the following terms:

[(adolescent/ or child/) or (youth\$ or adolescen\$ or juvenile\$ or child\$ or schoolchild\$ or boy\$ or girl\$ or teen\$ or (young person\$) or (young people\$)).tw.]

and

[(juvenile delinquency/ or Gangs/) or (gang\$ or (youth\$ adj3 group\$) or delinquen\$ or devian\$ or anti?social).tw.]

and

[(cognitive therapy/) or ((cognitive adj3 therap\$) or (cognitive adj3 train\$) or (behavio?r adj3 therap\$) or (behavio?r adj3 train\$) or (behavio?r adj3 modif\$) or (skill\$ adj3 train\$)).tw.]

03 Criminal Justice Abstracts 1968 to November 2007

CJA

CJA, Criminal Justice Abstracts, (1968 to November 2007) was searched using CSA and the following terms:

[(DE=juvenile) or (KW=(youth* or adolescen* or juvenile*) or KW=(child* or schoolchild* or boy*) or (girl* or teen* or young person* or young people*))]

and

[(DE=(juvenile delinquency)) or (KW=(gang* or (youth* within 3 group*)) or (KW=(delinquen* or devian* or anti*social))]

and

[(DE=(treatment programs)) or (KW=(cognitive within 3 therap*) or (cognitive within 3 train*) or (behavio*r within 3 therap*) or (behavio*r within 3 train*) or (behavio*r within 3 modif*) or (skill* within 3 train*))]

04 Diss Abstracts 1861 to April 2007

Diss Abstracts

Dissertation Abstracts International A: The Humanities and Social Sciences (1861 to April 2007) was searched using the following terms:

[youth? or adolescen? or juvenile? or child? or schoolchild? or boy? or girl? or teen? or (young person?) or (young people?)]

and

[delinquen? or devian? or anti-social or antisocial or gang? or (youth? W/15 group?)]

and

[(cognitive W/15 therap?) or (cognitive W/15 training) or (behavi?r W/15 therap?) or (behavi?r W/15 training) or (behavi?r W/15 modif?) or (skill? W/15 training) or SU(Psychology, Cognitive) or SU(Psychology, Behavioral)]

05 EMBASE searched 1980 to 2007 Week 17

EMBASE

EMBASE (1980 to 2007 Week 17) was searched using OVID and the following terms:

[adolescent/ or juvenile/ or child/ or boy/ or girl/ or preschool child/ or school child/ or adolescence/ or childhood/ or (youth\$ or adolescen\$ or juvenile\$ or child\$ or schoolchild\$ or boy\$ or girl\$ or teen\$ or (young person\$) or (young people\$)).tw.]

and

[delinquency/ or gang/ or juvenile delinquency/ or Antisocial Behavior/ or (gang\$ or (youth\$ adj3 group\$) or delinquen\$ or devian\$ or anti?social).tw.]

and

[behavior modification/ or behavior therapy/ or cognitive therapy/ or ((cognitive adj3 therap\$) or (cognitive adj3 train\$) or (behavio?r adj3 therap\$) or (behavio?r adj3 train\$) or (behavio?r adj3 modif\$) or (skill\$ adj3 train\$)).tw.]

06 ERIC (Educational Resources Information Center Unlimited) 1966 to May 2007

ERIC

ERIC, Educational Resources Information Center (Unlimited, 1966 to May 2007) was searched using CSA and the following terms:

[DE=(youth* or adolescen* or child* or (young adult*) or preadolescen* or (late adolescen*)) or KW=(youth* or adolescen* or juvenile* or child* or schoolchild* or boy* or girl* or teen* or (young person*) or (young people*))]

and

[DE=(delinqueny or (juvenile gangs)) or KW=(gang* or (youth within 3 group*) or delinquen* or devian* or anti*social)]

and

[DE=((cognitive restructuring) or (behavio*r modification)) or KW=((cognitive within 3 therap*) or (cognitive within 3 training) or (behavio*r within 3 therap*) or (behavio*r within 3 training) or (behavio*r within 3 modif*) or (skill* within 3 training))]

07 IBSS (International Bibliography of the Social Sciences) 1951 to April 2007

IBSS

IBSS, International Bibliography of the Social Sciences (1951 to April Week 04 2007) was searched using OVID and the following terms:

[(youth or adolescents or adolescence or children).sh. or (youth\$ or adolescen\$ or juvenile\$ or child\$ or schoolchild\$ or boy\$ or girl\$ or teen\$ or (young person\$) or (young people\$)).tw.]

and
[juvenile delinquency.sh. or gangs.sh. or (gang\$ or (youth\$ adj3 group\$) or delinquen\$ or devian\$ or anti?social).tw.]
and
[(cognitive behaviour theory cbt or cognitive behaviour therapy).sh. or ((cognitive adj3 therap\$) or (cognitive adj3 train\$) or (behavio?r adj3 therap\$) or (behavio?r adj3 train\$) or (behavio?r adj3 modif\$) or (skill\$ adj3 train\$)).tw.]

