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# Physically Aggressive Boys From Ages 6 to 12: Family Background, Parenting Behavior, and Prediction of Delinquency

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Boys from low socioeconomic environments were rated on physical aggression at ages 6, 10, 11, and 12 by teachers and classified according to stability of fighting over time: stable high fighters, high fighters with late onset, desisting high fighters, variable high fighters, and nonfighters. The fighter groups differed from each other both in family background and parenting behavior. They were also significantly associated with delinquency across ages 10 to 14. A stepwise logistic regression with fighter groups, family adversity index, and parenting behavior variables as predictors showed that the Punishment × Fighter Group interaction, together with supervision, predicted self-reported delinquency. The study thus showed that the developmental pathways of physically aggressive behavior for boys in low socioeconomic environments were related to familial adversity and poor parenting, and that they predicted delinquency.

There is fairly conclusive evidence from longitudinal studies linking early disruptive or aggressive behavior to later aggressive, delinquent, or antisocial behavior (Farrington, 1991; Huesmann, Eron, Lefkowitz, & Walder, 1984; McCord, 1983; Pulkkinen, 1983; Stattin & Magnusson, 1989; Tremblay et al., 1992). Most of these studies have highlighted the stability of aggressiveness over time and across situations. However, many longitudinal studies on the development of aggressive behavior have been hampered by several drawbacks. Besides small sample sizes and short follow-up periods (e.g., Loeber, Tremblay, Gagnon, & Charlebois, 1989; Olweus, 1977; Tremblay, Loeber, Gagnon, Charlebois, Larivée, & LeBlanc, 1991), definitions and measurement of aggressiveness have varied. Many widely used scales allegedly tapping into aggression, such as the Child Behavior Checklist (Achenbach & Edelbrock, 1983), consist of items that are more related to disruptive, hyperactive, or nonaggressive antisocial behavior than to physical aggression. Therefore, it remains unclear whether the studies have measured physical aggressiveness. Making a distinction between disruptive and physically aggressive behaviors (Tremblay et al., 1991) may be helpful, especially because the properties of aggressiveness may change during development.

Most studies pertaining to the stability of aggression have focused on the period from preadolescence to adulthood (Cairns, Cairns, Neckerman, Ferguson, & Gariépy, 1989; Farrington, 1991; Huesmann et al., 1984; Olweus, 1979). Physical aggression, however, is a relatively common behavior among preschool children (Dawe, 1934; McGrew, 1972; Strayer & Strayer, 1976). Early assessments of physical aggressiveness, subsequently repeated throughout the course of an individual's development would help chart the circumstances in which it appears, stabilizes, or disappears.

According to a considerable body of research, predisposing individual (e.g., genetic and temperamental) and environmental (e.g., parenting behavior) factors probably interact with aggression-promoting learning conditions in producing aggressiveness. Both family contextual variables and family process variables have been related to later aggressive, antisocial, and criminal behavior. Among the context variables, the following have been associated with antisocial outcomes in children: low socioeconomic status of the family; parents' low occupational status and employment; family structure (intact versus nonintact); large family size; maternal age at the birth of the child; institutional placements; impoverished neighborhoods with low social support; and crowded, poor housing conditions (Farrington, 1992; Rosenbaum, 1989; Wells & Rankin, 1991). As for family process variables, the following parental childrearing practices may play a crucial role in engendering aggressiveness and later criminal behavior in offspring: erratic, harsh, physical or inconsistent punishment or threatening control; child abuse; neglect, poor supervision; rejection; indifference; hostility; parental criminality; mental disorders and alcohol abuse; parental discord and marital disharmony; parental absence and separations; and insecure parent–child attachments (Eron, Huesmann, & Zelli, 1991; Farrington, 1991; Laub & Sampson, 1988; Lewis, 1992; Loeber, 1988; McCord, 1988, 1990; Patterson, Capaldi, & Bank, 1991; Widom, 1989). Some of the aforementioned family factors, such as parent's criminality and alcohol

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abuse, probably operate through the family management skills, affecting disciplinary practices, supervision, and other parenting behaviors (Laub & Sampson, 1988).

