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**Treating Youth in
Conflict with the
Law: A New
Meta-Analysis**



**DEPARTMENT OF
JUSTICE CANADA**

YOUTH JUSTICE RESEARCH



Treating Youth in Conflict with the Law: A New Meta-Analysis

RR03YJ-3e

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April 2003

*The views expressed herein are solely those
of the author and do not necessarily reflect those
of the Department of Justice Canada.*

Executive Summary

This paper provides a meta-analytical synthesis of the existing literature on the effectiveness of treating youth in conflict with the law. The data were aggregated from studies directly measuring the effect of treatment on recidivism and other key outcomes using control/comparison groups. The results provide direction to key decision-makers, program developers and program funders based on the accumulation of knowledge from almost 200 treatment programs dealing directly with youth engaged in criminal behaviour. In general, providing treatment to youth in conflict with the law does have an impact on the likelihood of future criminal behaviour. The findings suggest, however, that various issues surrounding the program (e.g., integrity, dosage and targets) and its clients (e.g., age and risk) substantially affect its therapeutic potential.

In summary, the following are empirically-based recommendations that emerged directly from the results of this meta-analysis and demonstrate reductions in re-offending among youth in conflict with the law:

1. conduct the treatment in a therapeutic environment using multiple forms of counselling (individual, group and family);
2. screen youth for anger issues and provide an anger management component where suitable;
3. directly involve educators within the treatment program and directly target school performance and attendance where necessary;
4. target anti-social attitudes in treatment including encouraging respect for authority and for the institutions of the criminal justice system;
5. develop cognitive skills in the youth in order to improve problem solving, perspective taking and goal setting;
6. enhance social skills including communication strategies and the ability to work within groups (e.g., giving and receiving feedback);
7. encourage and teach positive communication (e.g., warm, respectful, honest) within families;
8. provided parents with the appropriate skills to monitor and supervise youth;
9. increase the employment potential of the youth (where maturity and external obligations permit) by offering specific vocational training and provide general skills such as resume writing and interviewing for acquiring and maintaining gainful employment;

10. limit the program length to six months and provide a maximum of 20 hours of program exposure for low risk offenders and increase the treatment dosage for high risk offenders;
11. develop program manuals, provide staff training and supervision, and measure program compliance;
12. attempt to provide suitable interventions *early* in the lives of youth in conflict with the law;
13. encourage meaningful and substantial family involvement in the program;
14. attempt to involve the community (e.g., police, non-governmental organizations, community leaders) within the treatment program where appropriate; and,
15. address ambiguous and less promising treatment targets (anti-social peers, relapse prevention, community functioning, substance abuse, psychological well-being, leisure/recreation) and other non-criminogenic needs when deemed appropriate on a case by case basis.

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1.0 Introduction

There is a substantial, and still growing, body of literature on the effectiveness of treatment in reducing delinquency in youth. The results of these studies, however, are rather conflicting when examined individually. Numerous studies demonstrate that treatment programs have significantly improved the recidivism rates of youth while others provide contradictory results. Antonowicz and Ross (1994) argue that the literature attests to the fact that “*some* rehabilitation programs work with *some* offenders in *some* settings when applied by *some* staff” (p. 1). In an attempt to develop a more definitive understanding, previous researchers have utilized meta-analytic techniques as a method of aggregating the results of the numerous studies (Andrews et al., 1990; Cox, Davidson & Bynum, 1995; Dowden & Andrews, 1999; Garrett, 1985; Izzo & Ross, 1990; Latimer, 2001; Lipsey, 1995; Lipsey & Wilson, 1988; Whitehead & Lab, 1989; Wilson & Lipsey, 2000). With the exception of one study (Whitehead & Lab, 1989), these meta-analyses have concluded that treatment has a positive overall effect on reducing recidivism amongst youth.

Researchers also sought to identify which types of programs were most effective at reducing recidivism. Andrews *et al.* (1990), found that the most effective treatment programs were those that adhered to the principles of risk, need and responsivity. That is to say, programs that structured their intensity based upon the risk level of the youth (risk), programs that targeted criminogenic factors related to recidivism (need), and programs that matched the mode of treatment to the learning styles of the clients (responsivity) yielded the highest mean reductions in recidivism. Lipsey (1995) found that programs longer than six months or programs that provided lengthy exposure to treatment (more than 100 hours of direct participation) were more successful than shorter programs. In addition, treatment was found to be more effective when delivered in the community versus an institutional/correctional setting (Andrews et al., 1990; Garret, 1985).

