Iatrogenic effect of juvenile justice

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Background: The present study uses data from a community sample of 779 low-SES boys to investigate whether intervention by the juvenile justice system is determined, at least in part, by particular individual, familial and social conditions, and whether intervention by the juvenile courts during adolescence increases involvement in adult crime. **Method:** The study considers self-reported crime in childhood and adolescence, and introduces individual, familial and social variables into its analysis. **Results:** The results show that youths who are poor, impulsive, poorly supervised by their parents, and exposed to deviant friends are more likely, for the same degree of antisocial behavior, to undergo intervention by the Juvenile Court, and that this intervention greatly increases the likelihood of involvement with the penal system in adulthood. The results also show that the various measures recommended by the Juvenile Court exert a differential criminogenic effect; those that involve placement have the most negative impact. **Keywords:** Juvenile justice, labeling, peer contagion, juvenile delinquency, adult crime.

The present research analyzed data from a large longitudinal study in order to investigate the possible negative effect of contact with the justice system on young people. The notion that youths who come into contact with judicial institutions may, paradoxically, display higher rates of criminal behavior as adults dates back to the 19th century, when early reformers first noted that juvenile prisons could be regarded as veritable 'schools of crime'. More recently, two theoretical perspectives have been proposed to explain the possible negative impact of the juvenile justice system on youths' delinquent behaviors: the labeling perspective and the deviant peer contagion perspective (Dodge, Dishion, & Lansford, 2006; Warr, 2002). The labeling perspective focuses on two aspects: the first concerns how and why certain individuals, and not others, undergo intervention by the agencies of social control and are labeled as delinquents; the second concerns the effects of such labeling on subsequent criminal behavior. A key concept in labeling theory is that police officers are more likely to arrest subjects who are poor, deprived or belong to minority groups; that they tend to use their discretionary power in favor of those persons who are socially more privileged; and that the justice system tends to inflict harsher punishment on more deprived individuals. According to the labeling theory, judicial intervention operates selectively by targeting subjects who are disadvantaged, and facilitates young people's initiation to a criminal career, in that it tends to transform occasional deviance into systematic behavior by modifying offenders' self-perception, reducing their social opportunities and prompting them to form deviant groups (Becker, 1963; Lemert, 1951; Tannenbaum, 1938).

An interesting investigation of the labeling model was carried out by Klein (1986) by means of an experimental test involving the random allocation of youths arrested by the police to three intervention strategies: referral to the juvenile court, referral to social services independent of the courts, or release without the application of any measures. The fact that the youths arrested were randomly assigned to the three different strategies ensured that background and offence characteristics were controlled across conditions. The best results in terms of official delinquency were obtained by the group that had not undergone any measures; this confirmed the hypothesis that the effect of intervention (whether judicial or social) was counter-productive.

In recent years, there has been a tendency to combine labeling theory with other approaches (Sampson & Laub, 1997) and to test for the putative mechanisms through which judicial measures might operate. For example, Bernburg and Krohn (2003) found that official intervention during adolescence increased involvement in crime in adulthood, and that this effect was partly due to the fact that judicial intervention hindered school performance and facilitated unemployment, or induced involvement in deviant social groups (Bernburg, Krohn, & Rivera, 2006).

The broad area of research into the criminogenic effect of associating with deviant peers has also yielded interesting results with regard to the iatrogenic aspect of the juvenile justice system. It is well known that the peer group plays a fundamental role in orienting adolescent behavior. Deviant behavior is no exception, and all investigations have demonstrated that juvenile delinquency is above all a group phenomenon (Vitaro, Tremblay, & Bukowski, 2001; Warr, 2002). Any intervention that places youths within a deviant group therefore risks exacerbating

and consolidating their antisocial behavior. As an illustration of this, McCord (1978) traced adult subjects some 30 years after they had taken part, as minors, in a well-known prevention program; the subjects treated suffered higher percentages of mental illness, early death, alcoholism, recidivism, failure at work, etc., in later life. On re-examining the available data, she discovered that 125 minors had been sent to summer camps one or more times; and that those who had been to summer camps more than once showed a greater tendency to evolve negatively. These findings are in line with the results of another recent study, which showed that placing problem youths in a group treatment program yielded negative long-term results. In particular, the members of the treatment group subsequently developed worse delinquent behavior than the members of the control group (Dishion, McCord, & Poulin, 1999; Warr, 2002).