The frequency and span of the measurements have implications for the stability of aggressiveness hypothesis. As Loeber et al. (1989) have noted, it should be recognized that the measurements of aggressiveness carried out at infrequent, widely spaced intervals generally fail to reveal the developmental pathways throughout the years. Children whose aggressiveness progresses, fluctuates, or desists cannot be differentiated from children who maintain the same characteristic level of aggressiveness over the years. Measurement probes at two time points, sometimes as long as 10 years apart, and correlations based on these assessments probably mask the individual discontinuities in aggressiveness. From a developmental psychopathology viewpoint, all these groups of subjects could represent meaningfully different developmental pathways. The notion of different developmental trajectories has been recently emphasized in the literature on antisocial, delinquent, and criminal behavior (e.g., Cairns et al., 1989; Farrington, 1992; Loeber, 1991; Patterson & Yoerger, 1993).

Loeber et al. (1989) noted that in a small sample of disruptive kindergarten boys, who were followed up from age 6 to age 9, there were different patterns of fighting behavior. The boys were designated as *stable high fighters,* showing the behavior at each assessment; *desisting high fighters,* who quit fighting at some point in time; *variable high fighters,* evidencing a fluctuating pattern of fighting behavior; *initiating high fighters,* with a late onset of fighting; and *nonfighters,* who were not rated as high fighters at any point in time. These groups differed from each other in family background and later antisocial behavior. The stable high fighters had more nonaggressive (e.g., lying, truancy, stealing) antisocial behavior at the end of the 4 years than the desisters. They were also more likely to originate from single-parent families than the desisters, who were more often living with their biological parents. Stable high fighting—but not discontinuous high fighting—thus clearly antedated the onset of antisocial acts. On the basis of these results, family background assumes importance in understanding the development of stable fighting among boys. It does not seem unreasonable to expect that some significant differences in the family environment between the stable high fighters and other boys may be discovered. Such differences in the family background may also lie between those stable high fighters who become delinquent and those stable high fighters who are spared from future delinquency.

By studying a large sample of boys from kindergarten age to adolescence, we tried to elucidate the relationship between family background, parenting behavior, early aggressive behavior, and later delinquency. Aggressiveness was defined as physical aggression (fighting) and was measured at frequent intervals from preschool years onward. Distinguishing between fighting patterns over time, the study underscored the importance of examining different developmental pathways instead of relying on correlations between measurements at two time points. The study addressed the following questions: How do the boys with different fighting patterns from age 6 to age 12 differ from each other in their family background and parenting behavior factors in their families? To what extent do family background, parenting behavior, and fighting patterns during the elementary school years contribute to the prediction of delinquency in early adolescence?

## Method

### Subjects

In the spring of 1984, all teachers of kindergarten classes in schools in areas of low socioeconomic status (SES) in the largest French school board of Montreal were asked to rate the behavior of each boy in their classroom. Ratings were obtained from 87% of the kindergarten teachers, and 1,161 boys from 53 schools were assessed. To control for cultural effects, the boys were included in the longitudinal study only if both their biological parents were born in Canada and their parent's mother tongue was French. These criteria created a homogeneous, White, French-speaking sample. After these criteria were applied and after we eliminated families who refused to participate further in the study or who could not be traced after the initial assessment, 1,034 boys remained for the longitudinal follow-up. Data on the stability of fighting up to age 12 was obtained for 948 boys (92%). Subjects were lost either because they refused to participate (6%) or because their teacher failed to respond (2%).

When they were assessed in kindergarten, the majority of subjects (67%) lived with both of their parents, 24% lived only with their mothers, and 5% lived with their mothers and a man who was not their father. The mean age of the parents at the birth of the child was 25.4 ($SD$ = 4.8) for mothers and 28.4 ($SD$ = 5.6) for fathers. The mean number of school years completed by the parents was 10.5 ($SD$ = 2.8) for the mother, and 10.7 ($SD$ = 3.2) for the fathers. The mean score on the Canadian socioeconomic index for occupations (Blishen, Carroll, & Moore, 1987) was 38.3 ($SD$ = 12.0) for mothers and 39.5 ($SD$ = 13.0) for fathers. The mean score on that index for the Canadian population in 1981 was 38.15 for women and 39.19 for men. Higher scores on this index indicates higher SES.