These findings, however, have been based upon a large body of literature that dates back to the 1960s and 1970s where youth delinquency included what has traditionally been labelled status offences (e.g., truancy, promiscuity). In addition, a large proportion of the meta-analytic literature examined youth who were considered ‘at-risk’ to engage in delinquent behaviour. As such, it is important to disentangle the potential effects of status offenders and at-risk youth from the results to determine what program characteristics are effective with youth who are *already engaged in criminal behaviour*. Finally, existing meta-analyses have defined ‘youth’ quite liberally and have included programs that primarily targeted young adults (18 to 25 years of age). Children under 18 have long been recognized, however, as having special needs, requirements and vulnerabilities related to their developmental maturity and therefore require a separate criminal justice system (Bala, 2003). Including older youth in the results is not consistent with the underlying rationale for separate youth and adult systems.

This paper provides a new meta-analytic synthesis of the literature to date in order to examine the effectiveness of treatment for youth. The central goal of this project is to

communicate to program developers, policy-makers and key decision-makers in the youth criminal justice system a clearer understanding of the program characteristics that decrease the likelihood of recidivism among young offenders. The present meta-analysis also addresses the limitations of previous research by only including studies that examined youth under the age of 18 years who had committed what would constitute a criminal offence using current adult standards.



2.0 Method

2.1 Design: Meta-analysis

Meta-analytic techniques, as a method of aggregating knowledge, have been used in several fields of study including education and medicine, and have more recently been adopted within the social sciences (Lipsey & Wilson, 1993) to investigate both the prediction and treatment of criminal behaviour. Similar to the standard quantitative research method, the meta-analytic process contains three basic steps:

1. literature review – identify and gather relevant research studies;
2. data collection – extract data through pre-determined coding procedures; and,
3. data analysis – analyse the aggregated data using statistical techniques.

Rosenthal (1991) claimed that “meta-analytic reviews go beyond the traditional reviews [of the literature] in the degree to which they are more systematic, more explicit, more exhaustive, and more quantitative. Because of these features, meta-analytic reviews are more likely to lead to summary statements of greater thoroughness, greater precision, and greater intersubjectivity or objectivity” (p.17).

In general terms, a meta-analysis is a statistical examination of a collection of studies that aggregates the magnitude of a relationship between two or more variables (Glass, McGaw & Smith, 1981). These studies typically differ, however, on several important characteristics such as operationalisation of independent and dependent variables, sample size, sample selection techniques, and design quality. A meta-analysis can describe the typical strength of the relationship under investigation, the degree of statistical significance, the variability, as well as provide researchers the opportunity to explore and identify potential moderating variables. The outcome of a meta-analysis, an effect size (ES), can be interpreted as the estimated effect of the independent variable on the dependent variable. In other words, an average effect size estimate of + 0.05 translates into the independent variable (e.g., treatment) effecting a 5% change in the dependent variable (e.g., recidivism).

2.2 Sample: Study identification criteria

To gather eligible studies for the meta-analysis, a comprehensive search was conducted on the young offender treatment literature over the last 50 years including unpublished doctoral theses and governmental reports. A secondary search was conducted using the bibliographies of the relevant literature, prior meta-analyses and the Internet. An explicit set of criteria was established in order for a study to be included in the analysis:

1. the study examined the effectiveness of a non-traditional response to youth delinquency (i.e., an intervention that is not a standard court ordered response to youth crime such as traditional probation or custody);
2. the study consisted primarily of youth who were under 18 years of age and had committed an offence using current adult standards;

3. the study used a control group or comparison group that did not experience the treatment under examination (or provided sufficient pre/post data);
4. sufficient statistical information was reported in order to extract an effect size; and,
5. the study measured the impact of treatment on at least ONE of the following outcomes of interest:
 - recidivism;
 - academic performance/attendance;
 - psychological well-being;
 - family functioning;
 - employment gains;
 - social skills;
 - anti-social attitudes;
 - substance abuse;
 - anger management;
 - anti-social peer pressure; and,
 - cognitive skills.

2.3 Data extraction: Coding procedures

Standardized information was drawn from each research study using a pre-designed coding manual. In accordance with standard meta-analytic techniques, multiple definitions of each of the outcomes of interest were accepted. For example, recidivism was defined as a new conviction or a new charge. If statistical information was not contained in an individual study, but a non-significant relationship between treatment and the outcome was reported, the effect size was recorded as zero. In order to generate sufficient data for analysis, several coding techniques were used. For example, if 70% or more of the study sample were male, we coded it as a “primarily male program” and if 70% or more of the study sample were first-time offenders, we coded it as a “primarily first-time offender program”. In addition, several variables were coded only if the authors made an explicit positive statement. For example, the existence of program manuals or staff training was only coded as “yes” if the authors directly stated this to be true. Therefore, the comparisons made in this report are subject to this limitation. It should be noted, however, that this is a general issue within all meta-analyses.

