

Effectiveness of 12 Types of Interventions in Reducing Juvenile Offending and Antisocial Behaviour

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Abstract: The main aim of this article is to summarize the best available evidence (from systematic reviews) of the effectiveness of 12 types of interventions in reducing juvenile offending and antisocial behaviour. In the interests of making the results widely understandable to researchers, practitioners, policy makers, and the general public, all effect sizes are converted into percentage decreases in antisocial behaviour or offending. Based on the most important systematic review in each category, the most effective interventions are parent training, focused deterrence, child skills training, cognitive-behavioural therapy, mentoring, and family therapy. Anti-bullying programs, anti-cyberbullying programs, and pre-court diversion programs are quite effective, while school exclusion reduction, after-school programs, and boot camps are least effective. The good news is that, based on estimated reductions in offending, intervention programs are usually found to be much more effective than is commonly believed (based on other measures).

Keywords: antisocial behaviour, delinquency, recidivism, intervention effectiveness, systematic reviews

Résumé : Le but premier de cet article est de faire, à partir de revues systématiques, un résumé des recherches les plus probantes sur l'efficacité de 12 types d'interventions visant la diminution des infractions et des comportements antisociaux chez les jeunes. Afin de rendre ces résultats compréhensibles à une diversité de chercheur-es, de praticien-nes, de décideurs et décideuses politiques et au grand public, l'ampleur des effets est convertie en pourcentage de diminution du comportement antisocial ou de l'infraction. D'après les revues systématiques les plus importantes de chaque catégorie, les interventions les plus efficaces sont : l'éducation des parents, la dissuasion orientée, le développement des compétences de l'enfant, la thérapie comportementale et cognitive, le mentorat et la thérapie familiale. Les programmes de lutte à l'intimidation et à la cyberintimidation et les programmes de déjudiciarisation avant comparution sont assez efficaces,

tandis que les programmes de lutte contre l'exclusion à l'école, les activités parascolaires et les camps d'entraînement le sont moins. La bonne nouvelle est que, selon la diminution estimée des infractions, les programmes d'intervention sont beaucoup plus efficaces que ce que l'on croit généralement (en se fondant sur d'autres mesures).

Mots-clés : comportement antisocial, délinquance, récidive, efficacité de l'intervention, révisions systématiques

The main aim of this article is to review the effectiveness of 12 types of interventions in reducing juvenile offending and antisocial behaviour. This article is based on 12 reviews completed as part of a project commissioned by the U.K. Youth Endowment Fund (YEF) and carried out under the auspices of the Campbell Collaboration in 2021, to create a Toolkit for “what works” in preventing children and young people from becoming involved in crime and violence. The 12 types of programs are (1) anti-bullying; (2) anti-cyberbullying; (3) school exclusion reduction; (4) parent training; (5) family therapy; (6) after-school programs; (7) mentoring; (8) child skills training; (9) cognitive-behavioural therapy; (10) boot camps; (11) pre-court diversion; (12) focused deterrence. These types of interventions were considered to be among the most important ones.

The main outcome measures were of antisocial behaviour (including bullying and cyberbullying) for the first four interventions, of delinquency for the next four interventions, and of reoffending for the final four interventions. Generally, the first four programs targeted children and/or adolescents, while the other eight programs targeted juveniles under age 18. Generally (with the exception of parent training), the first four programs were universal rather than targeting at-risk youth, while the next four programs targeted at-risk youth, and the last four programs targeted offenders. Generally, short-term rather than longer-term effects of interventions are reported. The full reports of these reviews (all except cyberbullying, which was excluded because of its overlap with school bullying) are available on the YEF website (see *References*). This article presents the first summary of all 12 reviews.

In assessing the effectiveness of each type of intervention, the main aim was to identify the best and most recent (up to 2021) systematic reviews of effectiveness, with outcome measures of antisocial behaviour, delinquency, or reoffending. Each review had to conform to the requirements of a systematic review (e.g., [Farrington and Petrosino 2000](#)), preferably to Campbell Collaboration standards, with explicit methodological quality inclusion criteria, extensive searches for evaluations, and a meta-analysis yielding one or more quantitative effect sizes.

Systematic reviews usually report a Cohen's d effect size, but this is not very understandable (e.g., to practitioners, policy makers, or the general public), and it gives a false impression of small effects. Classically, $d = 0.2$ is considered to be a small effect, $d = 0.5$ is considered to be a medium effect, and $d = 0.8$ is considered to be a large effect ([Cohen 1988](#)). However, the use of a different metric gives a different and more realistic impression. For example, [Farrington and Koegl \(2015\)](#) estimated that the effect of the SNAP (Stop Now And Plan) under-12 cognitive-behavioural skills training program in Toronto ([Augimeri, Farrington, Koegl, and Day 2007](#)) was between $d = 0.2$ and $d = 0.4$, based on independent evaluations. They transformed these d -values into percentage decreases in offending between 18% and 33%; an 18% decrease does not seem to be a “small” effect, and a 33% decrease seems quite a large effect rather than less than a “medium” effect.

In this article, Cohen's d was transformed into the odds ratio (OR) using $\text{Ln}(\text{OR}) = 1.814 \times d$ (Chinn 2000; Lipsey and Wilson 2001: 202). We use an OR greater than 1 to indicate an effective program. In the interests of presenting widely understandable results, the OR was then transformed into percentage decreases, assuming baseline prevalence of either 25% or 50%. These percentages define a plausible range of values.