In a recent meta-analysis, Lipsey (2006) found that programs which grouped together deviant peers were 30% less efficacious than programs of individual treatment. More importantly, 42% of group-administered preventive interventions and 22% of group-administered probation interventions actually had adverse effects, in that the behavior of the participants worsened after the intervention.

In light of the importance of deviant peer contagion, it may be useful to distinguish between residential programs and non-residential programs. Clearly, peer contagion may occur in both situations; however, it is more likely and more intense under the residential regime (Osgood & Briddell, 2006).

The present study examined the possible adverse effects of intervention by the juvenile justice system through the analysis of longitudinal data, which are particularly suited to the investigation of long-term effects. In addition to examining the mere effect of such intervention, we also tested whether more intense and restrictive interventions, such as compulsory residential treatment, had worse effects than less intense and restrictive interventions, such as supervision by a probation officer or community reparatory work. Finally, we examined which variables might predict intervention by the juvenile justice system. These variables refer to personal characteristics (i.e., verbal ability, impulsivity-hyperactivity, early delinquency), familial factors (i.e., family structure, family income, parental supervision), and social variables (i.e., peer deviancy) that have been shown individually to predict intervention by the justice system in past studies (Loeber & Farrington, 1998; Moffitt, Lynam, & Silva, 1994; Soussignan et al., 1992; Wells & Rankin, 1991). Together, these variables cover the three domains of functioning that have been hypothesized to be the most proximally important factors in adolescent development: self, family, and peers (Bronfenbrenner, 1995). According to both the labeling and the peer contagion perspectives, it was expected that these factors would independently

predict intervention by the juvenile justice system and that the more restrictive and intense types of intervention would result in more iatrogenic effects than less restrictive-intense types of interventions. The same variables were used as control variables while examining the link between juvenile judicial intervention and crime in adulthood to ensure that the links between intervention by the justice system and adult criminality were not spurious.

This study therefore enabled us to investigate the possible iatrogenic effect of the juvenile justice system, to shed light on some of its mechanisms of action and to examine the possible differential effect of different types of intervention. It did not, however, enable us directly to test the labeling or peer contagion theories, which therefore remain as possible explanations of the results obtained. The study also examined whether socio-familial and peer factors, in addition to personal characteristics, predicted intervention by the juvenile justice system, and whether they differentially predicted the specific type of intervention.

This research assessed the effects of the different types of intervention undertaken from 1990 to 1995, the period in which the youths involved in this study were aged between 12 and 17 years, and therefore came under the jurisdiction of the juvenile courts. The results obtained are not therefore applicable to types of intervention adopted subsequently, such as Intensive Probation or Multisystemic Therapy (Henggeler, Melton, Brondino, Scherer, & Hanley, 1997).

Method

Sample

The sample initially consisted of 1,037 boys who had attended kindergarten classes in 1984, in disadvantaged areas of Montreal, Canada. To obtain a high base rate of boys at risk for delinquent behavior, the 53 schools with the lowest socio-economic indexes were chosen. To control for cultural effects, the boys were included in the study only if both of their biological parents were born in Canada and their mother tongue was French. After the first evaluation in kindergarten, annual evaluations were made, starting at age 10. These evaluations were made by the parents, teachers, classmates, and the children themselves. Self-reported delinquency was also assessed for the first time at age 10, and was subsequently assessed every year up to the age of 17. Official data on delinquency were taken from the archives of the juvenile court and the adult court, and the presence of judicial records from the age of 18 (age of legal majority) up to 25 years was registered. Active written consent was obtained from parents and juveniles who had reached the age of majority (age 18 years). Verbal assent was obtained from minors. All instruments and procedures were approved by the University of Montreal Ethics Board. Although the official data were available for all participants, analyses included only subjects with data available from 10 to 17 years of age ($n = 779$). Participants who were not

included in the analyses because of missing data ($n = 381$) tended to have a greater number of juvenile judicial records (18.9% versus 14.5% among the subjects in the sample used) and of adult judicial records (20.7% versus 17.6% among the subjects in the sample used), but these differences were not significant ($p > .05$).

