

Effectiveness of family-based programs to prevent delinquency and later offending

Brandon C. Welsh and David P. Farrington*
University of Massachusetts Lowell and * Cambridge University

This paper reviews the effectiveness of family-based prevention programs in reducing delinquency and later offending by children and adolescents. Eleven large-scale randomized experiments and eleven other controlled evaluations (smaller-scale experiments or quasi-experiments) are reviewed. Out of 22 evaluations, the experimental group did better than the control group in 19 cases, and the differences were significant (or nearly significant) in 12 of these 19 evaluations. The median decrease in offending in the experimental group compared with the control group was 35%. It is concluded that the best evaluations generally show that family-based programs are effective in reducing later offending.

La efectividad de los programas de intervención familiar en la prevención de la delincuencia. Este artículo revisa la efectividad de los programas que actúan en la familia con el objetivo de reducir la delincuencia de niños y adolescentes. Para ello se analizan once experimentos aleatorizados de gran envergadura, así como otras once evaluaciones controladas de menor alcance, con diseños experimentales o cuasi-experimentales. De las 22 evaluaciones realizadas, se observó que el grupo experimental superó al grupo control en 19 ocasiones, siendo las diferencias significativas (o casi significativas) en 12 de esas 19 evaluaciones. La disminución media de la reincidencia en el grupo experimental comparado con el control fue del 35%. Se concluye que las mejores evaluaciones tienden a mostrar que los programas basados en la familia son efectivos para reducir la delincuencia posterior de los hijos.

This paper reviews the effectiveness of family-based prevention programs in reducing delinquency and later offending by children and adolescents. Primary, secondary, and tertiary prevention programs are included (for definitions of these terms, see van Dijk and de Waard, 1991), but a central idea is to avoid that children become usual clients of corrections, developing a stable criminal career (see Garrido, Morales and Sánchez-Meca, this issue). Family-based programs typically target family risk factors such as poor child-rearing, poor supervision, and inconsistent or harsh discipline (Farrington, 2002). When delivered by psychologists, these programs are often classified into parent management training, functional family therapy, or family preservation (Wasserman and Miller, 1998, pp. 199-201). Typically, they attempt to change social contingencies in the family environment so that children are rewarded in some way for appropriate or prosocial behaviors and punished in some way for inappropriate or antisocial behaviors. Family-based programs delivered by other health professionals (e.g., nurses) are usually less behavioral, mainly providing advice and guidance to parents or general parent education.

Previously, we have completed narrative and meta-analytic reviews on the effectiveness of family-based interventions to

prevent childhood antisocial behavior and delinquency (Farrington and Welsh, 1999, 2002, 2003a, 2003b). In keeping with our meta-analysis, this paper aims to present a more systematic review. It is based on our previous review of 40 evaluations (Farrington and Welsh, 2003a), but it focuses exclusively on delinquency and offending outcomes.

Method

Selection of Evaluations

In selecting evaluations for inclusion, the following criteria were used:

- (1) The family (parent/guardian and/or child) and family factors (e.g., child-rearing methods) were a focus of the intervention. Programs that targeted only the child (e.g., skills training) were excluded. A major problem is that many intervention programs are multi-modal, including (for example) not only parent training but also child skills training. This makes it difficult to assess the distinctive effect of any particular (family or non-family) element.
- (2) There was an outcome measure of delinquency or later criminal offending; a program would not be included if it only had outcome measures of child problem behavior or substance use or risk factors such as poor parenting. Where there was a choice of outcomes, we chose to report the straightforward offender/nonoffender dichotomy (e.g. % recidivist in experimental and control conditions). If this was not available, we chose the frequency of offending in

experimental and control conditions. In our tables, we report the percentage difference in reoffending between experimental and control conditions. For example, if A% reoffended in the experimental condition and B% in the control condition, % difference = $100(A-B)/B$. Where rates of offending were given before the intervention, the percentage difference was adjusted accordingly. We (Farrington and Welsh, 2003a) presented effect sizes and a more formal meta-analysis, but we focus on percentage differences in this paper.