Most systematic reviews report detailed information about effect sizes but not about prevalence. However, one of our main 12 reviews included a detailed table of evaluation studies from which a number of prevalences could be extracted, namely Table 8 of the Campbell review of anti-bullying programs by Gaffney, Ttofi, and Farrington (2021a). In most cases, mean scores were reported in these evaluations, but in some cases, prevalences of bullying perpetration and victimization were reported. Averaging over 18 different studies presented in this table, the average prevalence of bullying perpetration in the control condition before the intervention was 25%. Also, in the Cambridge Study in Delinquent Development or CSDD (Farrington 2012), 25% of males were convicted between ages 10 and 17.

Prevalences of recidivism are likely to be greater than prevalences of antisocial behaviour or delinquency. For example, Cottle, Lee, and Heilbrun (2001) published a meta-analytic review of 25 studies on the prediction of juvenile recidivism. They reported that the overall prevalence of recidivism was 48% in the average follow-up period of nearly four years. Also, in a systematic review of pre-court diversion, Wilson, Brennan, and Olaghère (2018) assumed a prevalence of recidivism of 50% in assessing the effects of programs on prevalence. As mentioned, in estimating the percentage decrease in outcomes caused by different programs, we report results for both 25% and 50% prevalences in the control condition.

The reviews of the 12 types of interventions will now be summarized (see Table 1; the most important review is listed first in each category). Once again, the main aim, based on the best and most recent systematic reviews, is to assess the relative effectiveness of these 12 types of interventions.

Anti-bullying programs (Gaffney, Farrington, and White 2021b)

There is no doubt that bullying perpetration predicts later offending and violence. For example, Ttofi, Farrington, Lösel, and Loeber (2011) published a systematic review of 18 longitudinal studies and found a large summary OR = 2.50 for bullying perpetration predicting offending up to 11 years later. Anti-bullying programs are designed to reduce school bullying. The intervention components may include a whole-school approach, anti-bullying policies, classroom rules, information for parents, peer involvement, curriculum materials, and work with victims (Gaffney, Ttofi, and Farrington 2021b). The Olweus Bullying Prevention Program (Olweus 1994) is a pioneering and influential example.

The two systematic reviews that were judged to be the most important were the Campbell review by Gaffney, Ttofi, and Farrington (2019b) and Gaffney, Farrington, and Ttofi (2021a) and the review by Ng, Chua, and Storey (2022). Gaffney et al. (2019b) reviewed 100 evaluations, published in 1983–2017, of over 60 different programs, including randomized trials, quasi-experimental evaluations, and age-cohort designs (where children of each age before the intervention are compared with different children of the same age after the intervention). Ng et al. (2022) only reviewed randomized trials, and included 11 evaluations of seven different programs, published in 2000–2018.

Table 1: Results of systematic reviews

Intervention	Review	N	Outcome	d	OR	%D25	%D50
Anti-bullying	Gaffney et al. (2019b)	81	Bullying perpetration	0.15	1.32	19	14
	Ng et al. (2020)	9		0.30	1.72	35	26
Anti-cyberbullying	Gaffney et al. (2019a)	18	Cyberbullying	0.11	1.23	15	10
	Ng et al. (2020)	5	Perpetration	0.16	1.34	20	15
School exclusion reduction	Valdebenito et al. (2018)	38	School exclusion	0.30	1.72	35	26
	Valdebenito et al. (2018)	15	Externalizing behaviour	-0.01	0.99	+0.8	+0.5
	Mielke and Farrington (2021)	12	School suspension	0.03	1.06	4	3
	Mielke and Farrington (2021)	6	Arrest	0.01	1.02	1.5	1.0
Parent training	Piquero et al. (2016a)	67	Behaviour problems	0.39	2.03	44	34
	Baumel et al. (2016)	7	Disruptive behaviour	0.44	2.22	48	38
Family therapy	Van der Strouwe et al. (2014)	20	Delinquency	0.20	1.44	25	18
	Hartnett et al. (2017)	11	Behaviour problems	0.35	1.89	40	31
After-school programs	Taheri & Welsh (2016)	12	Delinquency	0.06	1.12	8	6
	Kremer et al. (2015)	14	Externalizing behaviour	0.11	1.22	14	10
Mentoring	Tolan et al. (2013)	25	Delinquency	0.21	1.46	26	19
	Raposa et al. (2019)	38	Externalizing behaviour	0.15	1.31	19	13
Child skills training	Beelmann and Lösel (2021)	21	Delinquency	0.27	1.63	32	24
	Piquero et al. (2016b)	36		0.27	1.63	32	24

Intervention	Review	N	Outcome	d	OR	%D25	%D50
Cognitive-behavioural therapy	Koehler et al. (2013)	11	Recidivism	0.30	1.73	35	27
	Lipsey et al. (2007)	58	Recidivism	0.23	1.53	28	21
Boot camps	Wilson et al. (2008)	17	Recidivism (juvenile)	-0.03	0.94	+5	+3
		26	Recidivism (adult)	0.03	1.05	4	2
Pre-court diversion	Wilson et al. (2018)	31	Recidivism	0.14	1.28	17	12
	Petrosino et al. (2019)	27	Recidivism	0.10	1.20	13	9
	Wilson and Hoge (2013)	73	Recidivism	0.31	1.75	36	27
Focussed deterrence	Braga et al. (2019)	24	Crime rate change	0.38	2.00	43	33

Notes: N = number of effect sizes, d = Cohen's d, OR = odds ratio, %D25 = decrease with 25% base rate, %D50 = decrease with 50% base rate (+ indicates an increase).