2.4 Data analysis: Effect size calculations

In accordance with the meta-analytic techniques of Rosenthal (1991), the phi coefficient (Pearson’s r product moment correlation applied to dichotomous data) was used as the effect size estimate. In cases where multiple control groups were used in a single study, the results were combined in order to generate a single effect size for each program. In addition, where multiple follow-up periods were reported in a single study, the longer period was selected.



Once the effect sizes from each study were calculated, a series of analyses across each of the outcome measures of interest were conducted. First, the overall mean effect size, along with the corresponding confidence intervals, were calculated. Additional analyses were conducted to explore whether certain variables had a moderating impact on effect size magnitude. For example, if adequate information was available, the treatment targets of the program or the treatment dosage (i.e., number of hours exposed to treatment) were examined to determine possible effects on program success. This provided a mechanism whereby specific program characteristics could be isolated for further study.

3.0 Results

After a comprehensive search of both published and unpublished literature, a total of 154 documents were selected as meeting the study selection criteria. Numerous other studies were eliminated due to the strict age and offence criteria as well as the reliance on control/comparison groups and/or appropriate statistical tests. Since some studies reported on more than one treatment group, a total of 195 unique treatment programs were examined in this meta-analysis, which generated 332 unique effect sizes.

3.1 Number of unique outcomes

Most of the studies accepted for this meta-analysis reported on the effectiveness of treatment in reducing recidivism. Few studies, however, reported on additional outcomes such as family functioning and substance abuse reduction. Table 3.1 provides the number of effect sizes generated within each outcome category of interest.

TABLE 3.1
NUMBER OF EFFECT SIZES BY OUTCOME (N=332)

Outcome	No. of Effect sizes
Recidivism	176
Academic performance/attendance	28
Psychological well-being	26
Family functioning	19
Employment gains	14
Social skills	14
Anti-social attitudes	12
Substance abuse	11
Anger management	10
Anti-social peer involvement	6
Cognitive skills	6

3.2 Study characteristics

The studies were published between 1964 and 2002 with a median year of 1988. As Table 3.2 indicates, the 'typical' study used in this meta-analysis was conducted in urban America by an independent evaluator using a non-randomized comparison group and published in an academic journal. In total, the 154 studies examined almost 75,000 young offenders - 30,184 in the treatment groups and 44,334 in the control groups. The



studies were generally conducted using a follow-up period of one year to measure the outcomes of interest.

TABLE 3.2 STUDY CHARACTERISTICS (N=154)			
VARIABLE	N (%)	VARIABLE	N (%)
Country		Publication Source	
United States	125 (83%)	Academic journal	118 (80%)
Canada	12 (8%)	Dissertation	12 (8%)
United Kingdom	10 (7%)	Government report	12 (8%)
Australia	4 (3%)	Non-governmental report	6 (4%)
Setting		Study Design	
Urban	90 (92%)	Simple comparison group	64 (42%)
Rural	8 (8%)	Random assignment	58 (38%)
		Matched comparisons	25 (17%)
		Pre/post analysis	6 (3%)
Evaluator			
Independent	118 (80%)		
Involved	30 (20%)		

Note: Frequencies do not total 154 in most cases due to missing data.

Note: Percentages do not always total 100% due to rounding.

3.3 Participant characteristics

Age was coded according to the central tendency reported in each of the studies. The overall mean age for the entire sample was 15.23 (SD=1.36) years with the vast majority being male offenders (see Table 3.3). With the exception of gender, most studies did not partition the data in order to allow for an examination of unique groups of interest such as violent offenders or sexual offenders. We also attempted to code additional variables, such as education level, familial status, and ethnicity, but information was not sufficiently recorded in the studies.

TABLE 3.3
TREATMENT PARTICIPANT CHARACTERISTICS (N=195)

VARIABLE	N (%)
Gender	
Primarily male offenders	141 (78%)
Mixed	33 (18%)
Primarily female offenders	6 (3%)
Criminal History	
Primarily first-time offenders	24 (19%)
Mixed	77 (60%)
Primarily repeat offenders	27 (21%)
Offence Types	
Primarily property offenders	9 (9%)
Mixed	81 (80%)
Primarily violent offenders	7 (7%)
Primarily sexual offenders	4 (4%)

Note: Frequencies do not total 195 in most cases due to missing data.

Note: Percentages do not always total 100% due to rounding.

3.4 Program characteristics

As Table 3.4 indicates, the ‘typical’ program examined in this meta-analysis was a group-focused program, operating in the community and providing social skills training and targeting the general psychological well-being of the participants. Program length ranged from only one day to 896 days with a median value of 112 days. In order to gain a clearer sense of the actual exposure to the program (dosage), we coded the number of hours of direct program participation. Program dosage ranged from one hour to 1800 hours in treatment with a median of 27 hours of direct exposure.