- (3) The evaluation design was of high quality methodologically: a randomized experiment or an experiment with a matched control group. These designs equate to level 5 and level 4, respectively, on the scientific methods scale (SMS) developed by Sherman et al. (1997) and described by Farrington, Gottfredson, Sherman, and Welsh (2002). We have used the SMS, which ranks studies from level 1 (weakest) to level 5 (strongest) on overall internal validity. Level 5 is widely recognized as the «gold standard» of evaluation design and seems unambiguous. However, the randomized experiment is only the gold standard if a sufficiently large number of units are randomly assigned to ensure that the program group is equivalent to the control group on all possible (measured and unmeasured) extraneous variables influencing the outcome. As a rule of thumb, at least 50 in both categories is needed to ensure equivalence within a narrow range of statistical fluctuation. This number is relatively easy to achieve with individuals but very difficult to achieve with larger units such as schools or areas. Thus, a randomized experiment based on a small number of units (e.g., 10 schools) is classified as level 4, because there is only approximate control of extraneous variables (as in a matching design). Of the 22 evaluation studies reviewed here, 15 randomly allocated children and/or families to experimental or control conditions. There had to be a control condition that received no treatment, the usual treatment, or some non-family treatment; evaluations that randomly allocated participants only to different experimental treatments were excluded. Eleven of these randomized experiments were considered to be particularly robust – mainly due to having a larger sample size (i.e., 100 or more; see next point) – and thus are reviewed separately. Of the remaining 11 evaluations, one randomly allocated school classes (Hawkins et al, 1999), one randomly allocated schools (Mason et al, 2003), and five used matched control groups (Aos, 2004; Gordon, 1995; Lally, Mangione and Honig, 1988; Long, Forehand, Wierson and Morgan, 1994; Reynolds, Temple, Robertson and Mann, 2001). Evaluations using non-matched control groups (e.g., Gordon, Graves and Arbuthnot, 1995) were excluded.
- (4) The original sample size (experimental and control groups combined) was at least 50 individuals. A minimum of 100 would have been preferable, but this would have resulted in the loss of more than a quarter of the programs included (six out of 22). By setting 50 as our minimum, a number of well known family-based intervention programs were excluded (e.g., the Yale Child Welfare Research Program of Seitz, Rosenbaum and Apfel, 1985).

Searching Strategies

With our aim being to update our most recent review on the topic (Farrington and Welsh, 2003a), which included publications up to 2002, the following search strategies were used to identify new evaluations for possible inclusion:

- (1) Recent reviews of the literature covering family-based interventions (Bernazzani and Tremblay, 2006; Bilukha et al, 2005; Duncan and Magnuson, 2004; Kumpfer and Alvarado, 2003; Lösel and Beelmann, 2006).
- (2) Articles in major journals in criminology and psychopathology in 2003 and 2004.
- (3) Contacts with leading researchers in the field to solicit recently published or in-press papers.

It is important to note that, because our original focus was on randomized experiments (see Farrington and Welsh, 2005, 2006), there may be less complete coverage of non-randomized experiments in this review. Our coverage is limited to reports in the English language.

Results

Large-Scale Family-Based Prevention Experiments

Table 1 summarizes 11 large-scale prevention experiments with a family-based component that measured later offending. They are roughly ordered according to the age of the children, from the youngest upwards. It can be seen that five of the 11 experiments found that the intervention had a significant (or near-significant) desirable effect in reducing later offending. Effect sizes and significance tests are reported in Farrington and Welsh (2003a, 2005).

Olds and his colleagues (1998) investigated the effects of a home visiting program on pregnant women in Elmira, New York. The home visitors (nurses) gave the women advice about child-rearing, infant development, nutrition, and the need to avoid alcohol and drugs. Hence, this was a general parent education program. A 15-year follow-up of the program, which lasted two years, showed that the children of visited mothers were arrested at a significantly (54%) lower rate than the children of non-visited mothers. Like almost all of the prevention experiments reviewed here, the effects of the home visiting program on other outcomes were investigated. For example, at program completion, a substantial reduction in child abuse and neglect was found for higher risk visited mothers compared to their control counterparts (4% vs. 19%; see Olds, Henderson, Chamberlain and Tatelbaum, 1986), and the 15-year follow-up showed that fewer visited compared to non-visited mothers in the sample as whole were identified as perpetrators of child abuse or neglect (rates of 0.32 compared with 0.54; see Olds et al, 1997).

Schweinhart and his colleagues (2005) carried out the longest follow-up of the effects of an intervention. In the famous Perry project, experimental children attended a cognitively-oriented preschool program that was designed to increase their thinking and reasoning abilities and school achievement, backed up by weekly home visits. The experimental and control children were followed up to age 40, with a retention rate of 91% (112 participants interviewed out of the original 123). The results showed that, compared to the control group participants, those in

the experimental group had 35% fewer arrests, were more likely to graduate from high school (79% vs. 60%) and obtain a college degree (18% vs. 6%), and earned significantly higher annual incomes. Because of small numbers, the difference in arrest rates was significant only at $p = .10$.

Similarly, in the Abercedarian project, Campbell and her colleagues (2002) found that an intensive cognitively-oriented preschool curriculum combined with family support led to 36% fewer convictions up to age 21 (compared with a regular preschool program), but that the difference was not statistically significant. Desirable results were also found in other areas for the experimental compared to the control group, including a slightly better high school graduation rate, a significantly higher enrolment in college, and a higher employment rate.