Gaffney et al. (2019b) reported a weighted mean effect size of $OR = 1.32$, based on 81 effect sizes for bullying perpetration outcomes. Assuming 100 intervention children and 100 control children, and that 25 control children were bullies, this value of the OR would correspond to 20.16 intervention children being bullies, a relative reduction of 19% (see Table 1). If we assumed that 50 of the control children were bullies, this value of the OR would correspond to 43.10 intervention children being bullies, a relative reduction of 14%. We therefore estimate that anti-bullying programs cause a reduction in bullying perpetration between 14% and 19%. These estimates are not affected by the numbers of intervention and control children, so long as they are equal. Ng et al. (2022) reported a weighted mean d -value of 0.30 for school bullying perpetration based on nine effect sizes, which converts into $OR = 1.72$. The corresponding reductions in bullying are 35% for a control prevalence of 25% and 26% for a control prevalence of 50%.

Anti-cyberbullying programs

These programs, often implemented in schools, are designed to reduce cyberbullying. Many programs are designed to reduce school bullying and cyberbullying simultaneously, since there is a significant overlap between offline and online bullying (Baldry, Farrington, and Sorrentino 2017). Other programs are designed specifically to reduce cyberbullying, such as digital citizenship training that teaches youth to use technology in responsible ways (Hutson, Kelly, and Militello 2018) and digital health interventions that include coping skills and interactive games (Chen, Chan, Guo, Chen, Lo, and Ip 2022). The two systematic reviews that were judged to be the most important were by Gaffney, Farrington, Espelage, and Tfofi (2019a) and by Ng et al. (2022). Gaffney et al. (2019a) reviewed 18 randomized and quasi-experimental evaluations published in 2012–2018, while Ng et al. (2022) reviewed five experimental evaluations with cyberbullying outcomes published in 2013–2018.

Gaffney et al. (2019a) reported a weighted mean effect size of $OR = 1.23$ for cyberbullying perpetration, which corresponds to a 10–15% reduction in cyberbullying. Ng et al. (2022) reported a weighted mean $d = 0.16$ for cyberbullying perpetration, which converts into $OR = 1.34$ and a 15–20% reduction in cyberbullying (Table 1). Process evaluations were reviewed in the YEF reports, and they showed that, in regard to school-based anti-cyberbullying programs, the main problems were time constraints and lack of interest from students.

School exclusion reduction programs (Gaffney, Farrington, and White 2021g)

School exclusion or suspension (the words are often used interchangeably) is related to offending. For example, in a very large study, Rosenbaum (2020) found that 35% of suspended youth were arrested, compared with 25% of non-suspended youth. School exclusion or suspension programs are designed to reduce in-school or out-of-school exclusion or suspension. These programs typically target risk factors at both the individual and school levels, and may seek to modify the behaviour of children, teachers, or the whole school (e.g. school rules and procedures). The programs may be targeted on students who are demonstrating problematic behaviours, or they may be universal, for example designed to improve the school climate. A well-known program is School-Wide Behavioural Support (Solomon, Klein, Hintze, Cressey, and Peller 2012).

The two most important systematic reviews were the Campbell review by Valdebenito, Eisner, Farrington, Ttofi, and Sutherland (2018, 2019) and the review by Mielke and Farrington (2021). Both reviewed only randomized trials. Valdebenito et al. (2018) reviewed 37 evaluations of in-school or out-of-school exclusion published in 1980–2015, while Mielke and Farrington (2021) reviewed 14 evaluations published in the shorter period of 2008–2019. All evaluations were randomized controlled trials. Mielke and Farrington (2021) did not include studies of permanent exclusion or in-school suspension.

Valdebenito et al. (2018) reported a significant weighted mean effect size of $d = 0.30$ for effects on school exclusions during the first six months after implementation, based on 38 effect sizes. They described this (p. 11) as a “small but significant drop in exclusion rates.” However, in a further demonstration that d -values give a misleading impression of small effects, Table 1 shows that this d -value corresponds to a 26–35% reduction in exclusions, which does not seem small. In contrast, Mielke and Farrington (2021) reported a very small and nonsignificant effect size of $d = 0.033$ for suspensions, which corresponds to a 3–4% reduction in suspensions. However, Valdebenito et al. (2018) agreed with Mielke and Farrington (2021) in finding that the impact of interventions on out-of-school exclusion was close to zero ($d = 0.02$), while it was large for in-school exclusion ($d = 0.35$). The total impact reduced by half ($d = 0.15$) in follow-ups of 12 months or more.

Valdebenito et al. (2018) and Mielke and Farrington (2021) also agreed in finding no effect of these programs on externalizing behaviour or arrests respectively (Table 1). According to Valdebenito et al. (2018), the most effective types of interventions were violence reduction (designed to increase self-control), mentoring or monitoring, counselling or mental health services, and the enhancement of academic skills. Based on the projects evaluated by Smith, Jackson, and Comber (2013), the main factors needed for a successful program were strong commitment from school leadership, in-school support for teachers and children, and effective engagement of parents, who had to recognise that the problem was to change their parenting approach rather than to “fix a problem with the child.”