TABLE 3.4
PROGRAM CHARACTERISTICS (N=195)

VARIABLE	N (%)	VARIABLE	N (%)
Type of Response		Treatment Targets	
Group-focused	50 (21%)	Social skills	103 (53%)
Institutional/residential	22 (11%)	Psychological well-being	97 (50%)
Individual-focused	21 (10%)	Family issues	82 (42%)
Multi-focused	19 (10%)	Academic skills	76 (39%)
Intensive supervision	19 (10%)	Cognitive skills	74 (38%)
Restorative justice	19 (10%)	Employment skills	49 (25%)
Mixed/unknown	17 (8%)	Substance abuse	34 (17%)
Family-focused	13 (6%)	Community improvements	33 (17%)
Wilderness programs	9 (3%)	Antisocial peers	32 (16%)
Boot camps	6 (3%)	Leisure/recreation	31 (16%)
		Anger management	25 (13%)
		Antisocial attitudes	23 (12%)
		Relapse prevention	23 (12%)
Setting			
Community-based	149 (76%)		
Custodial	46 (24%)		

Recent research has demonstrated that program integrity, which involves developing manuals, providing staff training and supervision, and monitoring compliance with the program manual, is an important element of successful treatment (Andrews & Dowden, under review). Table 3.5 indicates that the vast majority of the treatment programs were not coded as ensuring program integrity. In fact, of the 195 programs, only 11 programs indicated the existence of a program manual, provided staff training and supervision, and monitored program compliance.

TABLE 3.5 PROGRAM INTEGRITY INDICATORS (N=195)			
VARIABLE	N (%)	VARIABLE	N (%)
Program Manuals		Staff Supervision	
Available	29 (15%)	Provided	43 (22%)
Not indicated	166 (85%)	Not indicated	152 (78%)
Staff Training		Program Compliance	
Provided	90 (46%)	Monitored	30 (15%)
Not indicated	105 (54%)	Not indicated	165 (85%)

Current research has begun to examine the impacts of including more participants in the treatment process such as the victim and the community, particularly in the restorative justice literature. While additional participants were involved in select programs in this meta-analysis, Table 3.6 indicates that most programs did not involve other participants. Some form of family involvement, however, was present in 45% of the programs.

TABLE 3.6 ADDITIONAL TREATMENT PARTICIPANTS (N=195)			
VARIABLE			
	Victim Involvement N (%)	Family Involvement N (%)	Community Involvement N (%)
Substantial	20 (10%)	43 (22%)	10 (5%)
Limited	3 (2%)	45 (23%)	15 (8%)
None	172 (88%)	107 (55%)	170 (87%)

3.5 Recidivism

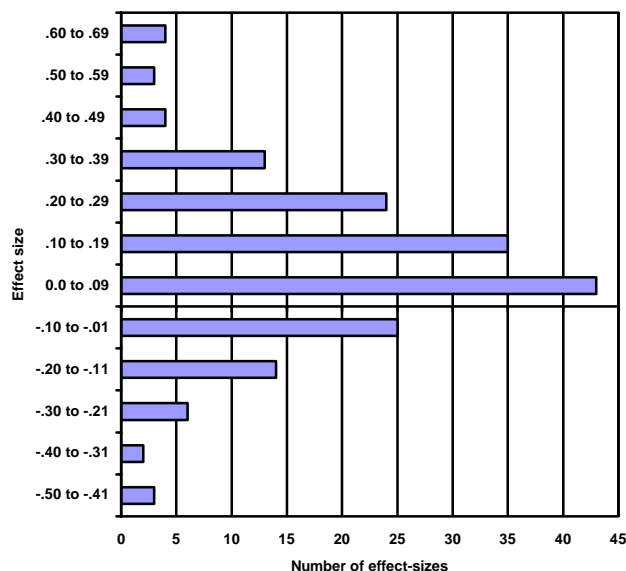
Of the 195 programs within this meta-analysis, 176 programs directly measured the effectiveness of treatment on reducing future criminal behaviour. The mean overall effect size generated was + 0.09 with a 95% confidence interval of + 0.06 to + 0.12.

This result can be translated into the following statement:

There was a 9% difference in the recidivism rate of youth in the treatment groups compared to youth in the control groups.

It should be noted that this reduction results from exposure to *any form of treatment* regardless of the appropriateness. Moreover, a 9% difference theoretically prevented more than 1,300 offenders from re-offending. This corresponds rather closely to the findings of Lipsey (1995) and Dowden and Andrews (1999), who both reported a 10% reduction in recidivism for youth. Figure 3.1 provides a graphical representation of the effect size distribution.

Figure 3.1 Effect Size Distribution (Recidivism)



In general, providing a response to young offenders, in addition to, or in place of, standard system-based responses (e.g., fines, probation, custody) does appear to decrease the likelihood of recidivism. The effect sizes, however, ranged considerably from - 0.44 to + 0.65 with a standard deviation of 0.20. We therefore examined numerous possible moderating variables to explain the variance among programs.