Instruments

Dependent variable. *Adult official crime.* A dichotomic variable regarding the presence of a judicial record as an adult, before the age of 25, was used to index adult official crime. Criminal offences covered five types of crimes (prevalence for each category is shown in parentheses): crimes against persons (e.g., homicide) (17.9%); property crimes (e.g., arson) (31.2%); other Criminal Code offences (e.g., prostitution) (25.5%); motor vehicle-related offences (e.g., impaired driving) (8.8%); and drug-related offences (e.g., possession) (16.4%). Criminal records of this kind were registered for 17.6% of the participants in the sample.

Independent variable. *Intervention of the Juvenile Court on the basis of the Young Offenders Act.* This intervention is possible when a crime is committed by a minor between the ages of 12 and 17 years; in practice, however, in the sample used there were no cases of 12-year-olds who had undergone judicial intervention. Overall, according to the judicial records of the Juvenile Court, 14.5% of youths in the sample underwent intervention based on the Young Offenders Act. In practice, the intervention consisted of placement in institutions for delinquent youths (26%), a supervisory intervention (32%), or a non-supervisory intervention (26%). Supervisory interventions included an open file in the justice system with probation and regular meetings with a social worker or law officer. Non-supervisory interventions included community compensatory or reparatory work and no file in the justice system. During the period considered, some boys were subjected to more than one type of intervention; we considered the strictest adopted for each participant. In fact, of the 29 youths subjected to a placement intervention, some 26 had also been subjected to a supervisory intervention; similarly, of the 36 youths on whom the strictest measure imposed was supervisory, a non-supervisory intervention had also been imposed on 34.

Predictors and control variables

Self-reported general delinquency. Data were collected through questionnaires. In the spring of every year between the ages of 10 and 17 years, the boys were asked whether, in the 12 months prior to the interview, they had ever indulged in any of the behaviors listed in the questionnaire. General delinquency comprised 16 items that covered four dimensions: violence (e.g., 'beat up someone who hadn't done anything to you'), theft (e.g., 'broken into some place to steal something'), vandalism ('set fire to a store, or other place, on purpose'), drug dealing (e.g., 'sold drugs'). Cronbach's alphas for the general delinquency scale ranged from .76 to .89. The items making up the index of General

Delinquency were scored as: 0) never, 1) once or twice, 2) sometimes, and 3) often; the sum of the scores on the various items was calculated. The means of general delinquency between the ages of 10 and 12 years and between 13 and 17 years were considered separately.

Family income. Parents reported on the family income when the boys were 10, 11, and 12 years of age. Given the high stability of this measure over the years, an average score was computed to represent the average family income during early adolescence.

Broken home. Defined as a situation in which the minor, at the age of 12, did not live with both biological parents; this condition was recorded in 33.1% of cases.

Verbal ability. Verbal ability was assessed at age 13 by means of the Sentence Completion Test (Lorge & Thorndike, 1950) as a proxy for verbal IQ. Verbal ability, as verbal IQ, is generally relatively stable from kindergarten to adolescence (Sattler, 2001). As such, the age-13 assessment should give an estimate of the relative ranking of the boys' cognitive performance during the study period. The validity of this measure as a proxy for verbal IQ test is supported by a correlation of .67 between the age-13 Sentence Completion Test and the vocabulary and block design subtest of the WISC-R administered to a subsample of 80 boys when they were 10 years old.