Parent training (Gaffney, Farrington, and White 2021i)

Parent training programs aim to train parents to notice what a child is doing, monitor the child's behaviour over long periods, clearly state house rules, and make positive and negative reinforcements consistent and contingent on the child's behaviour. The Incredible Years (Menting, De Castro, and Matthys 2013) is a well-known program. The most important systematic reviews were by Piquero, Jennings, Diamond, Farrington, Tremblay, Welsh, and Reingle Gonzalez (2016a) and Baumel, Pawar, Kane, and Correll (2016). Both were reviews of randomized trials. Piquero et al. (2016a) reviewed 78 evaluations of parent training or home visitation programs, published in 1976–2015, with outcomes of child behaviour problems. Baumel et al. (2016) focussed only on digital parent training programs (delivered using technology rather than face to face) and reviewed seven evaluations of effects on disruptive child behaviours, published in 2000–2015. Another relevant review was by Van Aar, Leijten, de Castro, and Overbeek (2017), who reviewed 40 randomized trials of parent training programs and concluded that the effects did not decrease between short-term (up to three years) and longer-term follow-ups. There is no doubt that child behaviour problems are related to delinquency. For example, Erskine,

Norman, Ferrari, Chan, Copeland, Whiteford, and Scott (2016) reviewed longitudinal studies and reported an OR = 3.52 for conduct disorder versus later violence.

Piquero et al. (2016a) reported a weighted mean effect size for parent training programs of 0.39 (for Hedges' g , which is similar to Cohen's d). This was converted into OR = 2.03 and a 34–44% decrease in child behaviour problems (Table 1). Baumel et al. (2016) reported a similar d -value of 0.44, which was converted into OR = 2.22 and a 38–48% decrease in disruptive child behaviours. Neither Piquero et al. (2016a) nor Baumel et al. (2016) analyzed the effectiveness of specific components of parent training programs. However, Butler, Gregg, Calam, and Wittkowski (2020) published a meta-synthesis of the qualitative literature on the implementation of parent training programs, based on 26 studies published after 2001. They found that parents appreciated non-judgmental group facilitators and valued collaborative, non-directive instruction. Parents also valued positive attention, the use of praise and/or rewards with children, and role-playing exercises to practice skills.

Family therapy (Gaffney, Farrington, and White 2021e)

Our review focussed on two well-known and widely used types of family therapy: Multisystemic Therapy (MST) and Functional Family Therapy (FFT). MST is delivered by therapists in home visits or meetings (e.g., in community centres) with families and youth demonstrating risky behaviour. MST aims to reduce risk factors associated with antisocial behaviour and to build on strengths and protective factors that prevent offending. FFT is similar, but it focuses on changing patterns of communication within the family and improving family functioning. Therapists work with families to develop specific behavioural competences, focussing on positive communication, parenting skills, role playing, and conflict resolution (Weisman and Montgomery 2019).

The most important review of MST was by Van der Stouwe, Gubbels, Castenmiller, van der Zouwen, Asscher, Hoeve, and Starns (2014), based on 22 evaluations published in 1985–2012, assessing juvenile delinquency outcomes and using randomized trials or before-and-after quasi-experimental methods. Another useful review was completed by Markham (2018), but this did not include a meta-analysis. The most important review of FFT was by Hartnett, Carr, Hamilton, and O'Reilly (2017), based on 14 evaluations assessing outcomes of adolescent behaviour problems. These studies were classified according to whether they used random or non-random assignment and whether the control group received no treatment, treatment as usual, or an alternative treatment.

Based on 20 evaluations of effects on delinquency, Van der Stouwe et al. (2014) reported a d -value of 0.20, which was converted into OR = 1.44 and an 18–25% decrease in delinquency (Table 1). Hartnett et al. (2017) is more difficult to summarize, because results are reported in six categories. However, combining the results of randomized trials with a no-treatment control ($d = 0.48$, $N = 3$), with a treatment-as-usual control ($d = 0.20$, $N = 3$), and with an alternative treatment control ($d = 0.35$, $N = 5$) yielded 11 evaluations with an approximate d -value of 0.35. In turn, this was converted into OR = 1.89 and a 31–40% decrease in adolescent behaviour problems. The qualitative evidence reviewed by Gaffney et al. (2021e) indicated that good working relationships with therapists and high-quality supervision from therapists were important features of effective programs.

After-school programs (Gaffney, Farrington, and White 2021a)

Research suggests that the after-school hours, between children finishing school and most adults returning from work, are a time when children are likely to be involved in delinquency (Newman, Fox, Flynn, and Christeson 2000). The aim of after-school programs is to reduce children's involvement in delinquency through mechanisms of informal social control and formal supervision. These programs are often funded in disadvantaged neighbourhoods, and may involve help with academic work and homework, counseling and mentoring, social or cognitive skills training, and recreational activities. The most important reviews were by Taheri and Welsh (2016) and Kremer, Maynard, Polanin, Vaughn, and Sarteschi (2015). Taheri and Welsh (2016) reviewed 17 evaluations with effects on delinquency, published in 1959–2011, while Kremer et al. (2015) reviewed 31 evaluations with effects on externalizing (antisocial) behaviour and/or school attendance, published in 2000–2013. Both included experimental and quasi-experimental designs.