Tremblay, Mâsse, Pagani and Vitaro (1996) evaluated the success of a multi-modal program including child skills training and parent management training targeted at disruptive boys from low socioeconomic status neighborhoods in Montreal. The program, which ran for two years, proved to be effective in reducing self-reported arrests up to age 15 (by 53%), and in fact the desirable effects increased over time. The program also proved to be effective in improving school achievement and reducing gang membership and drug and alcohol use.

McCord (1978) followed up 506 men who had been randomly allocated either to receive counseling and home visiting or to a control group at age 10 (on average). The counselors talked to the boys, took them on trips and to recreational activities, tutored them in reading and arithmetic, encouraged them to participate in the

Table 1
Large-scale randomized experiments

Publication, location	Initial sample	Conditions	Results (N)	% difference
Olds et al (1998), Elmira, N.Y.	400 pregnant women	E= home visits C= no home visits	15 years arrest rate EM 0.166 (176) CM 0.360 (148)	-54%*
Schweinhart et al (2005), Ypsilanti, Michigan	123 children age 3-4	E= enriched preschool plus home visits C= no preschool	Felony arrests up to age 40 E 31.0% (58) C 47.7% (65)	-35%**
Campbell et al (2002), South Carolina	111 children at birth	E= intensive preschool plus family support C=usual preschool	Felony convictions up to age 21 E 7.5% (53) C 11.8% (51)	-36%
Tremblay et al (1996), Montreal, Canada	319 boys age 7	E= child skills training plus parent training C=no treatment or just attention	SR arrest up to age 15 E 14.0% (43) C 30.1% (123)	-53%*
McCord (1978), Cambridge and Somerville, Mass.	506 schoolboys mean age 10	E= family counselling C=no treatment	30 years adult serious convictions E 19.4% (253) C 16.6% (253)	+17%
Harrell et al (1999), 5 U.S. sites	671 adolescents age 11-13	E= risk focused prevention C=no treatment	12 months recorded crime E 28.0% (264) C 34.3% (236)	-18%
Borduin et al (1995), Columbia, Missouri	176 delinquents age 12-17	E= MST C= individual therapy	4 year arrests E 26.1% (92) C 71.4% (84)	-63%*
Henggeler et al (1997), South Carolina	155 delinquents age 10-17	E= MST C= probation	1.7 years arrest rate EM 0.89 (70) CM 1.20 (70)	-26%
Henggeler et al (1999), Charleston, South Carolina	116 psychiatric adolescents mean age 13	E= MST C= hospitalization	4 months arrest rate EB 0.46 (57) EA 0.33 (57) CB 0.30 (56) CA 0.27 (56)	-20%
Henggeler et al (2002), Charleston, South Carolina	118 delinquents age 12-17	E= MST C=usual community services	4 years conviction rate EM 0.34 (43) CM 0.77 (37)	-56%*
Leschied and Cunningham (2002), London, Canada	409 delinquents age 12-17	E= MST C= probation	12 months criminal convictions E 41.2% (211) C 37.6% (198)	+10%

Notes: * $p < .05$; ** $p < .10$; E= experimental; C= control; SR= self-report; MST= multisystemic therapy; EB= experimental before; CB= control before; EA= experimental after; CA= control after; EM= experimental mean; CM= control mean.

YMCA and summer camps, played games with them at the project's center, encouraged them to attend church, kept in close touch with the police, and gave advice and general support to families (McCord and McCord, 1959). The treatment lasted five years on average, and the follow-up was at an average age of 45.

Unfortunately, the treatment seemed to have undesirable effects. Slightly more of the treatment group was convicted of serious crimes as adults (19% compared with 17%), and significantly more treatment group offenders than control offenders committed two or more crimes. More of the treatment group died early, had stress-related diseases, or showed symptoms of alcoholism, and fewer of them were married. The boys who received more intensive treatment showed more adverse effects (McCord, 1990). McCord (1978) speculated that the treatment might have caused high expectations and dependency, so that there were negative effects when it was withdrawn.

Another multi-modal program (Children at Risk) was evaluated by Harrell, Cavanagh, and Sridharan (1999) in five sites across the United States. The intervention was designed to reduce the number of risk factors to which adolescents were exposed, through family services, skills training, mentoring, education, and after school activities. The program was effective in reducing offending (by a nonsignificant 18%), and the researchers concluded that the main effects were through reducing peer risk factors: experimental youths associated less often with delinquent peers, felt less pressure to engage in delinquency, and had more positive peer support. In contrast, there were few changes in individual, family, or community risk factors, possibly linked to the low participation of parents in parent training and of youths in mentoring and tutoring.