3.5.1 Intervention form

The first area of exploration was the actual form of intervention. Table 3.7 demonstrates that multi-focused (i.e., counselling programs that offer individual, group and family sessions) and family-focused programs were the most effective responses to youth delinquency, followed closely by individual-focused and institutional/residential programs. Wilderness programs and boot camps, which are often described as punitive in nature, actually demonstrated a negative overall effect from treatment. That is, those youth who participated in these programs demonstrated a higher recidivism rate

compared to participants in the control group who did not receive those intervention forms.

TABLE 3.7 EFFECT SIZE BY INTERVENTION FORM (N=176)	
Response	Mean ES
Multi-focused (k=19)	+ 0.16
Family-focused (k=12)	+ 0.16
Individual-focused (k=20)	+ 0.13
Institutional/residential (k=22)	+ 0.13
Restorative justice (k=17)	+ 0.11
Intensive supervision (k=19)	+ 0.08
Group-focused (k=40)	+ 0.05
Mixed/unknown (k=16)	+ 0.04
Boot camps (k=5)	- 0.07
Wilderness programs (k=6)	- 0.09

3.5.2 Treatment targets

The next area of exploration centred on the treatment targets, which can be described as the particular ‘needs’ that programs attempt to address such as family dysfunction, substance abuse, and anger management. In order to account for the negative effects from boot camps and wilderness programs, these programs were excluded from the analysis. Table 3.8 examines the treatment targets when addressed in positive programs. Encouraging and less encouraging targets demonstrated appreciable effects on recidivism (i.e., generated a difference of 4% or more in the recidivism rates of the treatment versus control group), while ambiguous targets did not demonstrate appreciable effects.

TABLE 3.8
EFFECT SIZE BY TREATMENT TARGETS (N=165)

Treatment Target	Mean ES	
	Targeted	Not Targeted
Encouraging		
Anger management (k=20)	+ 0.20	+ 0.09
Anti-social attitudes (k=15)	+ 0.15	+ 0.10
Academic skills (k=67)	+ 0.13	+ 0.08
Cognitive skills (k=57)	+ 0.13	+ 0.09
Social skills (k=87)	+ 0.12	+ 0.08
Ambiguous		
Anti-social peers (k=31)	+ 0.12	+ 0.10
Relapse prevention (k=16)	+ 0.12	+ 0.10
Employment skills (k=44)	+ 0.11	+ 0.10
Community functioning (k=31)	+ 0.10	+ 0.10
Family dysfunction (k=76)	+ 0.09	+ 0.11
Less Encouraging		
Psychological well-being (k=79)	+ 0.08	+ 0.12
Leisure/recreation (k=27)	+ 0.07	+ 0.11
Substance abuse (k=27)	+ 0.06	+ 0.11

In general, positive programs that target anger management, academic skills, anti-social attitudes, cognitive skills and social skills demonstrate improvements in recidivism compared to programs that do not target these needs. On the other hand, programs that target the psychological well-being of youth, leisure/recreation and substance abuse demonstrate diminished effects (i.e., increases in recidivism compared to programs that do not target these specific needs).

Family functioning, academic skills and employment skills were further coded into more specific targets to better understand their impacts on recidivism. Table 3.9 provides these results. Targeting communication and warmth within the family and providing parents with the skills to adequately supervise and monitor their children were related to clear reductions in recidivism while general family therapy and non-specific family targets demonstrated poorer results. Providing specific vocational skills within a trade (e.g., auto-mechanics) demonstrated very positive results compared to general employment skills (e.g., resume writing) and non-specific employment targets. Finally, involving educators (e.g., teachers, principals, guidance counsellors) directly in the treatment program and targeting school performance and attendance provided substantial

reductions in recidivism while non-specific academic targets demonstrated ambiguous results.

TABLE 3.9 EFFECT SIZE BY SPECIFIC TREATMENT TARGETS (N=165)		
Treatment Target	Mean ES	
	Targeted	Not Targeted
Family Functioning		
Communication/warmth* (k=18)	+ 0.20	+ 0.09
Monitoring/supervision (k=20)	+ 0.14	+ 0.09
General family therapy (k=51)	+ 0.07	+ 0.11
Non-specific family targets (k=6)	+ 0.03	+ 0.10
Employment Skills		
Specific vocational training (k=9)	+ 0.20	+ 0.09
General employment skills (k=35)	+ 0.13	+ 0.09
Non-specific employment targets (k=7)	+ 0.01	+ 0.10
Academic Skills		
Direct system involvement (k=7)	+ 0.20	+ 0.10
Academic performance* (k=35)	+ 0.17	+ 0.08
School attendance (k=18)	+ 0.15	+ 0.09
Non-specific academic targets (k=21)	+ 0.12	+ 0.10