### Procedure and Instruments

*Fighting score.* The boys were assessed by their kindergarten (in 1984) or classroom teacher (in 1988–1990). Teachers completed the Social Behavior Questionnaire (Tremblay et al., 1991), which includes three physical aggression items: fights with other children; kicks, bites, hits other children; and bullies or intimidates other children. All items were scored on a 3-point scale: (0) *does not apply,* (1) *sometimes,* and (2) *frequently.* The internal consistency (Cronbach's alpha) for the total score of the three fighting items was .87 at age 6 in kindergarten and .86, .86, and .78 at ages 10, 11, and 12, respectively. Those boys who had a fighting score of 3 or higher for a given year were labeled as high fighters for that year, and those scoring less than 3 were regarded as low fighters.

*Classification of boys according to the fighting patterns over time.* To take into account stability of fighting behavior from kindergarten to age 12, we grouped the boys into five categories on the basis of their pattern of fighting over time. Stable high fighters were assessed as high fighters already in kindergarten and continued to be assessed as high fighters in at least 2 of the 3 ensuing years (8.3%; $n$ = 79). High fighters with late onset were not high fighters in kindergarten but started later and were rated as high fighters in at least 2 of 3 school years (9.15%; $n$ = 86). Desisting high fighters were high fighters in kindergarten but scored low for at least 2 subsequent years (12.4%; $n$ = 118). Variable high fighters had an intermittent pattern of high fighting with not more than 2 of 4 years rated as a high fighter (17.1%; $n$ = 162). Finally, the boys who were consistently assessed as being low in fighting were labeled as nonfighters (53.1%; $n$ = 503).

*Family background variables and the index of family adversity.* The

following family background variables were selected for analyses: mother's and father's education (number of years in school), mother's and father's age at the birth of the first child, mother's and father's occupational status (Blishen et al., 1987) in the year the child was in kindergarten. The previous job was used, if a parent was not working at the time of assessment. The information was obtained from a telephone interview with the mother.

In addition, the index of family adversity (Tremblay et al., 1991) was composed of parental age at the birth of the first child, parental education, parental occupational status, and family structure at the time of the child was in kindergarten (at age 6). The variables were scored 1 if a parent's score was in the lowest 30th percentile and 0 if the parent scored above the 30th percentile in the sample. For family structure, a score of 0 was given to each boy who was living with his two biological parents and a score of 1 to all others. The maximum family adversity score for boys living with their two biological parents was 6: 2 points for mother's and father's low education, 2 points for mother's and father's low occupational status, and 2 points for mother and father being among the youngest parents. The maximum scores for boys living with a biological parent and a stepparent and for boys living alone with one parent consequently differed from the maximum scores for boys in intact families. Therefore, one scale for all boys was created. Because the maximum adversity score for a boy living with a biological parent and a stepparent was 7 and for a boy living alone with his mother the maximum score was 4, scores for those living with two parents were divided by 7 and scores for those living with a single parent were divided by 4 (see Tremblay et al., 1991). The index of familial adversity provided a simple composite measure of the degree of adversity in families that ranged from 0 to 1. The correlation between family adversity at age 6 and at age 12 was .85.

*Parenting behavior.* First, three parenting behavior variables were extracted from a self-report questionnaire completed by the boys at ages 10, 11, and 12. The questionnaire specifically probed parental behavior during the previous 12 months. Supervision described to what extent the parents supervised their child's activities according to the boy's report. The variable was composed of two questions: Do your parents know about your whereabouts when you go out? and Do your parents know with whom you are spending time when you go out? The boy answered by choosing "never," "sometimes," "often," or "always." The greater the score on supervision, the more the child was supervised. Cronbach's alpha for the supervision score was .63 ($N$ = 1,011). Punishment was a sum of the following five questions: (a) Do your parents punish you by slapping or hitting you? (b) Do your parents punish you by not letting you do things you would like to do? (c) Do your parents punish you by arguing? (d) Do your parents punish you by saying that you cause them distress? (e) Do your parents punish you by calling you names? The choices were "never," "sometimes," "several times," and "often." The greater the score on punishment, the more the boy was punished. Cronbach's alpha for the punishment score was .61 ($N$ = 1,002). The variable depicting rules at home consisted of the following five variables: (a) Is there a rule at home about the time to come home in the evenings? (b) Is there a rule at home about how much time you can spend in front of the TV? (c) Is there a rule at home about having to do your homework? (d) Is there a rule at home that you cannot spend time with or that you cannot play with certain boys or girls? and (e) Is there a rule at home that requires you to have dinner with the family? When responding the questions, the boys could choose between two alternatives, "yes" or "no." The greater the score, the smaller was the number of rules at home. Cronbach's alpha for this score was .59 ($N$ = 980).