Because of its focus on delinquency, we regard Taheri and Welsh (2016) as the more important review. Based on 12 studies, they estimated $d = 0.062$, which converts to $OR = 1.12$ and a 6–8% decrease in delinquency (Table 1). Based on 14 studies, Kremer et al. (2015) reported Hedges' $g = 0.11$ for externalizing behaviour, which converts to $OR = 1.22$ and a 10–14% reduction. Both reviews found that after-school programs that only included recreational or non-academic activities were the least effective. Taheri and Welsh (2016) concluded that programs including skills training or mentoring were most effective ($d = 0.27$ based on five studies), while Kremer et al. (2015) found that programs with an academic focus were most effective ($d = 0.20$ based on five studies).

It is possible that after-school programs were not more effective because they were usually voluntary and delivered in groups. Rorie, Gottfredson, Cross, Wilson, and Connell (2011) suggested that children who participate in after-school programs may self-select themselves into intervention activities that are less structured, thus allowing them to socialize more freely and interact with antisocial peers without adequate adult supervision. It was previously argued that the classic Cambridge–Somerville Youth Study (McCord 2003) had undesirable results because of the group nature of the intervention, which involved putting antisocial youth together.

Gaffney et al. (2021a) briefly reviewed qualitative process evaluations of after-school programs, and found that factors facilitating effectiveness included (1) the ability to engage children appropriately; (2) providing transport if the intervention was not held on school grounds; (3) the intervention being fun and interesting; and (4) staff being trained to work with children and rules being enforced in a non-authoritarian way.

Mentoring (Gaffney, Farrington, and White 2021h)

Mentoring programs often target at-risk youth and assign a peer, an older youth, or a non-parental adult as a mentor. These programs focus on topics such as prosocial relationships, life skills, employability, self-esteem, problem-solving, communication skills, tutoring, and academic support. Big Brothers Big Sisters (Grossman and Tierney 1998) is a well-known program. The most important reviews were the Campbell review by Tolan, Henry, Schoeny, Bass, Lovegrove, and Nichols (2013) and the review by Raposa, Rhodes, Starns, Card, Burton, Schwartz, and Hussain (2019). Tolan et al. (2013) reviewed 46 evaluations

published in 1971–2010, of which 25 reported effects on delinquency. [Raposa et al. \(2019\)](#) reviewed 70 evaluations of adult–youth mentoring programs published in 1975–2017, of which 38 reported effects on externalizing behaviour. Both included experimental and quasi-experimental designs. [Christensen, Hagler, Starns, Raposa, Burton, and Rhodes \(2020\)](#) followed up the [Raposa et al. \(2019\)](#) meta-analysis to investigate the effectiveness of specific types of approaches. A third review was published by [Burton \(2020\)](#), but this reviewed only cross-age peer mentoring programs and included only six studies, and only two of these evaluated effects on relevant outcomes.

Because of its focus on delinquency, we regard [Tolan et al. \(2013\)](#) as the more important review. They reported a weighted mean effect size of $d = 0.21$, which converts to $OR = 1.46$ and a 19–26% decrease in delinquency (Table 1). [Raposa et al. \(2019\)](#) reported Hedges' $g = 0.15$, which converts to $OR = 1.31$ and a 13–19% decrease in externalizing behaviour. [Tolan et al. \(2013\)](#) found that mentoring programs were more effective when mentors were enrolled for professional development purposes, and when programs included components on emotional support and advocacy. Similarly, [Raposa et al. \(2019\)](#) reported that, when mentors were described as “helping professionals,” programs were more effective. In their follow-up meta-analysis, [Christensen et al. \(2020\)](#) found that targeted or problem-specific approaches that were matched to the needs of mentees were more effective than non-specific approaches.

Child skills training (Gaffney, Farrington, and White 2021k)

Child skills training programs seek to increase self-control, perspective-taking, and the internal inhibition of antisocial behaviour. The aforementioned SNAP program is a well-known example. These programs may include video demonstrations of appropriate or inappropriate behaviour, role-playing, and specific training to encourage delayed gratification. Since impulsiveness is related to delinquency (e.g., [Farrington 2021b](#)), a reduction in impulsiveness should lead to a reduction in delinquency. The most important reviews were by [Beelmann and Losel \(2021\)](#) and [Piquero et al. \(2016b\)](#). [Beelmann and Losel \(2021\)](#) reviewed 115 evaluations of child skills training programs published in 1971–2015, of which 21 reported effects on delinquency. [Piquero, Jennings, Farrington, Diamond, and Reingle Gonzalez \(2016b\)](#) reviewed 36 evaluations of self-control programs with effects on delinquency, published in 1981–2014. Both reviews were based on randomized trials. The review by [Van der Stouwe et al. \(2021\)](#) was not chosen because it focussed on social skills training for delinquents, and our focus was on child skills training as a delinquency prevention method in community samples.

Both [Beelmann and Losel \(2021\)](#) and [Piquero et al. \(2016b\)](#) reported an effect size of $d = .027$ for delinquency, which converts to $OR = 1.63$ and a 24–32% decrease in delinquency (Table 1). [Beelmann and Losel \(2021\)](#) found that programs that were described as psychodynamic (i.e., focusing on underlying psychological processes, such as the cognitions and emotions underpinning behaviour) or humanistic (i.e., focusing on the whole person, emphasizing well-being, reaching one's full potential, self-efficacy, and free will) had slightly larger effect sizes than cognitive–behavioural programs. Among these latter programs, interventions with a behavioural focus (e.g., verbal and non-verbal communication skills) were more effective than those with a social–cognitive focus (e.g., social information processing, cognitions and perceptions about the self and others). Also, individual training programs were somewhat more effective than group training programs.