The remaining five experiments in table 1 evaluated multisystemic therapy (MST), which is a multi-modal intervention designed for serious juvenile offenders (Henggeler et al, 1998). The particular type of treatment is chosen according to the needs of the young person, and it may include individual, family, peer, school and community interventions (including parent training and skills training). Four of the five trials of MST, all carried out by Henggeler (the originator of this treatment) and his colleagues, found that the intervention was effective in reducing later offending (Borduin et al, 1995; Henggeler et al, 1997; Henggeler et al, 1999; Henggeler, Clingempeel, Brondino and Pickrel, 2002). The results obtained by Borduin and his colleagues (1995) showed a 63% reduction in the prevalence of arrests, while the reduction was 56% in the Henggeler et al (2002) study. For two of these programs (Borduin et al, 1995; Henggeler et al, 1999), improvements were also found in the functioning of the family unit as a whole, as measured by the outcome of family cohesion.

However, the one large-scale independent evaluation of MST, by Leschied and Cunningham (2002) in the Canadian province of Ontario, did not find that it was effective in reducing later convictions (compared with the usual community services, which typically involved probation supervision); the MST group were 10% more likely to be convicted within 12 months. Unfortunately, two meta-analyses of the effectiveness of MST came to diametrically opposite conclusions. Curtis, Ronan, and Borduin (2004) found that it was effective, while Littell (2005) found that it was not.

Other Family-Based Prevention Experiments and Quasi-Experiments

Table 2 summarizes 11 small-scale prevention experiments or quasi-experiments with a family-based component that measured

delinquency or later offending. They are roughly ordered according to the age of the children, from the youngest upwards. It can be seen that seven of these 11 studies found that the intervention had a significant (or near-significant) desirable effect in reducing delinquency or later offending.

One of the very few prevention experiments beginning in pregnancy and collecting outcome data on delinquency was the Syracuse (New York State) Family Development Research Program of Lally et al (1988). The researchers began with a sample of pregnant women (mostly poor African-American single mothers) and gave them weekly help with child-rearing, health, nutrition, and other problems. In addition, their children received free full-time day care, designed to develop their intellectual abilities, up to age five. This was not a randomized experiment, but a matched control group was chosen when the children were aged three. The treated children had significantly higher intelligence than the controls at age three but were not significantly different at age five. Ten years later, 119 treated and control children were followed-up to about age 15. Significantly fewer of the treated children (2% as opposed to 17%) had been referred to the juvenile court for delinquency offenses.

The Child-Parent Center (CPC) program in Chicago (Reynolds et al, 2001), like the Perry Preschool program discussed above, provided disadvantaged children with a high-quality, active learning preschool supplemented by family support. However, unlike Perry, CPC continued to provide the children with the educational enrichment component into elementary school, up to age nine. Compared with a matched control group, those who received the program were less likely to be arrested for any crime (17% vs. 25%), as well as for violent offenses (9% vs. 15%) and non-violent offenses (14% vs. 19%) by the time they were 18. The CPC program also produced other benefits for those in the experimental compared to the control group, such as a higher rate of high school completion.

Long et al. (1994) found that their experimental children (who received parent training after referral because of non-compliance to parent requests) were similar as adults on delinquency, emotional adjustment, and academic progress compared to controls retrospectively matched on age, gender, ethnicity, and family socio-economic status. They concluded that the parent training had been effective. However, in the absence of before and after measures, it is difficult to know whether this is true.

The next program, the Seattle Social Development Project by Hawkins et al (1999), which included modified classroom teaching practices, parent training, and child social skills training, showed substantial improvement from immediate outcome to a follow-up when the participants were 18 years old. The parents were trained to notice and reinforce their children's socially desirable behavior in a program called «Catch them being good». At immediate outcome after six years of intervention, treatment effects on delinquency and academic achievement varied by gender; no effect on delinquency was found for girls, but a desirable effect was found for boys. After the six-year follow-up period, the full intervention group reported fewer arrests, less violence, less alcohol abuse, and fewer sexual partners than the controls.

Mason et al (2003) evaluated a parent training program entitled *Preparing for the Drug-Free Years*, which aimed to teach parents skills for communicating clear behavioral expectations, monitoring children's behavior, managing family contact, promoting child involvement, and strengthening family bonds.

Schools were randomly assigned to experimental or control conditions. A 42-month follow-up showed that the experimental children reported 27% less delinquency and 30% less substance use. Latent growth curve models showed that the growth in delinquency and substance use was significantly lower for experimental children.