Second, two parenting behavior variables charting maternal attitudes toward the child were extracted from the mothers' answers to the items of the Emotional Climate for Children Questionnaire (Falender & Mehrabian, 1980) when the boys were 10 years old. A total score for the scales consisting of both positively (+) and negatively (−) worded items was computed by summing the mother's responses to the positively worded items and subtracting from this the sum of the responses to the negatively worded items. The following variables were used: (a) Pleasure, consisting of the following six items: Taking a few minutes to just be with my child helps me relax (+); I like to be with my child (+); I really enjoy talking about my child (+); I thought that children were supposed to be much happier than my child has turned out to be (−); It's hard to be stuck at home with a child (−); I find it really irritating when all other women can talk about is their children (−). Cronbach's alpha was .81. (b) Exasperation, consisting of the following four items: I don't tolerate temper tantrums (−); My child often upsets me (−); I look forward to the time when my child requires less care and attention from me (−); I find myself wondering if my child will ever grow up (−). Cronbach's alpha was .61.

*Delinquency.* A 27-item self-reported delinquency scale (LeBlanc & Tremblay, 1988) was completed by the boys at ages 10, 11, 12, 13, and 14. The scale included four subscales: physical aggression, stealing, vandalism, and alcohol and drug use. The scale consisted of items like "destroy school material," "steal in store," "force other by threatening to beat up," "take part in group fights," "drink alcohol," "vandalize car," "trespassing," and so forth. The responses for each item were given on a 4-point scale ranging from *never* (1) to *very often* (4). The total delinquency scale comprised both the frequency and the range of behaviors. The alpha reliabilities for the total scale were .87, .88, .86, .89, and .92 at ages 10, 11, 12, 13, and 14, respectively. For predicting delinquency from family background, parenting behavior, and fighting patterns, only the total delinquency scores at ages 13 and 14 were used, because parenting behavior variables and fighting patterns were measured at ages 10, 11, and 12. The boys who scored above the 80th percentile on the total delinquency scale were considered as delinquent. This cutoff point was chosen to obtain a subgroup of approximately 10% stable delinquents from ages 10 to 14 years.

## Results

### Family Background

As seen in Table 1, one-way analyses of variance (ANOVAs) were used to test the differences between the five fighter groups for all family background variables. The stable high fighters came from the more socially disadvantaged home environments, as measured by background variables and the index of familial adversity. Pairwise comparisons (Newman-Keuls, $p$ = .05) showed that the nonfighters differed significantly from all the other fighter groups on the index of familial adversity and the mother's education. In addition, the stable high fighters scored significantly higher on the family adversity index than the other high fighter groups. Highly significant differences between the groups emerged on almost all background variables. The differences between the groups were nonsignificant only for the father's age at the birth of the first child. In contrast, the mothers of the stable high fighters and the variable high fighters were significantly younger than the mothers of the nonfighters.

### Parenting Behavior

Data pertaining to parenting behavior variables according to the mothers' reports can be seen in Table 2. The multivariate ANOVA (MANOVA) with the parenting behavior scales as dependent variables showed that the main effect of fighter groups was significant (Wilks's lambda = 0.93, approximate $F$ = 2.52,

Table 1
*Differences in Family Background Between Fighter Groups*

| | | | | Years in school | | | | Occupational status | | | | Age at birth of first child | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | FAI[b] | | Mothers | | Fathers | | Mothers | | Fathers | | Mothers | | Fathers | |
| Fighter group | *n*[a] | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Stable high fighters | 78 | 0.46 | 0.25 | 9.58 | 2.47 | 9.68 | 2.81 | 36.92 | 13.68 | 34.45 | 9.56 | 21.61 | 4.25 | 26.64 | 4.88 |
| High fighters with late onset | 84 | 0.38 | 0.25 | 9.52 | 2.67 | 9.67 | 2.67 | 34.59 | 11.07 | 37.60 | 11.20 | 22.48 | 3.46 | 25.25 | 5.07 |
| Desisting high fighters | 117 | 0.35 | 0.25 | 10.06 | 2.83 | 10.66 | 3.62 | 36.55 | 12.36 | 38.11 | 13.81 | 22.89 | 4.00 | 25.94 | 5.51 |
| Variable high fighters | 153 | 0.36 | 0.23 | 10.31 | 2.58 | 9.84 | 3.18 | 36.66 | 12.01 | 38.27 | 11.84 | 22.59 | 4.29 | 25.86 | 4.85 |
| Nonfighters | 494 | 0.26 | 0.22 | 10.90 | 2.79 | 10.97 | 3.36 | 39.89 | 11.96 | 40.72 | 13.33 | 23.67 | 4.04 | 26.40 | 4.73 |
| Univariate *F* | | 18.49*** | | 8.48*** | | 6.26*** | | 4.95*** | | 4.49** | | 6.25*** | | 2.24 | |
| Newman-Keuls* | | 5 < 1, 2, 3, 4, 2, 3, 4 < 1 | | 1, 2, 3, 4 < 5 | | 1, 2, 4, < 5 | | 2, 4 < 5 | | 1 < 5 | | 1, 4, < 5 | | *ns* | |