Cognitive-behavioural therapy (Gaffney, Farrington, and White 2021d)

Cognitive-behavioural therapy (CBT) involves activities and practical exercises to help individuals to recognize cognitive distortions and thinking patterns and to apply techniques to modify these distortions. These activities aim to improve general thinking and decision-making skills, such as how to stop and think before acting, and how to implement alternative, more desirable responses. Reasoning and Rehabilitation (Ross and Ross 1995) is a well-known example. Focusing on CBT for young offenders, the most important systematic reviews were by Koehler, Lösel, Akoensi, and Humphreys (2013) and the Campbell review by Lipsey, Landenberger, and Wilson (2007). Koehler et al. (2013) reviewed 25 European evaluations of treatment programs to prevent youth reoffending, published in 1983–2009, of which 11 were evaluations of CBT and behaviour therapy. Lipsey et al. (2007) reviewed 58 evaluations of the effect of CBT on reoffending, published in 1980–2004, but only 17 of these reported effects for young people. The effect size for young people was not reported separately, but Lipsey et al. (2007) stated that the effect size did not differ significantly between juveniles and adults.

We chose the review by Koehler et al. (2013) as the more important, as it was more recent and the results were reported specifically for young offenders (average age 17.9). An even more recent systematic review was published by Riise, Wergeland, Njardvik, and Öst (2021), but this focused on the effects of CBT on externalizing behaviours of children and adolescents in routine clinical care. This was not chosen because we considered that recidivism was the more important outcome measure.

Koehler et al. (2013) reported an effect size of OR = 1.73 for the effects of CBT on youth reoffending, which corresponds to a 27–35% decrease in recidivism (Table 1). Lipsey et al. (2007) reported an effect size of OR = 1.53, which corresponds to a 21–28% decrease in recidivism. Lipsey et al. (2007) described several different types of CBT, including reasoning and rehabilitation, moral reconnection therapy, aggression replacement therapy, and interpersonal problem-solving therapy. However, they found that none of the major CBT brand name programs produced effects on recidivism that were significantly different from the average effects of other programs.

Boot camps (Gaffney, Farrington, and White 2021c)

Boot camp programs emphasize military-style discipline, military drills and ceremonies, and rigorous physical exercise. They are based on the idea that the routine, discipline, and interaction with program staff may teach offenders self-control and respect, and also shock them into behaving in a respectful and obedient manner. The most important systematic (Campbell) review was published by Wilson, MacKenzie, and Mitchell (2008), who reviewed 32 experimental and quasi-experimental evaluations of juvenile and adult boot camps published in 1991–2003. Meade and Steiner (2010) also carried out a systematic review, but they did not publish a meta-analysis, while Riphagen (2010) completed a narrative review.

Wilson et al. (2008) found that, overall, boot camps were not effective in reducing recidivism. They reported an OR for juvenile recidivism of 0.94, which translated into a (non-significant) 3–5% higher recidivism rate for boot camp participants (Table 1). The OR for adult recidivism was 1.05, which translated into a (non-significant) 2–4% lower

recidivism rate for boot camp participants. [Meade and Steiner \(2010\)](#) focused on juvenile boot camps and also concluded that they had no effect on recidivism, as did [Riphagen \(2010\)](#). However, boot camp participants often noted that they enjoyed the physical activity and other activities offered by boot camps, in comparison to those in normal young offender institutions, but they did not respond well to military-style or authoritarian discipline.

Nevertheless, there were some interesting results. [Wilson et al. \(2008\)](#) found that boot camps were significantly more effective when the control group received prison or jail, and significantly less effective when the control group received probation. They also reported that boot camps for juvenile offenders that included counseling, and boot camps with a primary focus on rehabilitation, were significantly more effective than other types of boot camps. As an example, [Farrington, Ditchfield, Hancock, Howard, Jolliffe, Livingston, and Painter \(2002\)](#) compared two U.K. boot camps. One in the north of England added military drilling to an institutional regime that included educational and life skills, vocational training, a pre-release work placement, and specific programs designed to address offending behaviour. The other boot camp, in the south of England, was a pure military regime in a military correctional training centre run by the army, although it included help with life problems such as trade training and job applications. Interestingly, the northern boot camp was effective in reducing recidivism up to 10 years later ([Jolliffe, Farrington, and Howard 2013](#)), with a benefit-to-cost ratio of 3.9 to 1, but the southern boot camp was not effective. Therefore, it seems likely that a military regime in itself is not effective in reducing recidivism.