08 LexisNexis Butterworths Services, all subscribed journals up to April 2007

LexisNexis

LexisNexis Butterworths Services, all subscribed journals (up to April 2007) was searched using the following terms:

[(youth or adolescen! or juvenile or child! or schoolchild! or boy or girl or teen! or (young person!) or (young people!))]
and
[(gang! or (youth w/3 group) or delinquen! or devian! or antisocial or anti*social)]
and
[((cognitive w/3 therapy or training) or (behaviour w/3 therapy or training or modif!) or (behaviour w/3 therapy or training or modif!) or (skill w/3 training))]

09 LILACS (Latin American and Caribbean Health Services Literature) to April 2007

LILACS

LILACs, Latin American and Caribbean Health Services Literature (up to April 2007) was searched using VHL and the following terms:

[youth\$ or adolescen\$ or juvenile\$ or child\$ or schoolchild\$ or boy\$ or girl\$ or teen\$ or (young person\$) or (young people\$) [Palavras] or "adolescent" or "child" [Descriptor de assunto]]
and
[gang\$ or (youth\$ adj3 group\$) or delinquen\$ or devian\$ or anti?social [Palavras] or "juvenile delinquency" [Descriptor de assunto]]
and
[(cognitive adj3 therap\$) or (cognitive adj3 train\$) or (behavio?r adj3 therap\$) or (behavio?r adj3 train\$) or (behavio?r adj3 modif\$) or (skill\$ adj3 train\$) [Palavras] or "cognitive therapy" [Descriptor de assunto]]

10 MEDLINE searched 1950 to April 2007

MEDLINE

MEDLINE (1950 to April Week 3 2007) was searched using OVID and the following terms:

[(adolescent/ or child/) or (youth\$ or adolescen\$ or juvenile\$ or child\$ or schoolchild\$ or boy\$ or girl\$ or teen\$ or (young person\$) or (young people\$)).tw.]

and

[(juvenile delinquency/) or (gang\$ or (youth\$ adj3 group\$) or delinquen\$ or devian\$ or anti?social).tw.]

and

[(cognitive therapy/) or ((cognitive adj3 therap\$) or (cognitive adj3 train\$) or (behavio?r adj3 therap\$) or (behavio?r adj3 train\$) or (behavio?r adj3 modif\$) or (skill\$ adj3 train\$)).tw.]

11 National Criminal Justice Reference Service, Abstracts DB (up to October 2007)

NCJR Service, Abs DB

National Criminal Justice Reference Service, Abstracts Database (up to October 2007) was searched using the following terms:

[(youth* OR adolescen* OR juvenile* or child* OR schoolchild* OR boy* OR girl* OR teen* OR (young people*) OR (young person*))]

AND

[(gang* OR delinquen* OR devian* OR anti*social OR (youth group* within 3))]

AND

[((cognitive (therp* OR train*) within 3) OR (behavio*r (therap* OR train* OR modif*) within 3) OR (skill* train* within 3))]

12 PsycINFO (1806 to April Week 1 2007)

PsycINFO

PsycINFO (1806 to April Week 1 2007) was searched using OVID and the following terms:

[(youth\$ or adolescen\$ or juvenile\$ or child\$ or schoolchild\$ or boy\$ or girl\$ or teen\$ or (young person\$) or (young people\$)).tw.]

and

[(juvenile delinquency/ or juvenile gangs/ or antisocial behavior/ or predelinquent youth/) or (gang\$ or (youth\$ adj3 group\$) or delinquen\$ or devian\$ or anti?social).tw.]

and

[(cognitive therapy/ Cognitive techniques/ or Cognitive behavior therapy/) or ((cognitive adj3 therap\$) or (cognitive adj3 train\$) or (behavio?r adj3 therap\$) or (behavio?r adj3 train\$) or (behavio?r adj3 modif\$) or (skill\$ adj3 train\$)).tw.]