[a] *ns* vary because of missing data.[b] FAI = Family Adversity Index.
* $p = .05$. ** $p < .01$. *** $p < .001$.

$p < .001$); overall, the fighter groups differed on the set of parenting behavior variables. The univariate tests revealed that the differences were significant on both variables of maternal attitudes. According to Newman-Keuls test ($p = .05$), pairwise differences between the nonfighters and fighter groups emerged on mothers' pleasure and exasperation. The mothers of nonfighters appeared to take more pleasure in their child than the mothers of the fighter boys. They also were less exasperated with their child than the mothers of fighter boys.

Next, differences between the fighter groups on three selected parenting behavior variables, as perceived by the boys themselves, were studied. As can be seen in Table 3, the nonfighters appeared to be most supervised and least punished of all groups, and they also had slightly fewer rules at home compared to the others. These results indicate that a low level of supervision may be associated with high fighting. Similarly, a high level of punishment appears to be related to high fighting. Interestingly, the level of punishment decreased for all groups from age 10 to age 12. Also, there was a decreasing trend in the rules from age 10 to age 12 for all the groups. For the level of supervision, an increasing trend was obvious only for the stable fighters and the desisting high fighters.

These observations suggested that age may exert an effect on the level of supervision, punishment, and rules at home. Therefore, we performed MANOVAs with supervision, punishment, and rules at home as dependent variables to check Age × Fighter Group interactions and the main effect of age on parenting behavior variables. The overall differences between the fighter groups on the set of dependent variables were highly significant (Wilks's lambda = 0.92, approximate $F = 5.76$, $p < .001$). The univariate tests indicated a significant main effect of fighter groups on supervision, $F(4, 887) = 8.43$, $p < .001$; punishment, $F(4, 887) = 5.83$, $p < .001$; and rules at home, $F(4, 887) = 4.46$, $p < .01$. The fighter groups thus differed from each other on all variables. There were no significant Age × Fighter Group interactions on the variables. As expected, the main effect for age on the set of variables was significant (Wilks's lambda = 0.82, approximate $F = 31.85$, $p < .001$). The univariate $F$ tests showed that the effect of age was primarily due to contrasts between ages 10 and 12 for supervision, $F(1, 887) = 15.79$, $p <$

Table 2
*Means and Standard Deviations on Parenting Behavior at Age 10 for Fighter Groups*

| | | Pleasure | | Exasperation | |
|---|---|---|---|---|---|
| Fighter group | *n* | *M* | *SD* | *M* | *SD* |
| Stable high fighters | 67 | 12.06 | 8.05 | 9.35 | 2.42 |
| High fighters with late onset | 78 | 12.19 | 6.86 | 9.50 | 2.51 |
| Desisting high fighters | 111 | 11.04 | 7.24 | 9.57 | 2.23 |
| Variable high fighters | 137 | 11.66 | 6.86 | 9.19 | 2.33 |
| Nonfighters | 465 | 14.21 | 6.24 | 8.30 | 2.26 |
| Univariate *F* | | 8.17** | | 12.29** | |
| Newman-Keuls* | | 1, 2, 3, 4 < 5 | | 5 < 1, 2, 3, 4 | |

* $p = .05$. ** $p < .001$.