The remaining six family-based programs in Table 2 intervened with adolescents who had come into conflict with the law. In one of the earliest experimental tests of functional family therapy, Alexander and Parsons (1973) found that those who received the treatment, compared to a control group that received either

alternative forms of family therapy or no treatment, were significantly less likely to be arrested after a variable (6-18 months) follow-up period. While this was a large effect, there were methodological problems of attrition of cases (as in many other evaluations) as well as the variable follow-up periods. Gordon's (1995) quasi-experimental test of functional family therapy, which used standard probation as the control condition, also found a desirable effect, on recommitments to correctional institutions over a 16-month follow-up period.

In the program by Bank et al (1991), 55 chronically offending delinquents and their parents were randomly assigned to receive

Table 2
Small-scale randomized experiments and quasi-experiments

Publication, location	Initial sample	Conditions	Results (N)	% difference
Lally et al (1988), Syracuse, N.Y.	182 children at birth	E= parent education C= regular child care	Delinquency court referrals up to age 15 E 1.5% (65) C 16.7% (54)	-91%*
Reynolds et al (2001), Chicago, Illinois	1,539 children age 3	E= enriched preschool and family support C= regular preschool	Arrests up to age 18 E 16.9% (911) C 25.1% (493)	-33%*
Long et al (1994), U.S.	73 children age 2-8	E= parent training C= no treatment	SR delinquency age 20 EM 1.31 (26) CM 0.88 (26)	+49%
Hawkins et al (1999), Seattle, Washington	375 children age 6	E= parent/teacher training C= no treatment	SR arrests up to age 18 E 18.8% (149) C 24.8% (206)	-24%
Mason et al (2003), Midwest U.S.	429 children age 11	E= parent training C= no treatment	3.5 years SR delinquency EM 0.61 (152) CM 0.83 (143)	-27%
Alexander & Parsons (1973), Salt Lake City, Utah	86 delinquents age 13-16	E= functional family therapy C= alternate family therapy/no treatment	6-18 months arrests E 26.1% (46) C 55.0% (40)	-53%*
Gordon (1995), 5 Ohio counties	52 delinquents age 16-17	E= functional family therapy C= standard probation	16 months recommitments to institution E 33.3% (27) C 64.0% (25)	-48%*
Bank et al (1991), Lane County, Oregon	55 delinquents mean age 14	E= parent training/family therapy C= court mandated family and group counselling	3.5 years arrests EB 4.39 (28) EA 1.79 (28) CB 4.56 (27) CA 2.00 (26)	-7%
Chamberlain and Reid (1998), U.S.	79 delinquents age 12-17	E= parent training C= group care	Arrests per year EB 8.5 (37) EA 2.6 (37) CB 6.7 (42) CA 5.4 (42)	-62%*
Henggeler et al (1993), South Carolina	84 delinquents mean age 15	E= MST C= court ordered services and mental health	2 years arrest rate E 60.5% (43) C 80.5% (41)	-25%**
Aos (2004), Washington	273 delinquents up to 17	E= MST and other programs C= usual parole services	18 months reconviictions E 27.0% (104) C 40.6% (169)	-33%*

Notes: * p<.05; ** p<.10; E= experimental; C= control; SR= self-report; MST= multisystemic therapy; EB= experimental before; CB= control before; EA= experimental after; CA= control after; EM= experimental mean; CM= control mean.

either parent training plus family therapy based on social learning principles and delivered by Oregon Social Learning Center staff or court mandated family and group therapy provided by the juvenile court and community. Three years after the completion of the program, which lasted about six months, arrest rates showed little difference between the two groups. One possible explanation for this finding has to do with the «control» group receiving more hours of treatment than the «experimental» group. Unfortunately, the interventions received by the control group were mandated by the court, not chosen by the researchers.

In contrast, the multidimensional treatment foster care (MTFC) program evaluated by Chamberlain and Reid (1998) produced highly desirable results. Participants (young males with a history of serious and chronic offending and their parents) in the MTFC program received individual (e.g., skills in problem solving) and family (e.g., parent management training) therapy, while controls went to the usual community-based group care facility. One year after the completion of the program, MTFC cases were significantly less likely than controls to have engaged in further criminal activity, as measured by police arrests.

Henggeler and his colleagues (1993) completed the earliest (to our knowledge) experimental test of MST and the sixth test included in this review (see above). This evaluation of MST, with 84 juvenile offenders, showed that (compared with out-of-home placement) it was followed by fewer arrests (at immediate outcome and at two years post-treatment), lower self-reported delinquency, less peer-oriented aggression, and improvements in the functioning of the family unit as a whole, as measured by the outcome of family cohesion (for an earlier follow-up of this sample, see Henggeler, Melton and Smith, 1992).