13 Sociological Abstracts (inception to 2007)

Soc Abstracts

Sociological Abstracts (Earliest to 2007) was searched using CSA and the following terms:

[DE=(youth* or adolescen* or child* or (young adult*)) or KW=(youth* or adolescen* or juvenile* or child* or schoolchild* or boy* or girl* or teen* or (young person*) or (young people*))]

and

[DE=(gangs or (juvenile offenders) or (juvenile delinquency)) or KW=(gang* or (youth within 3 group*) or delinquen* or devian* or anti*social)]

and

[DE=(cognition or (behavio*r modification)) or KW=((cognitive within 3 therap*) or (cognitive within 3 training) or (behavio*r within 3 therap*) or (behavio*r within 3 training) or (behavio*r within 3 modif*) or (skill* within 3 training))]

14 Table of methods archived for use in future updates

Issue	Method
Data management	<p>Data extraction</p> <p>Review authors will independently conduct data extraction using a specially developed data extraction form. Where the essential statistics are not presented or further information is required, study authors will be contacted. Relevant information will be included in the description of studies.</p>
Data collection	<p>When more than two treatment arms were included in the same trial, all arms will be described.</p> <p>The following data will be collected for all trial arms:</p> <ol style="list-style-type: none"> 1) Descriptive data, including participant demographics (age, gender, ethnicity, familial gang involvement, previous criminal record); 2) Intervention characteristics (including delivery, duration, setting, within-intervention variability, and programme staff demographics); 3) Other services received; and 4) Outcome measures listed above. <p>The following data will be collected for all studies:</p> <ol style="list-style-type: none"> 1) Programme differentiation, such as contact or crossover between groups, modifications of procedures, use of intervention curricula or protocols, and actual frequency and duration of administered and received interventions (Dane 1998, Montgomery 2005, MRC 2000); and 2) Context.
Methodological quality	<p>Both reviewers will independently assign each included study to a quality category described in the Cochrane Handbook (Higgins 2005). Study authors will be contacted if further information could resolve initial disagreements about quality categories and if a consensus cannot be reached, the Review Group Coordinator of the CDPLPG will be consulted. Criteria to determine quality categories:</p> <p>A) indicated adequate concealment of the allocation (for example, by telephone randomisation, or use of consecutively numbered, sealed, opaque envelopes);</p> <p>(B) indicated uncertainty about whether the allocation was adequately concealed (for example, where the method of concealment is not known);</p> <p>(C) indicated that the allocation was definitely not adequately concealed (for example, open random number lists or quasi-randomisation such as alternate days, odd/even date of birth, or hospital number)</p>