* $p < .05$

3.5.3 Treatment length and dosage

Both treatment dosage (i.e., number of hours spent in direct treatment) and length (number of total days spent in the treatment program) were rather important in the overall success of positive programs. Firstly, the length of time the youth participated in the program was inversely related to program success. Those programs that were shorter than six months in length generated a mean effect size of + 0.11 (k=67) compared to programs longer than six months which generated a mean effect size of + 0.05 (k=25). Secondly, those programs that had limited treatment exposure during the program were considerably more successful than programs with higher dosages of treatment. Programs that offered 20 hours or less of treatment exposure generated a mean effect size of + 0.11 (k=25, while programs longer than 100 hours essentially displayed a zero mean effect from treatment (ES = + 0.01, k=11). Those programs in the middle (21-100 hours) generated a mean effect size of + 0.04 (k=34). These findings directly contradict the previous work of Lipsey (1995) who reported that programs *longer than 26 weeks* or with a dosage *over 100 hours* were more successful.



The relationship between previous criminal history, which has been deemed a form of risk (Andrews et al., 1990; Dowden, 1998), and its relationship to treatment dosage was evaluated. In other words, the impact of providing low and high dosage programs to first-time (low risk) offenders and repeat (high risk) offenders was examined. The results in Table 3.10 indicate that high risk offenders are more suitable for a higher treatment dosage and low risk offenders are more suitable for a lower treatment dosage. While only 22 studies provided sufficient information on both the risk level of the youths and treatment dosage, this finding is consistent with previous meta-analytic work in this area (Andrews et al., 1990; Dowden & Andrews, 1999). It still remains important, however, to maintain a six month limit on the program length as both high risk and low risk offenders were more successful when the program was shorter than six months.

TABLE 3.10
RISK LEVEL AND TREATMENT DOSAGE/LENGTH (N=25)

	Mean ES		Mean ES
High risk		High risk	
Low dosage (k=2)	+ 0.01	Short length (k=14)	+ 0.23
High dosage (k=10)	+ 0.12	Long length (k=5)	- 0.01
Low Risk		Low Risk	
Low dosage (k=4)	+ 0.16	Short length (k=11)	+ 0.20
High dosage (k=6)	+ 0.11	Long length (k=1)	+ 0.03

3.5.4 Treatment setting

Previous research has demonstrated that community-based treatment is more effective compared to treatment in an institutional setting. The results of this analysis did not replicate this finding. There was no discernable difference in the recidivism rates of participants from community (ES = + 0.10, k=126) or institutional settings (ES = + 0.10, k=39). It appears that the treatment targets and the form of treatment are more important than the treatment setting.

3.5.5 Program integrity

As discussed, program integrity is thought to be an important contributor to program success and is a notion supported by the results of this meta-analysis. Studies were evaluated based on the number of program integrity principles they stated to follow. As Table 3.11 demonstrates, those programs that followed all four program integrity principles (training and staff supervision, produced manuals and measured program compliance) generated a higher mean effect size compared to programs that did not report efforts to ensure program integrity.

TABLE 3.11 EFFECT SIZE BY PROGRAM INTEGRITY (N=165)	
Program Integrity Criteria	Mean ES
Zero or one criteria (k=115)	+ 0.09
Two or three criteria (k=39)	+ 0.12
All four criteria (k=11)	+ 0.15

3.5.6 Age of participants

In general, programs that primarily treated youth under the age of 16 demonstrated higher reductions in recidivism. Those programs that targeted youth 12 to 15 years of age generated a mean effect size of + 0.13 (k=76) while programs that targeted youth 16 and 17 years of age displayed a mean effect size of + .07 (k=69). Previous research into the effectiveness of treatment for young offenders found that younger participants are more open to the treatment process when compared to older participants (Dowden, 1998; Latimer, 2001). The results of this meta-analysis provide further support for these findings.

3.5.7 Other demographic moderators

There were several other variables that could have explained some of the variance in effect sizes such as gender, education level, familial living arrangements, previous criminal history or type of offence committed. None of these variables, however, provided an explanation for the range of effect sizes within this meta-analysis (i.e., did not demonstrate a 4% change in recidivism rates).

3.5.8 Additional program participants

Programs that directly involved the family in the treatment process generally displayed a stronger mean effect compared to those that did not involve the family. Not having the family involved generated a mean effect size of + 0.08 (k=85), while the mean effect size for limited involvement was + 0.11 (k=38) and for substantial involvement it was + 0.13 (k=42). Due to the limited numbers, we grouped substantial and limited community involvement together and found that some form of involvement (ES = + 0.17, k=19) was related to reducing recidivism compared to having no community involvement (ES = + 0.09, k=142). Involving the victim directly in the treatment process (ES = + 0.11, k=20) did not have an appreciable impact on recidivism compared to no victim involvement (ES = + 0.10, k=145).