Impulsivity-hyperactivity. Impulsivity-hyperactivity was assessed through the use of teacher and mother ratings when the participants were 12 and 13 years old. The two informants independently rated the boys on the basis of seven items from the Social Behavior Questionnaire (Tremblay et al., 1991). Examples of items were: Restless, Jumps from one activity to another without finishing, Acts without reasoning. Each item was rated on a four-point scale from very infrequent (0) to very frequent (3). Because of the moderate correlations over the years and among informants (> .4), we created a single composite score by first averaging the scores across ages 12 and 13 for each informant and then averaging the scores across informants (Cronbach's alpha for the resulting overall score = .78).

Deviant peers. When the participants were 10, 11 and 12 years old, the Pupil Evaluation Inventory (PEI) (Pekarik, Prinz, Liebert, Weintraub, & Neale, 1976) was used to gather peer assessments. The PEI contains 34 short behavior descriptions grouped into three scales: aggressiveness-disturbance (20 items), social withdrawal (9 items), and likability (5 items).

Participants' classmates (boys and girls) named up to four boys in the class who best fit each behavior descriptor. A code number was assigned to each boy in the class and these were presented in a roster format to the children. Target boys also named their best friend. The PEI aggressiveness-disturbance scale (e.g., 'starts fights', 'disturbs others') was then used to assess the best friend's deviancy (alphas at age 10 = .92; at age 11 = .97; at age 12 = .96). Best friends' deviancy scores were averaged over the three years.

Parental supervision. At ages 11 and 12, boys and mothers reported on parental supervision (2 items: 'Do your parents know where you are when you go out?' and 'Do your parents know who you hang out with?'). Each item could be rated 0, 1, 2, or 3, with higher scores indicating more supervision. Because the correlation coefficients were moderately stable over the years and across informants (> .30), we created a composite score by first averaging the scores over the two years for each informant and then averaging the scores across informants (Cronbach's alpha for the overall composite score = .67).

Statistical analysis

First, we examined the bivariate correlations among all variables. Subsequently, logistic regression was used to evaluate those factors which made intervention by the juvenile justice system more probable. This analysis was complemented by multivariate and univariate analyses of variance designed to compare the three types of judicial intervention, with respect to the childhood variables. The final analysis used hierarchical logistic regression to assess the role of judicial intervention for minors on crime in adulthood, while controlling a series of possible confounders. At the first step, we tested the contribution of the confounders (i.e., socio-familial, peer, and personality dispositions). At the second step, we included the main predictor (i.e., intervention by the justice system) to assess its unique and additive contribution or, alternatively, its mediating effect with respect to the socio-familial, peer, and personality factors. Finally, at the third step, we included age 13–17 delinquency to ensure that the effect of the intervention of the justice system was not simply a marker of concurrent delinquent behavior. Variables were centered in all the regression analyses to eliminate any collinearity problems (although multicollinearity was not a problem *per se*).

Results

The risk of being subjected to a judicial intervention as a minor

Table 1 reports the correlation coefficients among all the variables. As can be seen, intervention by the juvenile justice system, self-reported juvenile delinquency (both in childhood and adolescence),

Table 2 Predictors of the intervention of the juvenile court. Logistic regression coefficients ($N = 779$)

	B	Std. Err.	Exp (B)
Child self-reported delinquency (10–12 years)	.407***	.112	1.502
Verbal ability	−.097	.112	.908
Impulsivity-hyperactivity	.565***	.113	1.759
Deviant peers	.230*	.109	1.259
Family not intact at age 12	−.019	.266	.981
Parental supervision	−.245*	.112	.783
Family income	−.309*	.139	.734

* $p \leq .05$; *** $p \leq .001$.

impulsivity-hyperactivity and deviant peers are positively correlated with adult crime, while verbal ability, parental supervision and family income are negatively correlated. Similar correlations can be observed between the individual and familial variables on the one hand, and the intervention of the Juvenile Justice System, child delinquency and adolescent delinquency, on the other. Hence, these variables qualify as potential predictors of intervention by the justice system and as control variables when examining the links between the intervention by the justice system and adult criminality.