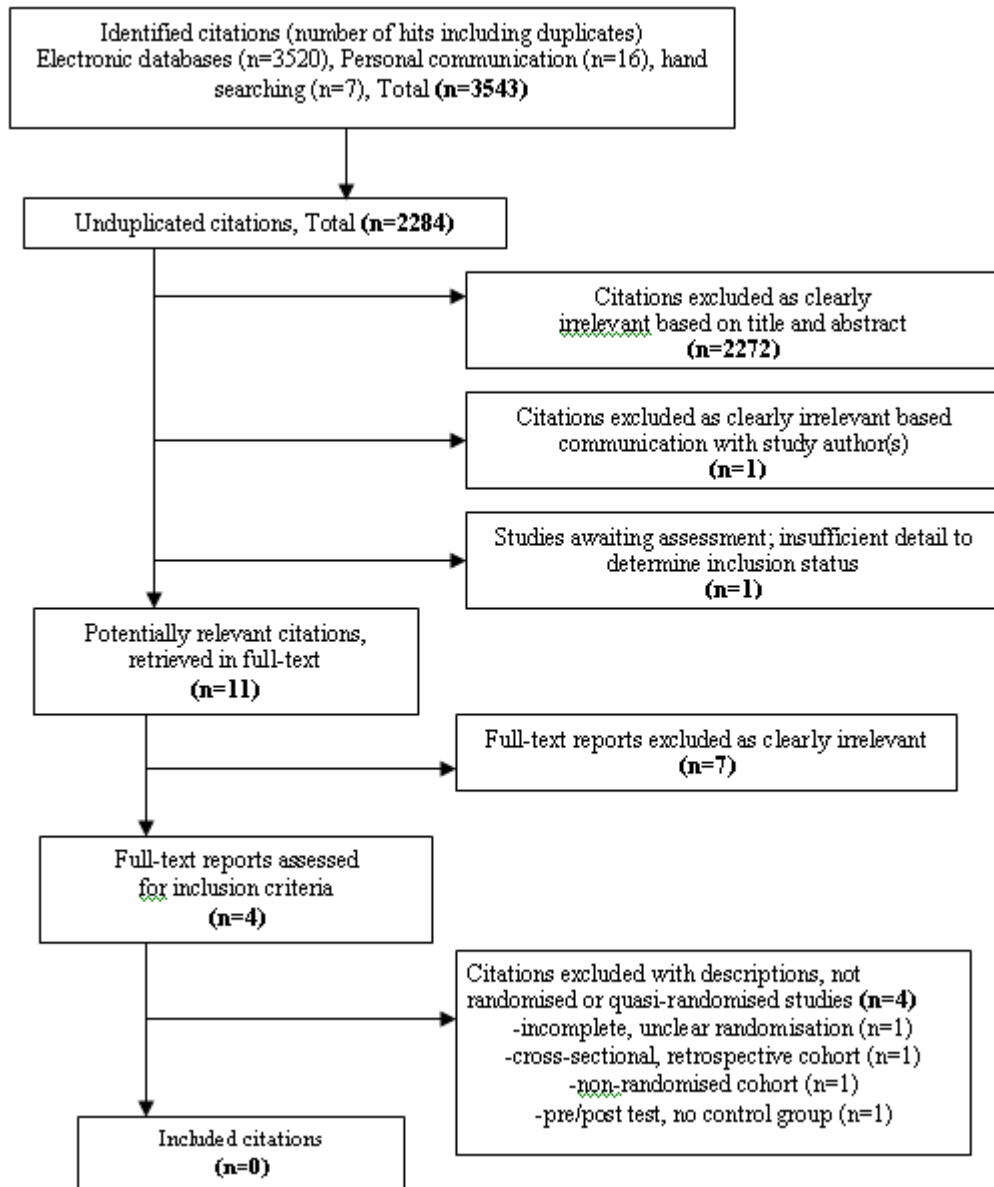
	<p>In studies classified as 'B' (unclear) and 'C' (inadequate) the pre-treatment assessment and the allocation of participants will be described in the Description of Studies to identify differences between intervention and control groups that may have existed at baseline.</p> <p>Existing scales for measuring the quality of controlled trials have not been properly developed, are not well-validated and are known to give differing (even opposing) ratings of trial quality in systematic reviews (Moher 1995). At present, evidence indicates that, "scales should generally not be used to identify trials of apparent low quality or high quality in a given systematic review. Rather, the relevant methodological aspects should be identified a priori and assessed individually" (Juni 2001).</p> <p>The following components would have been described in narrative form in the Description of studies:</p> <ol style="list-style-type: none"> 1) Allocation bias (Was group assignment related to outcomes or the interventions received? Attention would have been given to the possible impact of allocation methods on the magnitude and direction of results); 2) Performance bias (Were there systematic differences in care given to the treatment and control groups other than the intervention in question; could the services provided have been influenced by something other than the interventions being compared?); 3) Detection bias (Were outcomes influenced by anything other than the constructs of interest, including biased assessment or the influence of exposure on detection?); 4) Report bias (Were the outcomes, measures and analyses selected a priori and reported completely? Were participants biased in their recall or response?); 5) Attrition bias (Could deviations from protocol, including missing data and dropout, have influenced the results?) (Delgado 2004, Juni 2001); and 6) Outcome validity (Were the outcome measures objective, validated for the population, reported directly by the user or obtained through official records, etc.?).
Multiple measures	<p>When a single study provides multiple measures of the same outcome, we will report all measures. For example, if a study includes two measures of quality of life (either measures completed by the same respondent or measures completed by different respondents), we will report both of them. If measures of an outcome are combined for meta-analysis, we will conduct multiple meta-analyses if multiple studies report multiple measures that can be combined in this way. If we conduct meta-analyses in which only one effect estimate can be used from each study, we will select one measure if it is more valid or reliable than the others. For example, if a single respondent completes both a validated scale assessing multiple domains of quality of life and an unvalidated visual analogue scale, we will select the validated scale. If a study includes several equally valid measures and only one effect estimate can be used for meta-analysis, we will calculate the average effect for this purpose (e.g. the average SMD</p>