In the final study, Aos (2004) evaluated the Family Integrated Transitions program, which included MST, Motivational Enhancement Therapy, relapse prevention, and Dialectical Behavior Therapy. Institutionalized juvenile offenders were screened for eligibility for the program and were given it in only four counties of Washington State. Experimental and control offenders were similar in many respects, although if anything the experimental offenders

had marginally higher risk assessment scores. An 18-month follow-up showed that the experimental offenders incurred significantly fewer convictions for felony offenses.

Discussion

Out of 22 evaluations, the experimental group did better than the control group in 19 cases, and the differences were significant (or nearly significant) in 12 of these 19 evaluations. The median decrease in reoffending in the experimental group compared with the control group was 35%, which seems a substantial effect. We can therefore conclude that the best evaluations generally show that family-based programs are effective in reducing later offending.

We are more confident about the 11 large-scale randomized experiments than about the other 11 evaluations. First, we are confident that our enumeration of large-scale randomized experiments evaluating the effects of family-based programs on offending is exhaustive, because it is based on our systematic review of 122 large-scale randomized experiments carried out in criminology (Farrington and Welsh, 2006). In contrast, we cannot be sure that our enumeration of other controlled evaluations of family-based programs is complete. Second, we can be more confident about the validity of results obtained in large-scale randomized experiments.

Eleven experiments is a very small number. More large-scale experiments, with offending outcomes, are needed to evaluate the effectiveness of family-based programs. Ideally, programs focusing more clearly and more narrowly on family risk factors should be implemented and evaluated, rather than multi-modal programs, so that it is easier to evaluate the active ingredients of family-based components. More efforts should be made to determine links in the causal chain between family processes and offending, and more long-term follow-ups should be conducted to establish the persistence of effects. Nevertheless, the results so far are very promising. Consequently, the time is ripe to mount a large-scale evidence-based national program to evaluate the effectiveness of family-based interventions.

References

- Alexander, J.F. and Parsons, B.V. (1973). Short-term behavioral intervention with delinquent families: impact on family process and recidivism. *Journal of Abnormal Psychology*, 81, 219-225.
- Aos, S. (2004). *Washington State's Family Integrated Transitions program for juvenile offenders: outcome evaluation and cost-benefit analysis*. Olympia, WA: Washington State Institute for Public Policy.
- Bank, L., Marlowe, J.H., Reid, J.B., Patterson, G.R. and Weinrott, M.R. (1991). A comparative evaluation of parent-training interventions for families of chronic delinquents. *Journal of Abnormal Child Psychology*, 19, 15-33.
- Bernazzani, O. and Tremblay, R.E. (2006). Early parent training. In B.C. Welsh and D.P. Farrington (eds.): *Preventing crime: What works for children, offenders, victims and places* (pp. 21-32). Dordrecht, Netherlands: Springer.
- Bilukha, O. et al. (2005). The effectiveness of early childhood home visitation in preventing violence: a systematic review. *American Journal of Preventive Medicine*, 28(2S1), 11-39.
- Borduin, C.M., Mann, B.J., Cone, L.T., Henggeler, S.W., Fucci, B.R., Blaske, D.M. and Williams, R.A. (1995). Multisystemic treatment of serious juvenile offenders: long-term prevention of criminality and violence. *Journal of Consulting and Clinical Psychology*, 63, 569-587.
- Campbell, F.A., Ramey, C.T., Pungello, E., Sparling, J. and Miller-Johnson, S. (2002). Early childhood education: young adult outcomes from the Abecedarian Project. *Applied Developmental Science*, 6, 42-57.
- Chamberlain, P. and Reid, J.B. (1998). Comparison of two community alternatives to incarceration for chronic juvenile offenders. *Journal of Consulting and Clinical Psychology*, 66, 624-633.
- Curtis, N.M., Ronan, K.R. and Borduin, C.M. (2004). Multisystemic treatment: a meta-analysis of outcome studies. *Journal of Family Psychology*, 18, 411-419.
- van Dijk, J.J.M. and de Waard, J. (1991). A two-dimensional typology of crime prevention projects: with a bibliography. *Criminal Justice Abstracts*, 23, 483-503.
- Duncan, G.J. and Magnuson, K. (2004). Individual and parent-based intervention strategies for promoting human capital and positive behavior. In P.L. Chase-Lansdale, K. Kiernan and R.J. Friedman (eds.): *Human development across lives and generations: the potential for change* (pp. 93-135). New York: Cambridge University Press.
- Farrington, D.P. (2002). Families and crime. In J.Q. Wilson and J. Petersilia (eds.): *Crime: public policies for crime control*, 2nd ed. (pp. 129-148). Oakland, CA: Institute for Contemporary Studies Press.