3.6 Alternative outcomes

While we felt it was important to examine additional outcomes of interest other than recidivism, such as academic performance and family functioning, the total number of studies that met the selection criteria *and* measured such outcomes was quite low. While the overall effects are presented in the following sections, we were also interested in disaggregating the data in order to identify unique program characteristics related to success. The low number of effect sizes, however, made this analysis untenable.

3.6.1 Academic performance/attendance

Maintaining youth in school and increasing their school performance is clearly a laudable goal, not only in terms of reducing the risk of recidivism, but also in terms of improving the overall life chances of youth. There were a total of 28 studies that measured the effectiveness of treatment in improving academic performance/attendance. The mean effect size generated was + 0.09 (SD = .26) with a confidence interval of - 0.01 to + 0.19. Since the confidence interval included zero, this moderates our confidence that there is a discernable effect from treatment. In addition, the effect sizes ranged from - 0.79 to + 0.61 (SD = .26), which is a considerably large discrepancy.

3.6.2 Psychological well-being

Although targeting the psychological well-being of youth did not have a strong impact on reducing recidivism, treatment, in general, does seem to have an impact on improving the psychological well-being of youth. There were 26 programs that directly measured the impact of treatment on such concepts as self-esteem, depression and anxiety. The effect sizes ranged from - 0.19 to + 0.99 with a mean effect size of + 0.24 (N=26). The 95% confidence interval was + 0.14 to + 0.35 which demonstrates a positive impact from treatment.

3.6.3 Substance abuse

Treating substance abuse has long been an important aspect of correctional treatment as drug and alcohol abuse is highly correlated with delinquent behaviour. The results of the recidivism analysis, however, demonstrated that substance abuse was a less encouraging treatment target. The 11 programs that measured their effectiveness in directly reducing substance abuse indicated that, in general, treatment does have a rather positive impact (ES = + 0.15). The effect sizes ranged from zero to + 0.38 with a 95% confidence interval of + 0.06 to + 0.26.

3.6.4 Employment gains

There were 14 treatment programs that examined employment gains, such as acquiring or maintaining a job, following participation in treatment. The overall effect demonstrated that treatment was successful at increasing the likelihood of youth participating in the workforce (ES = + 0.17). The effect sizes ranged from - 0.26 to + 0.80; however, the 95% confidence interval was -0.002 to + 0.34. Since zero falls within this interval, our confidence in these results are somewhat diminished. Interestingly, employment outcomes are directly related to recidivism outcomes. Multivariate analysis was conducted with all of the outcomes in this meta-analysis and the only significant correlation was between employment gains and recidivism gains ($r = .87, p < .001$). That

is to say, maintaining or acquiring a job had a profound impact on reducing the likelihood of engaging in future criminal behaviour.

3.6.5 Anti-social peer involvement

One of the stronger correlates of delinquency is involvement with anti-social peers. There were six individual studies that examined the effectiveness of reducing involvement with anti-social peers, which was operationalised primarily as reducing involvement with criminal gangs. The mean effect size was + 0.07 with a range from – 0.31 to + 0.63. The 95% confidence interval of – 0.26 to + 0.39, however, coupled with the very small number of effect sizes, reduces confidence that there is a positive effect.

3.6.6 Anti-social attitudes

Anti-social attitudes were found to be a ‘more encouraging’ treatment target to reduce recidivism and is therefore an important outcome. The results of the 12 studies that measured changes in anti-social attitudes generated a mean effect size of + 0.12 indicating that treatment was somewhat successful at reducing anti-social attitudes and improving respect for authority and the institutions of the criminal justice system. The range was from – 0.12 to + 0.54 with a 95% confidence interval of zero to + 0.24. As this was an encouraging treatment target for reducing recidivism, it should be further explored in order to determine the successful approaches to reducing anti-social attitudes.

3.6.7 Anger management

The most encouraging treatment target identified for reducing recidivism was anger management. The 10 studies that fit our selection criteria and measured improvements in anger generated a mean effect size of + 0.26, which is the highest effect found in this meta-analysis. The effect sizes ranged from - 0.18 to + 0.91 with a 95% confidence interval of + 0.05 to + 0.96. Since anger management strategies are related to reductions in criminal behaviour, it is important for future research to develop a clearer understanding of what types of anger management are most effective.

3.6.8 Social skills

Social skills, such as a sense of social competence, conversational aptitudes and the ability to work well in groups, are thought to be an important contributor to the development of youth. There were 14 programs that targeted and measured improvements in this area. The mean effect size was + 0.18 with a 95% confidence interval of + 0.01 to + 0.34 and a range of – 0.17 to + 0.73. The large variation indicates support for future research in this area to identify effective components of successful treatment programs.