Table 3
*Means and Standard Deviations on Self-Reported Supervision, Punishment, and Rules at Home at Ages 10, 11, and 12*

| Parenting behavior and child's age | Stable high fighters (*n* = 71) | | High fighters with late onset (*N* = 84) | | Desisting high fighters (*n* = 114) | | Variable high fighters (*n* = 148) | | Nonfighters (*n* = 475) | |
|---|---|---|---|---|---|---|---|---|---|---|
| | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Supervision | | | | | | | | | | |
| Age 10 | 5.74 | 1.79 | 6.29 | 1.58 | 6.07 | 1.57 | 6.32 | 1.55 | 6.64 | 1.43 |
| Age 11 | 6.21 | 1.60 | 6.51 | 1.67 | 6.35 | 1.76 | 6.53 | 1.52 | 6.90 | 1.34 |
| Age 12 | 6.54 | 1.53 | 6.28 | 1.54 | 6.56 | 1.51 | 6.39 | 1.56 | 6.73 | 1.31 |
| Punishment | | | | | | | | | | |
| Age 10 | 8.95 | 2.37 | 8.75 | 2.31 | 9.13 | 2.39 | 8.75 | 2.40 | 8.33 | 2.17 |
| Age 11 | 8.35 | 2.48 | 8.14 | 2.16 | 8.23 | 2.26 | 8.45 | 2.20 | 7.78 | 2.00 |
| Age 12 | 7.83 | 2.08 | 8.17 | 2.19 | 8.08 | 2.18 | 8.07 | 2.55 | 7.50 | 1.98 |
| Rules at home | | | | | | | | | | |
| Age 10 | 9.43 | 1.61 | 9.03 | 1.66 | 9.11 | 1.65 | 8.92 | 1.54 | 8.76 | 1.58 |
| Age 11 | 8.77 | 1.54 | 8.53 | 1.64 | 8.62 | 1.69 | 8.52 | 1.58 | 8.32 | 1.50 |
| Age 12 | 8.23 | 1.54 | 8.32 | 1.45 | 8.41 | 1.60 | 8.21 | 1.44 | 7.97 | 1.35 |

.001; punishment, $F(1, 887) = 64.67$, $p < .001$; and rules, $F(1, 887) = 118.46$, $p < .001$.

### *Prediction of Delinquency From Family Background, Parenting, and Fighting Patterns*

Before predicting delinquency at ages 13 and 14, we examined briefly the total delinquency scores of the fighter groups at ages 11, 12, 13, and 14. Age 10 was excluded from the analysis because the formulation of the question probing delinquent behavior was different at this age level ("Have you ever done . . .?" instead of "Have you done . . . during the past 12 months?"). Presented in Table 4 are the total scores and group differences between them. The MANOVA indicated significant overall differences between the fighter groups, $F(4, 813) = 24.02$, $p < .001$. The effect of age was also significant (Wilks's lambda = 0.87, $F = 39.89$, $p < .001$). There was a significant Fighter Group × Age interaction (Wilks's lambda = 0.95, approximate $F = 2.97$, $p < .001$) involved. Pairwise differences (Newman-Keuls, $p = .05$) showed that the nonfighters were significantly less delinquent than the other groups from ages 11 to 14. The high fighters with late onset had significantly more delinquency than the desisters at ages 13 and 14. They even surpassed, although not significantly, the stable high fighters, whose delinquency score was highest among the groups at ages 11 and 12.

Table 5 shows the proportions of the boys with stable high delinquency; that is, those boys among the highest 20% of the delinquency score distribution in 4 of 5 years, for the fighter groups. Age 10 was now included, because the different formulation of the questions at age 10 do not play a role when delinquency over the years was considered. Including age 10 extends the time perspective even beyond that age ("Have you ever done. . .?"). Clearly, the delinquency categories were strongly associated with the fighting behavior categories, $\chi^2(4, N = 902) = 41.20$, $p < .001$. With a "delinquent" base rate of 7.6% for the whole sample, only 2.6% of the nonfighters were classified as delinquents, whereas 19.7% of the stable high fighters were thus classified. Even the desisting high fighter group had over four times more delinquents than the nonfighter group.