- Farrington, D.P., Gottfredson, D.C., Sherman, L.W. and Welsh, B.C. (2002). The Maryland Scientific Methods Scale. In L.W. Sherman, D.P. Farrington, B.C. Welsh and D.L. MacKenzie (eds.): *Evidence-based crime prevention* (pp. 13-21). London: Routledge.
- Farrington, D.P. and Welsh, B.C. (1999). Delinquency prevention using family-based interventions. *Children and Society*, 13, 287-303.
- Farrington, D.P. and Welsh, B.C. (2002). Family-based crime prevention. In L.W. Sherman, D.P. Farrington, B. C. Welsh and D. L. MacKenzie (eds.): *Evidence-based crime prevention* (pp. 22-55). London: Routledge.
- Farrington, D.P. and Welsh, B.C. (2003a). Family-based prevention of offending: a meta-analysis. *Australian and New Zealand Journal of Criminology*, 36, 127-151.
- Farrington, D.P. and Welsh, B.C. (2003b). Family-based programs to prevent delinquent and criminal behavior. In H. Kury and J. Obergfell-Fuchs (eds.): *Crime prevention: new approaches* (pp. 62-90). Mainz, Germany: Weisser Ring.
- Farrington, D.P. and Welsh, B.C. (2005). Randomized experiments in criminology: What have we learned in the last two decades? *Journal of Experimental Criminology*, 1, 9-38.
- Farrington, D.P. and Welsh, B.C. (2006). A half-century of randomized experiments on crime and justice. In M. Tonry (ed.): *Crime and Justice: a Review of Research*, vol. 34. Chicago: University of Chicago Press, in press.
- Garrido, V., Morales, L. and Sánchez-Meca (2006). This issue.
- Gordon, D.A. (1995). Functional family therapy for delinquents. In R.R. Ross, D.H. Antonowicz and G.K. Dhaliwal (eds.): *Going straight: effective delinquency prevention and offender rehabilitation* (pp. 163-178). Ottawa, Canada: Air Training and Publications.
- Gordon, D.A., Graves, K. and Arbuthnot, J. (1995). The effect of functional family therapy for delinquents on adult criminal behavior. *Criminal Justice and Behavior*, 22, 60-73.
- Harrell, A.V., Cavanagh, S.E. and Sridharan, S. (1999). Evaluation of the Children at Risk program: results 1 year after the end of the program. Washington, DC: National Institute of Justice (Research in Brief).
- Hawkins, J.D., Catalano, R.F., Kosterman, R., Abbott, R. and Hill, K.G. (1999). Preventing adolescent health risk behaviors by strengthening protection during childhood. *Archives of Pediatrics and Adolescent Medicine*, 153, 226-234.
- Henggeler, S.W., Melton, G.B. and Smith, L.A. (1992). Family preservation using multisystemic therapy: an effective alternative to incarcerating serious juvenile offenders. *Journal of Consulting and Clinical Psychology*, 60, 953-961.
- Henggeler, S.W., Melton, G.B., Smith, L.A., Schoenwald, S.K. and Hanley, J.H. (1993). Family preservation using multisystemic treatment: long-term follow-up to a clinical trial with serious juvenile offenders. *Journal of Child and Family Studies*, 2, 283-293.
- Henggeler, S.W., Schoenwald, S.K., Borduin, C.M., Rowland, M.D. and Cunningham, P.B. (1998). *Multisystemic treatment of antisocial behavior in children and adolescents*. New York: Guilford.
- Henggeler, S.W., Clingempeel, W.G., Brondino, M.J. and Pickrel, S.G. (2002). Four-year follow-up of multisystemic therapy with substance-abusing and substance-dependent juvenile offenders. *Journal of the American Academy of Child and Adolescent Psychiatry*, 41, 868-874.
- Henggeler, S.W., Melton, G.B., Brondino, M.J., Scherer, D.G. and Hanley, J.H. (1997). Multisystemic therapy with violent and chronic juvenile offenders and their families: the role of treatment fidelity in successful dissemination. *Journal of Consulting and Clinical Psychology*, 65, 821-833.
- Henggeler, S.W., Rowland, M.D., Randall, J., Ward, D.M., Pickrel, S.G., Cunningham, P.B., Miller, S.L., Edwards, J., Zealberg, J.J., Hand, L.D. and Santos, A.B. (1999). Home-based multisystemic therapy as an alternative to the hospitalization of youths in psychiatric crisis: clinical outcomes. *Journal of the American Academy of Child and Adolescent Psychiatry*, 38, 1.331-1.339.
- Kumpfer, K.L. and Alvarado, R. (2003). Family-strengthening approaches for the prevention of youth problem behaviors. *American Psychologist*, 58, 457-465.