Table 2 reports the coefficients of the logistic regression that evaluates the probability of intervention by the juvenile justice system. As can be seen, for the same degree of general self-reported delinquency between 10 and 12 years, impulsivity-hyperactivity, frequenting deviant peers, low parental supervision and low family income made judicial intervention more likely. Interestingly, but unexpectedly, the same two variables (i.e., age 10–12 delinquency and age 11–12 impulsivity-hyperactivity) predicted each type of judicial intervention equally (odds ratios for age 10–12 delinquency = 1.37, 1.59, and 1.60 for non-supervisory intervention, supervisory intervention and placement respectively; odds ratios for impulsivity-hyperactivity = 1.69, 1.74 and 1.93 for non-supervisory intervention, supervisory, intervention and placement, respectively). Although a few differences emerged at first sight, a multivariate analysis confirmed that there were no significant differences among the boys exposed to each of the three types of

Table 1 Correlations among the variables ($N = 779$)

	1) A.ju.re.	2) Ju.ju.i.	3) C.s-r.d.	4) A,s-r.d.	5) v.a.	6) Imp.	7) De.pe.	8) Br.ho.	9) Pa.su.	Mean	S.D.
1) Adult judicial record	1.000									.18	.38
2) Juvenile Justice Intervention	.451***	1.000								.15	.35
3) Self-rep. delinquency 10–12 yrs	.227***	.259***	1.000							2.20	2.68
4) Self-rep. delinquency 13–17 yrs	.284***	.379***	.491***	1.000						2.95	3.81
5) Verbal ability	−.094**	−.104**	−.108**	−.030	1.000					9.15	2.03
6) Impulsiveness-hyperactivity	.258***	.279***	.233***	.220***	−.200***	1.000				3.95	2.81
7) Deviant peer	.117**	.144***	.139***	.198***	−.083*	.119**	1.000			−.06	.70
8) Family not intact at age 12	.076*	.097**	.154***	.097**	−.015	.090*	.057	1.000		.33	.47
9) Parental supervision	−.198**	−.200***	−.312***	−.343***	.004	−.253***	−.160***	−.136***	1.000	6.75	1.00
10) Family income	−.124**	−.148***	−.177***	−.102**	.157***	−.110**	.035	−.483***	.084*	6.59	3.24

*$p \leq .05$; **$p \leq .01$; ***$p \leq .001$ (2-tailed).

Table 3 Means and standard deviations of predictor variables for the three types of judicial intervention

	Type of intervention					
	Non-supervisory (n = 48)		Supervisory (n = 36)		Placement (n = 29)	
Predictor variable	Mean	(SD)	Mean	(SD)	Mean	(SD)
Delinquency 10–12 years	.474	(1.309)	.674	(1.282)	.825	(1.614)
Verbal ability	−.074	(.991)	−.443	(1.113)	−.312	(1.074)
Impulsivity-hyperactivity	.591	(1.075)	.656	(1.019)	.848	(1.109)
Peers' disruptiveness	.302	(1.133)	.289	(1.162)	.505	(1.114)
Parental supervision	−.478	(.920)	−.333	(1.345)	−.686	(1.316)
Family income	−.310	(.939)	−.354	(.802)	−.444	(.975)

Note: All variables are centered within the whole sample of 779 participants for comparative purposes.

justice system intervention with respect to any of the above variables (multivariate $F(7, 14) < 1$, $p > .50$; univariate $Fs(2, 110) < 1.5$, $p > .25$). Means and standard deviations are illustrated in Table 3.