3.6.9 Cognitive skills

There were only six studies that measured the effectiveness of treatment at improving cognitive skills, such as problem solving and effective goal setting, with youth engaged in criminal behaviour. The results, therefore, are somewhat less reliable. The mean effect size produced by the six studies was + 0.22 with a range of + 0.03 to + 0.76 (the only outcome with all positive effects). However, the 95% confidence interval was – 0.07 to + 0.51 which reduces our confidence in the + 0.22 mean effect.



3.9.10 Family Functioning

Family functioning was deemed to be an important contributor to reductions in recidivism among youth in conflict with the law. There was a total of 19 studies that examined the effect of treatment directly on family functioning. The mean effect size generated was + 0.15 with a range of – 0.06 to +0.60 and a 95% confidence interval of + 0.06 to + 0.23. The results demonstrate the potential of treatment to improve communication within families as well as parental performance on such concepts as monitoring and supervision.

4.0 Recommendations for a Successful Program

4.1 Recidivism

In summary, the following are empirically-based recommendations that emerged directly from the results of this meta-analysis and demonstrate reductions in re-offending among youth in conflict with the law:

1. conduct the treatment in a therapeutic environment using multiple forms of counselling (individual, group and family);
2. screen youth for anger issues and provide an anger management component where suitable;
3. directly involve educators within the treatment program and directly target school performance and attendance where necessary;
4. target anti-social attitudes in treatment including encouraging respect for authority and for the institutions of the criminal justice system;
5. develop cognitive skills in the youth in order to improve problem solving, perspective taking and goal setting;
6. enhance social skills including communication strategies and the ability to work within groups (e.g., giving and receiving feedback);
7. encourage and teach positive communication (e.g., warm, respectful, honest) within families;
8. provided parents with the appropriate skills to monitor and supervise youth;
9. increase the employment potential of the youth (where maturity and external obligations permit) by offering specific vocational training and provide general skills such as resume writing and interviewing for acquiring and maintaining gainful employment;
10. limit the program length to six months and provide a maximum of 20 hours of program exposure for low risk offenders and increase the treatment dosage for high risk offenders;
11. develop program manuals, provide staff training and supervision, and measure program compliance;
12. attempt to provide suitable interventions *early* in the lives of youth in conflict with the law;
13. encourage meaningful and substantial family involvement in the program;



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14. attempt to involve the community (e.g., police, non-governmental organizations, community leaders) within the treatment program where appropriate; and,
 15. address ambiguous and less promising treatment targets (anti-social peers, relapse prevention, community functioning, substance abuse, psychological well-being, leisure/recreation) and other non-criminogenic needs when deemed appropriate on a case by case basis.

4.2 Alternative outcomes

In general, there is a lack of sufficient evidence to make recommendations using the alternative outcomes. Treatment appears to have a positive impact on improving psychological well-being, substance abuse, family functioning and anger management. The remaining outcomes were inconclusive. While all of the mean effect sizes were positive, the confidence intervals contained zero thus reducing confidence that there was a positive effect from treatment. Future research is clearly warranted to determine 'what works' in improving the alternative outcomes such as family functioning, anti-social peer involvement, cognitive skills and substance abuse. One important link, however, was discovered between employment gains and reductions in recidivism. That is, those youth who were successful at maintaining or acquiring employment were significantly more likely to refrain from engaging in criminal behaviour.

5.0 Conclusion

The results of this meta-analysis provide direction to key decision-makers, program developers and program funders based on the accumulation of knowledge from more than 150 studies dealing directly with youth engaged in criminal behaviour. In general, providing treatment to youth in conflict with the law does have an impact on the likelihood of future criminal behaviour. These findings suggest, however, that various issues surrounding the program (e.g., integrity, dosage and targets) and its clients (e.g., age and risk) substantially affect its therapeutic potential.

5.1 Future research

There are several areas of future research that should be explored. First, additional outcomes, such as family functioning or academic performance should be researched in greater detail to determine if there is a relationship between improvements in these areas and recidivism. For example, the results of this meta-analysis demonstrated that employment gains were directly related to reductions in recidivism. Second, program characteristics related to improvements in the additional outcomes should be explored, possibly using the broader non-criminal literature in areas such as education, psychology and social work. Third, there may be relevant distinctions between types of criminal behaviour (e.g., sexual offences, trafficking, violent offences) and successful treatment strategies. Future research should further disaggregate the results of studies and explore the moderating effects of the type of criminal behaviour. Finally, a more qualitative exploration of the very successful programs (i.e., programs with an ES higher than + 0.30) would be of value. There may be common characteristics among these successful programs that can be examined through more precise coding techniques in a future meta-analysis.



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