Pre-court diversion ([Gaffney, Farrington, and White 2021j](#))

Pre-court diversion may occur without any additional intervention (e.g., as a caution, reprimand, or warning only) or with an intervention that may be reparative, restorative, rehabilitative, or restrictive (e.g., in a formal diversion program for juveniles). It was difficult to choose between three high-quality systematic reviews that included meta-analyses. However, the review by [Wilson et al. \(2018\)](#) was chosen as the most important because it was a Campbell review. [Wilson et al. \(2018\)](#) reviewed 19 studies of police-led diversion published in 1979–2015 and estimated effect sizes for 31 comparisons of diverted juveniles and formally processed juveniles. [Petrosino, Petrosino, Guckenburg, Terrell, Fronius, and Choo \(2019\)](#) reviewed 29 studies published in 1973–2008 that compared diverted juveniles (either with or without services) with formally processed juveniles. [Wilson and Hoge \(2013\)](#) reviewed 45 studies published in 1972–2010 that yielded 73 comparisons of diverted and formally processed juvenile offenders. All three reviews included experimental and quasi-experimental evaluations.

[Wilson et al. \(2018\)](#) reported an OR = 0.78 for diversion, using ORs less than 1 to indicate an effective program. Since we are using ORs greater than 1 to indicate effective programs, this was converted into OR = 1.28 and a 12–17% decrease in recidivism ([Table 1](#)). [Petrosino et al. \(2019\)](#) reported effects on prevalence, incidence, severity, and self-reported offending, but we chose the result for prevalence, which was $d = 0.10$ based on 27 studies and the random effects model. Because most effect sizes are significantly heterogeneous, the random effects model is often preferred to the fixed effects model (which yielded $d = 0.15$), but we prefer the Multiplicative Variance Adjustment method to either (see [Farrington and Welsh 2013](#)). [Wilson and Hoge \(2013\)](#) reported an OR = 0.57 based on the random effects model, which was converted to OR = 1.75 in our analyses. Whereas [Petrosino et al. \(2019\)](#) indicated a 9–13% decrease in recidivism, [Wilson and Hoge \(2013\)](#) indicated a 27–36% decrease.

Petrosino et al. (2019) found that diversion programs with services were significantly more effective than diversion alone.

Focused deterrence (Gaffney, Farrington, and White 2021f)

Focused deterrence is a crime reduction strategy that aims to increase the swiftness and certainty of punishment, along with mobilizing community voices against crime and providing social services to increase protective factors. It aims to reduce specific types of crimes by people who are frequently involved in them, especially gang-related offending and drug dealing. There is typically direct and frequent communication with the people who are the focus of the intervention, to communicate that they are being specifically targeted and to specify which of their behaviours will warrant special attention from law enforcement, usually in meetings with offenders, their parents, law enforcement agencies, service providers, and community representatives (Braga and Kennedy 2020). An example is the Community Initiative to Reduce Violence in Glasgow, Scotland (Williams, Currie, Linden, and Donnelly 2014).

There is only one relevant (Campbell) systematic review, by Braga, Weisburd, and Turchan (2019). They reviewed 24 evaluations of focused deterrence published in 2001–2015, all of which used quasi-experimental designs. Of these, 12 targeted criminally active gangs, nine targeted open-air drug markets, and three targeted high-risk offenders. The somewhat relevant review by Abt and Winship (2016) had a broader scope, as it was concerned with interventions for community violence, and it did not analyze focussed deterrence specifically.

Braga et al. (2019) reported a weighted mean effect size of $d = 0.38$. They note (p.20) that "This is below Cohen's (1988) standard of 0.50 for a medium effect size". Nevertheless, based on our methods, this effect size converts into $OR = 2.00$ and a 33–43% decrease in crime (Table 1), which seems quite a large effect. Braga et al. (2019) did not present results specifically for juveniles, but most of the targeted offenders would have been young people between ages 15 and 30. For example, the Glasgow program (Williams et al. 2014) targeted 167 young males aged 16–29, with a mean age of 17.8, and the pioneering Operation Ceasefire in Boston (Braga, Kennedy, Waring, and Piehl 2001) targeted homicide by youths up to age 24. Braga et al. (2019) found that programs targeted on gangs were most effective ($d = 0.66$), followed by those targeting high-risk individuals ($d = 0.20$), with the drug market programs least effective ($d = 0.09$), although still significantly effective.

Discussion

Based on the 12 most important reviews, the most effective interventions are parent training, focused deterrence, child skills training, cognitive-behavioural therapy, mentoring, and family therapy (all associated with a decrease in offending or antisocial behaviour of at least 18–25%). Anti-bullying programs, anti-cyberbullying programs, and pre-court diversion are quite effective (with a decrease of at least 10–15%), while school exclusion reduction, after-school programs, and boot camps are least effective in reducing offending or antisocial behaviour.

It should be pointed out, however, that sometimes the other reviews give a different impression. For example, regarding pre-court diversion, effect sizes were greater in the Wilson and Hoge (2013) review than in Wilson et al. (2018) or Petrosino et al. (2019). These differences

may be attributable to differences in the included studies; the intervention was diversion with services for 60 of the 73 comparisons (82%) of [Wilson and Hoge \(2013\)](#), but for only 14 of the 31 comparisons (45%) of [Wilson et al. \(2018\)](#) and 15 of the 29 comparisons (52%) of [Petrosino et al. \(2019\)](#), who reported that diversion programs with services were significantly more effective than diversion alone. Also, whereas all the control juveniles in both [Wilson and Hoge \(2013\)](#) and [Wilson et al. \(2018\)](#) received traditional court processing, this was true in only 19 of the 29 studies (66%) reviewed by [Petrosino et al. \(2019\)](#). It is possible that the control condition in the other 10 cases (e.g., petitioned or appeared before a magistrate) was less different from the diversion condition than was traditional court processing.