The long-term effect of juvenile justice intervention

The first step of the regression analysis presented in Table 4 reveals that age 10–12 delinquency, impulsivity-hyperactivity, and low parental supervision during early adolescence uniquely and additively predicted criminal records in adulthood. Adding the intervention of the justice system at the second step slightly reduced the predictive power of the above predictors, while making an important additive contribution of its own and almost doubling the percentage of explained variance (from .166 to .297). The predictive power of intervention by the justice system remained virtually unchanged after inserting the age 13–17 delinquency score into the analysis (Model 2 in Table 4). For boys who had been through

Table 5 Effect of different juvenile justice interventions on adult crime. Logistic regression coefficients (N = 779)

	B	Std. Err.	Exp (B)
Self-reported delinquency 10–12 years	.122	.116	1.130
Verbal ability	−.026	.113	.974
Impulsivity-hyperactivity	.331*	.113	1.392
Peers' disruptiveness	.064	.111	1.066
Family not intact at age 12	−.089	.274	.915
Parental supervision	−.207	.116	.813
Family income	−.152	.138	.859
Self-reported delinquency 13–17 years	.118	.119	1.125
Juvenile Justice Intervention (Wald = 58.109, p < .001)			
without supervision	.835*	.361	2.304
with supervision	2.645***	.416	14.078
with placement	3.632***	.645	37.790

*$p \leq .05$; ***$p \leq .001$.

the juvenile justice system, the odds of adult judicial intervention were increased by a factor of 6.98, once the effect of the control variables have been taken into account.

With regard to the effect of the specific type of judicial intervention, it was found that the more restrictive and more intense the justice system intervention was, the greater was its negative impact. Indeed, Table 5 shows that, while each type of intervention is significantly associated with adult delinquency, placement in an institution exerts by far the strongest criminogenic effect; the weakest effect is exerted by non-supervisory interventions, while supervisory interventions occupy an intermediate position. In reality, however, as reported above, almost all of the youths subjected to a placement measure had also undergone a supervisory measure, and almost all of those subjected to a supervisory measure had also undergone a non-supervisory measure. The negative effect recorded is therefore generally due not to a single measure, but rather to a judicial course

Table 4 Effect of the intervention of the juvenile justice court on adult crime. Logistic regression coefficients (N = 779)

	B	Model 1 Std. Err.	Exp (B)	B	Model 2 Std. Err.	Exp (B)	B	Model 3 Std. Err.	Exp (B)
Self-reported delinquency 10–12 years	.278**	.090	1.320	.178[†]	.100	1.195	.107	.109	1.113
Verbal ability	−.080	.098	.923	−.060	.106	.941	−.072	107	.930
Impulsivity-hyperactivity	.464**	.100	1.591	.331**	.108	1.392	−.332**	.108	1.393
Deviant peer	.138	.098	1.149	.085	.106	1.089	.067	.106	1.069
Family not intact at age 12	−.071	.243	.931	−.094	.263	.911	−.088	.264	.916
Parental supervision	−.254*	.099	.775	−.206*	.107	.813	−.179	.109	.836
Family income	−.227	.124	.797	−.152	.133	.859	−.150	.134	.861
Self-reported delinquency 13–17 years	–	–	–	–	–	–	.186	.111	1.204
Juvenile Justice Intervention	–	–	–	2.057***	.244	7.825	1.943***	.252	6.979
−2 Log likelihood	642.008			570.408			567.609		
Nagelkerke R^2	.166			.297			.301		

†$p \leqslant .10$; *$p \leqslant .05$; **$p \leqslant .01$; ***$p \leqslant .001$; – not included in the model.

involving more than one intervention. The stricter the measure with which this judicial course ends, the greater the criminogenic effect.

Discussion

The current results indicate that the Juvenile Justice System targets those youths who are weakest from a personal and social point of view. However, the choice of the specific type of intervention for the targeted youth does not seem to depend on the youth's personal or socio-familial characteristics, although it may depend on the specific crime committed by the youth (not reported here). Contact with the justice system therefore seems to be marked by selectivity and discrimination, in that, for the same degree of self-reported crime, the system targets those youths who are poorest, most disinhibited (i.e., impulsive-hyperactive) and least supervised by their parents. Within the justice system, however, this selective and discriminatory nature is not manifested in the choice of the measures adopted, which is not connected with any of the characteristics of the youths examined. Although the choice of measures is not discriminatory, it does appear to be somewhat inconsistent, in that it seems to be unrelated to the seriousness of the self-reported delinquency. This finding is in line with the results reported by Doob and Beaulieu (1992). These authors presented some cases of minors who had committed crimes to 43 Canadian judges and asked them to state which sentences or interventions they would have imposed; the results revealed a widely disparate treatment of similar young offenders convicted of the identical offence.