- Lally, J.R., Mangione, P.L. and Honig, A.S. (1988). The Syracuse University Family Development Research Program: long-range impact of an early intervention with low-income children and their families. In D.R. Powell (ed.): *Parent education as early childhood intervention: emerging directions in theory, research and practice* (pp. 79-104). Norwood, NJ: Ablex.
- Leschied, A. and Cunningham, A. (2002). *Seeking effective interventions for serious young offenders: interim results of a four-year randomized study of multisystemic therapy in Ontario, Canada*. London, Canada: Centre for Children and Family Services in the Justice System, London Family Court Clinic.
- Littell, J.H. (2005). Lessons from a systematic review of effects of multisystemic therapy. *Children and Youth Services Review*, 27, 445-463.
- Long, P., Forehand, R., Wierson, M. and Morgan, A. (1994). Does parent training with young noncompliant children have long-term effects? *Behavior Research and Therapy*, 32, 101-107.
- Lösel, F. and Beelmann, A. (2006). Child social skills training. In B.C. Welsh and D.P. Farrington (eds.): *Preventing crime: What works for children, offenders, victims and places* (pp. 33-54). Dordrecht, Netherlands: Springer.
- McCord, J. (1978). A thirty-year follow-up of treatment effects. *American Psychologist*, 33, 284-289.
- McCord, J. (1990). Crime in moral and social contexts - the American Society of Criminology 1989 Presidential Address. *Criminology*, 28, 1-26.
- McCord, J. and McCord, W. (1959). A follow-up report on the Cambridge-Somerville Youth Study. *Annals of the American Academy of Political and Social Science*, 322, 89-96.
- Mason, W.A., Kosterman, R., Hawkins, J.D., Haggerty, K.P. and Spoth, R.L. (2003). Reducing adolescents' growth in substance use and delinquency: randomized trial effects of a parent-training prevention intervention. *Prevention Science*, 4, 203-212.
- Olds, D.L., Eckenrode, J., Henderson, C.R., Kitzman, H., Powers, J., Cole, R., Sidora, K., Morris, P., Pettitt, L.M. and Luckey, D. (1997). Long-term effects of home visitation on maternal life course and child abuse and neglect: fifteen-year follow-up of a randomized trial. *Journal of the American Medical Association*, 278, 637-643.
- Olds, D.L., Henderson, C.R., Chamberlin, R. and Tatelbaum, R. (1986). Preventing child abuse and neglect: a randomized trial of nurse home visitation. *Pediatrics*, 78, 65-78.
- Olds, D.L., Henderson, C.R., Cole, R., Eckenrode, J., Kitzman, H., Luckey, D., Pettitt, L., Sidora, K., Morris, P. and Powers, J. (1998). Long-term effects of nurse home visitation on children's criminal and antisocial behavior: 15-year follow-up of a randomized controlled trial. *Journal of the American Medical Association*, 280, 1238-1244.
- Reynolds, A.J., Temple, J.A., Robertson, D.L. and Mann, E.A. (2001). Long-term effects of an early childhood intervention on educational achievement and juvenile arrest: a 15-year follow-up of low-income children in public schools. *Journal of the American Medical Association*, 285, 2339-2346.
- Schweinhart, L.J., Montie, J., Zongping, X., Barnett, W.S., Belfield, C.R. and Nores, M. (2005). *Lifetime effects: the High/Scope Perry Preschool Study through age 40*. Ypsilanti, MI: High/Scope Press.
- Seitz, V., Rosenbaum, L.K. and Apfel, N.H. (1985). Effects of family support intervention: a ten-year follow-up. *Child Development*, 56, 376-391.
- Sherman, L.W., Gottfredson, D.C., MacKenzie, D.L., Eck, J.E., Reuter, P. and Bushway, S.D. (1997). *Preventing crime: What works, what doesn't, what's promising*. Washington, DC: National Institute of Justice.
- Tremblay, R.E., Masse, L.C., Pagani, L. and Vitaro, F. (1996). From childhood physical aggression to adolescent maladjustment: the Montreal Prevention Experiment. In R.D. Peters and R.J. McMahon (eds.): *Preventing childhood disorders, substance use and delinquency* (pp. 268-298). Thousand Oaks, CA: Sage.
- Wasserman, G.A. and Miller, L.S. (1998). The prevention of serious and violent juvenile offending. In R. Loeber and D.P. Farrington (eds.): *Serious and violent juvenile offenders: Risk factors and successful interventions* (pp. 197-247). Thousand Oaks, CA: Sage.