To determine a prediction model with the best possible fit to the data for each outcome variable, we used stepwise logistic regression with the family adversity index (based on the data gathered at age 6), mothers' pleasure and exasperation with boys at age 10, boys' perceptions of punishment, supervision,

Table 4
*Total Delinquency Scores for Fighter Groups From Ages 11 to 14*

| Fighter group | *n* | Age 11 | | Age 12 | | Age 13 | | Age 14 | |
|---|---|---|---|---|---|---|---|---|---|
| | | *M* | *SD* | *M* | *SD* | *M* | *SD* | *M* | *SD* |
| Stable high fighters | 60 | 35.45 | 9.28 | 33.55 | 8.17 | 33.18 | 7.28 | 36.03 | 9.82 |
| High fighters with late onset | 79 | 33.59 | 8.13 | 32.48 | 7.02 | 34.35 | 7.84 | 37.68 | 9.42 |
| Desisting high fighters | 101 | 32.06 | 6.35 | 31.97 | 6.71 | 31.95 | 5.45 | 34.46 | 10.25 |
| Variable high fighters | 129 | 32.15 | 5.53 | 32.07 | 5.39 | 33.34 | 7.02 | 36.52 | 11.42 |
| Nonfighters | 449 | 29.95 | 4.06 | 29.66 | 3.73 | 30.37 | 4.28 | 31.83 | 5.86 |
| Newman-Keuls* | | 5 < 1, 2, 3, 4; 3, 4 < 1 | | 5 < 1, 2, 3, 4 | | 5 < 1, 2, 3, 4; 3 < 2 | | 5 < 1, 2, 3, 4; 3 < 2 | |

* $p = .05$.

Table 5
*Delinquent and Nondelinquent Boys Across Ages 10 to 14 in Fighter Groups*

| Fighter group | *n* | % delinquent | % nondelinquent |
|---|---|---|---|
| Stable high fighters | 71 | 19.7 | 80.3 |
| High fighters with late onset | 84 | 13.1 | 86.9 |
| Desisting high fighters | 108 | 11.1 | 88.9 |
| Variable high fighters | 142 | 12.0 | 88.0 |
| Nonfighters | 467 | 2.6 | 97.4 |
| Total | 872 | 7.6 | 92.4 |

and rules at home at age 10, and fighter groups as predictors of being delinquent at age 13, age 14, or at both ages. Also, all the two-way interactions between the variables were included. Three-way interactions were excluded because of the difficulty of interpretation. A forced-entry strategy was used in entering the family adversity index, but the order of the other variables entering into the prediction equation was left free. Table 6 presents the results for age 13, age 14, and ages 13 and 14 combined. Those who were among the highest 20% on the total delinquency scale at ages 13 and 14 were regarded as delinquent from age 13 to age 14 (9.2% of the whole sample). The family adversity index was forced into the equation as the first variable, because it presumably antedates all the other variables during the life course of the child. The results were different when different ages were used as outcome variables (see Table 6). For age 13, the best predictors were the Punishment × Fighter Groups interaction and supervision. Overall, the less punishment there was, at least for some of the fighter boys, and the more supervision there was, the less likely it was for a boy to be delinquent at age 13. For age 14, only the fighter groups entered into the prediction equation after family adversity. Being a fighter between ages 6 and 12 appears to strongly predict delinquency at age 14. When ages 13 and 14 were combined, the Punishment × Fighter Groups interaction again entered as the best predictor into the equation. None of the other variables were added, and the resulting logistic regression model for ages 13 and 14 together yielded a chi-square goodness of fit that indicated a good fit to the data (logistic regression $\chi^2$ = 745.55, $p$ = .487). The fit was slightly better than that of the models for ages 13 or age 14 separately. Low family adversity, low fighting behavior from ages 6 to 12, low punishment, at least for certain fighter groups, and high supervision appeared to prevent the boy from becoming delinquent.

To examine the punishment and fighter groups interaction more closely, we cross-tabulated delinquency across ages 13 and 14 with the level of punishment for each fighter group as seen in Table 7. The mean score of punishment was used as a cutoff point for the high- and low-punished subgroups. Chi-square tests indicated that the level of punishment was not significantly associated with delinquency in any of the groups, but there is a trend among the high fighters with late onset to have a higher proportion of delinquents in the high-punished subgroups, whereas for the stable high fighters the trend is the opposite.