	or RR weighted by variance).
Multiple arms	If two or more eligible intervention groups are compared to an eligible control, thus requiring that the reviewers choose a single intervention group for comparison or inclusion in a meta-analysis, the most intense service or the service that best follows the goals of personal assistance (e.g., services that give users more control) will be included in the meta-analysis. If a single eligible intervention group is compared to multiple eligible control groups, 'no-treatment' controls will be chosen over other groups for comparison and inclusion in meta-analyses. For studies that do not have no-treatment condition, the most common intervention in clinical practice will be chosen to maximise the external validity of the results.
Data synthesis (Outcome data)	Meta-analyses may be conducted to combine comparable outcome measures across studies. All overall effects will be calculated using inverse variance methods. Random-effects models will be used because studies may include somewhat different treatments or populations.
Continuous data	Mean differences, standardised mean differences (SMDs) and 95% CIs will be calculated for comparisons of continuous outcome measures.
Dichotomous data	Within studies, relative risks (RRs) and 95% confidence intervals (CIs) will be calculated for comparisons of dichotomous outcome measures. Dichotomous outcome measures may be combined by calculating an overall RR and 95% CI.
Continuous outcomes	Continuous outcome measures may be combined when means and standard deviations or complete significance testing statistics are available, unless statistical tests assuming normality would be inappropriate. For example, for scales beginning with a finite number (such as 0), effect estimates will not be combined unless a mean is greater than its standard deviation (otherwise the mean would be very unlikely to be an appropriate measure of the centre of the distribution). If continuous outcomes are measured identically across studies, an overall weighted mean difference (WMD) and 95% CI may be calculated. If the same continuous outcome is measured differently across studies, an overall standardised mean difference (SMD) and 95% CI may be calculated (Higgins 2005). SMDs will be calculated using Hedges g.
Types of analyses	Studies in which participants are analysed as members of the groups to which they were originally assigned (intention-to-treat analysis), studies that include only those participants who were willing or able to provide data (available-case analysis), and studies that analyse participants who adhered to the study's design (per-protocol analysis; Higgins 2005) will be analysed separately. Studies in which the reasons for excluding participants from analyses can not be determined from relevant reports or through contact with the authors will be considered with per-protocol analyses.
Homogeneity	The consistency of results will be assessed using the I-squared statistic (Higgins 2002; Higgins 2003). If there is evidence of heterogeneity (Q-statistic p less than or equal to 0.1 coupled with an I2 value of 25% or greater), the

	authors will consider sources according to pre-specified subgroup analyses and sensitivity analyses (below) but will not report an overall estimate of effect size. If heterogeneity remains within these subgroups, the review will report the results on a trial-by-trial basis, in a narrative summary.
Subgroup analyses	<p>Large numbers of subgroups may lead to misleading conclusions and are best kept to a minimum (Counsell 1994; Oxman 1992; Yusuf 1991). If possible, this review will include separate effect estimates for the following subgroups:</p> <ol style="list-style-type: none"> 1) Organisation of services 2) Place of residence 3) Acquisition of impairment 4) Amount of assistance
Assessment of bias	Sensitivity analyses will investigate the influence of lower quality studies (i.e., those rated C and D on allocation concealment) on the results of the review. To investigate the possibility of bias, including publication bias, funnel plots will be drawn (Deeks 2005; Egger 1997; Sterne 2001). In the event of asymmetry, the reviewers will seek input from methodologists, including the Cochrane and Campbell Collaboration Methods Groups, on appropriate analyses.
Graphs	When meta-analyses are performed, data will be entered into RevMan in such a way that the area to the left of the line of no effect indicates a favourable outcome for personal assistance.

Additional figures

Figure 01



Trial selection process of eligible randomised-controlled trials or quasi-randomised controlled trials of cognitive-behavioural interventions from all identified citations

Contact details for co-reviewers

Ms Herrick Fisher
Researcher
Centre for Evidence-Based Intervention
University of Oxford
Barnett House
32 Wellington Square
Oxford
UK
OX1 2ER
Telephone 1: 44 1865 280325
Facsimile: 44 1865 270324
E-mail: cricket.fisher@hertford.ox.ac.uk

Dr Frances Gardner
University Lecturer
Department of Social Policy and Social Work
University of Oxford
Barnett House
32 Wellington Square
Oxford
UK
OX1 2ER
Telephone 1: +44 1865 270325
E-mail: frances.gardner@socres.ox.ac.uk