In line with many, but not all, past studies, a youth's involvement with the juvenile justice system was seen to have an overall negative impact on his criminal career. While mere intervention by the juvenile justice system seems to have a negative effect, its impact increases as the type of intervention imposed becomes more intense and constrictive. This last finding takes on even greater importance in the light of the fact that in many countries considerable financial resources are allocated to programs and institutions that group deviant youths together, confine them to facilities that are separated from the rest of society and engender the greatest risk of impacting negatively on the development of the young people concerned. This is particularly true in light of the fact that there does not seem to be any link between the personal or socio-familial risk factor and the type of intervention imposed by the justice system.

This last finding supports the notion that the differential criminogenic effect of the different types of intervention (or rather, given that most youths undergo more than one intervention, of the different judicial courses) does not depend on a particular selection with regard to the choice of the intervention adopted, but rather on a differential negative effect of the judicial courses in which the youths are involved.

Our data are compatible with both the labeling and the deviant peer contagion perspectives, even though no mediating mechanisms that would be compatible with these perspectives were assessed. In any case, labeling theory should be combined with other approaches; this was suggested by Lemert (1972), who found that the theory of social reaction was able to explain secondary deviance, while primary deviance had to be explained by other theories. Indeed, in recent years, the need has arisen to work out an integrated multidisciplinary criminological theory able to combine elements from different approaches (Messner, Krohn, & Liska, 1989). In this perspective, the present results highlight the importance of taking into account the impact of the intervention of juvenile justice, along with many other factors, in attempting to understand the evolution of delinquency among adolescents and its transition to adult criminality.

Above all, however, the data reveal not only the inefficacy of the juvenile justice system but also its iatrogenic effects. The present study combines a number of strengths: a large long-term longitudinal study; a relatively high-risk population of males; a culturally homogenous population; evaluations on both official and self-reported delinquency during childhood and adolescence; and inclusion of a cognitive assessment. It also has some limitations. For instance, the fact that the sample was made up entirely of minors attending schools in poor districts means that these conclusions cannot be extended to the whole population; as the study involved only boys, its findings cannot be applied to girls; moreover, as the results concern interventions adopted between 1990 and 1995, they cannot be applied to interventions adopted subsequently. Finally, these analyses do not enable us to understand the mechanisms through which judicial reaction exerts its negative impact.

However, the present findings show that intervention by the justice system during adolescence has an overall iatrogenic effect on youth. Juvenile justice systems were created in the second half of the 19th century to prevent adolescents from being contaminated by adult criminals and from being led astray. The available research on their effectiveness indicates that these aims are far from being achieved. Indeed, as confirmed by present and past research, intervention by the juvenile court increases the likelihood of adult criminality (Huizinga, Schumann, Ehret, & Elliott, 2001; McCord, Widom, & Crowell, 2001). We suggest that there are two solutions to this problem. The first is to implement early prevention, so as to reduce the number of minors who become involved with the justice system. The second is to

reduce, as far as possible, the stigma attached to the justice system and to minimize the concentration of problem youths, thereby reducing the risk for both labeling and peer contagion.

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Key points

- We used a 20-year longitudinal study to assess the impact of Juvenile Court decisions on adult offending. The results reveal an iatrogenic effect of the Juvenile Court; youths who are poor, impulsive, poorly supervised and exposed to deviant friends are more likely, for the same degree of antisocial behavior, to undergo intervention by the Juvenile Court, and this intervention greatly increases the likelihood of involvement with the penal system in adulthood.
- The various types of intervention exert a differential criminogenic effect, placement having the most negative impact.
- The results suggest that we should reduce the judicial stigma, minimize the concentration of problem youths and implement early prevention, so as to reduce the number of minors involved with the justice system.

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