Most reviews yield suggestions about how to improve programs. For example, while the effect sizes for after-school programs were not very high, [Taheri and Welsh \(2016\)](#) concluded that programs including skills training or mentoring were most effective, while [Kremer et al. \(2015\)](#) found that programs with an academic focus were most effective. Finally, while the boot camp military regime alone was not effective, boot camps could be effective if they included rehabilitative programs.

In the interest of drawing more realistic conclusions about effect sizes, we have transformed d -values into percentage reductions in this article. These are mainly (with the exception of focused deterrence) reductions in prevalence. Whether reductions in the frequency or severity of offending would be similar is an empirical question. As mentioned, in their review of pre-court diversion, [Petrosino et al. \(2019\)](#) reported reductions in frequency, severity, and self-reported offending, as well as in prevalence.

The reviews sometimes included both randomized trials and quasi-experimental evaluations, and sometimes investigated whether effect sizes were greater under one of these conditions. However, numbers of studies compared were sometimes small and there was no consistent tendency for effect sizes to be greater in either of these conditions. For example, while differences were often small, effect sizes of quasi-experimental evaluations were greater in [Taheri and Welsh \(2016\)](#), [Wilson et al. \(2008\)](#), and [Wilson et al. \(2018\)](#), while effect sizes of randomized trials were greater in [Gaffney et al. \(2019a, 2019b\)](#), [Tolan et al. \(2013\)](#), and [Koehler et al. \(2013\)](#).

As mentioned, most evaluations reported relatively short-term effects of programs. Long-term follow-ups of 10 years or more are quite rare (see [Farrington 2021a](#)). However, as mentioned, [Van Aar et al. \(2017\)](#) reviewed 40 randomized trials of parent training programs and concluded that the effects did not decrease between short-term (up to three years) and longer-term follow-ups. [Beelmann and Lösel \(2021\)](#) distinguished between immediate follow-ups (up to three months), short follow-ups (three to 12 months), and longer follow-ups. They found that the effects decreased over time, as did [Valdebenito et al. \(2018\)](#) for school exclusion programs.

In the future, it would be desirable to transform percentage reductions further into benefit-to-cost ratios, but this is not possible within the scope of this article; for reviews of cost-benefit analyses in criminology, see [Welsh, Farrington, and Gowar \(2015\)](#). In the previously cited article by [Farrington and Koegl \(2015\)](#), d -values of 0.2 and 0.4 were transformed into percentage decreases of 18% and 33%. These percentage decreases were then transformed into benefit-to-cost ratios between 2.05 and 3.75 (based on convictions

prevented) and between 17.33 and 31.77 (after scaling up to undetected offences prevented). Even focusing only on the prevention of convictions, if \$2.05 is saved for every \$1 expended on the program, this does not seem to be a “small” effect.

Based on David Farrington’s meetings with Canadian Deputy Ministers and Assistant Deputy Ministers of Public Safety in Ottawa in 2010 and 2013 (by which time both ministers had changed), they are extremely interested in benefit-to-cost ratios of interventions and understand percentage reductions. We hope that our article will provide useful information about the relative effectiveness of different types of interventions not only for researchers but also for practitioners, policy makers, and the general public.

Our review has some limitations. For example, most high-quality evaluations were conducted in the United States. As an illustration, out of 98 studies of child skills training reviewed by [Beelmann and Lösel \(2021\)](#), 74 were conducted in the United States, eight in Germany, six in Canada, two in the Netherlands, two in Israel, and one each in England, Spain, China, Switzerland, Italy, and Austria. Only the [Koehler et al. \(2013\)](#) review was different, as it focused on Europe. Studies conducted in the United States may yield different results from those conducted in other countries. For example, [Piquero et al. \(2016a\)](#) found significantly greater desirable effects of parent training in the United States than in other countries. Notably, recent high-quality randomized trials of FFT ([Humayun, Herlitz, Chesnokov, Doolan, Landau, and Scott 2017](#)) and MST ([Fonagy, Butler, Cottrell, Scott, Pilling, Eisler, and Goodyer 2020](#)) in the United Kingdom did not suggest that they were very effective. (U.K. evaluations were specifically reviewed in the YEF reports.)

It is possible that differences in effectiveness between the United States and other countries might be caused by the treatment received by control groups. In any evaluation, the key question is: Compared with what? As mentioned, [Wilson et al. \(2008\)](#) found that boot camps were significantly more effective when the control group received prison or jail, and significantly less effective when the control group received probation. [Hartnett et al. \(2017\)](#) reported that FFT was found to be most effective when it was compared with no treatment, and least effective when it was compared with treatment-as-usual. It is possible that publicly funded welfare treatment is less extensive and effective in the United States than in some other countries. It is clearly desirable to review the effectiveness of interventions in specific countries, since this may depend on aspects of the country context. Many barriers to implementation are reviewed in the YEF reports.

It is obviously impossible to present detailed systematic reviews of 12 types of interventions in one journal article. In summarizing effectiveness, we have relied on the best available reviews. Nevertheless, we believe that our analyses provide a useful source of information about effectiveness for researchers, practitioners, policy makers, and the general public. The good news is that, based on estimated reductions in offending, intervention programs are usually found to be much more effective than is commonly believed (e.g., based on *d*-values). On the basis of our reviews, we believe that it is worthwhile to implement all of these programs except boot camps.

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