## Discussion

Developmental patterns of physical aggression and their relationships with family context and processes (parenting behav-

Table 6
*Stepwise Logistic Regression to Predict Delinquency at Age 13 and 14 Years*

| Step number and variable | $\beta$ coefficient | Wald statistic | *df* | *p* | Goodness of fit $\chi^2$ | Goodness of fit *p* |
|---|---|---|---|---|---|---|
| Age 13 | | | | | 782.057 | .392 |
| Family adversity (forced) | 0.07 | 0.03 | 1 | .847 | | |
| 1. Punishment × Fighter Groups | | 22.66 | 4 | .000 | | |
| Stable high fighters | −0.07 | 4.06 | 1 | .043 | | |
| High fighters with late onset | −0.12 | 17.59 | 1 | .000 | | |
| Desisting high fighters | −0.05 | 3.63 | 1 | .056 | | |
| Variable high fighters | −0.08 | 9.80 | 1 | .001 | | |
| 2. Supervision | 0.12 | 4.33 | 1 | .037 | | |
| Age 14 | | | | | 763.494 | .417 |
| Family adversity (forced) | −0.25 | 0.41 | 1 | .518 | | |
| 1. Fighter groups | | 30.61 | 4 | .000 | | |
| Stable high fighters | −0.90 | 7.05 | 1 | .007 | | |
| High fighters with late onset | −1.31 | 21.42 | 1 | .000 | | |
| Desisting high fighters | −0.71 | 6.39 | 1 | .011 | | |
| Variable high fighters | −1.05 | 17.61 | 1 | .000 | | |
| Ages 13 and 14 | | | | | 745.552 | .487 |
| Family adversity (forced) | −0.23 | 0.24 | 1 | .622 | | |
| 1. Punishment × Fighter Groups | | 24.81 | 4 | .000 | | |
| Stable high fighters | −0.07 | 2.96 | 1 | .085 | | |
| High fighters with late onset | −0.14 | 18.14 | 1 | .000 | | |
| Desisting high fighters | −0.09 | 7.35 | 1 | .006 | | |
| Variable high fighters | −0.11 | 12.95 | 1 | .000 | | |

Table 7
*Percentages of Delinquent and Nondelinquent Boys Across Ages 13 and 14 in the Fighter Groups Divided Into High- and Low-Punished Subgroups*

| Fighter group and perception | % delinquent | % nondelinquent |
|---|---|---|
| Stable high fighters | | |
| HP | 17.9 | 82.1 |
| LP | 28.6 | 71.4 |
| High fighters with late onset | | |
| HP | 38.7 | 61.3 |
| LP | 22.6 | 77.4 |
| Desisting high fighters | | |
| HP | 24.0 | 76.0 |
| LP | 13.2 | 86.8 |
| Variable high fighters | | |
| HP | 22.2 | 77.8 |
| LP | 25.0 | 75.0 |
| Nonfighters | | |
| HP | 12.1 | 87.9 |
| LP | 4.9 | 95.1 |

*Note.* HP = boys' perception of high level of punishment at age 10. LP = boys' perception of low level of punishment at age 10.

ior) were highlighted in the present study. Following two investigations with small samples (Loeber et al., 1989; Tremblay et al., 1991), a large sample of boys were studied so as to distinguish between fighting patterns in terms of stability and age of onset. The five fighting patterns identified differed from each other on almost all family background variables, although the range of SES was restricted. The stable high fighters had more familial adversity than the nonfighters. The mothers of the nonfighter boys experienced more pleasure and less exasperation in relation to their sons than the mothers of the fighter boys. The nonfighter boys reported being better supervised and less punished than the fighter groups. They also had slightly fewer rules at home at each age, compared with the fighter groups. Delinquency was significantly associated with fighting patterns. Logistic regression models for ages 13 and 14 showed that low family adversity, low fighting behavior between ages 6 and 12, low punishment (especially for the high fighters with late onset), and high supervision predicted positive outcomes (i.e., not becoming highly involved in delinquent behavior at ages 13 and 14).

Our findings suggest that familial adversity is primarily linked to a stable pattern of aggressive behavior. These results were obtained within a restricted range of SES in a culturally homogeneous sample. On the basis of the results, it can be argued that familial adversity, measured by nonintactness of the family, low educational and occupational status of the parents, and mother's young age at the birth of the first child, is associated with boys' developmental patterns of physical aggressiveness. The more stable the fighting pattern, the higher the amount of familial adversity in the preschool years. It should be recalled that familial adversity was also highly stable from age 6 to age 12. Because the impact of familial adversity may have been operating through family processes, as suggested by previous studies (e.g., Laub & Sampson, 1988) we considered it important to compare the groups of boys with respect to parenting behavior variables. The fighter groups differed from one another particularly in the level of parental supervision and punishment reported by the boys at ages 10, 11, and 12. Early aggressive behavior thus seems to coincide with poor childrearing practices. However, it is difficult to know whether these childrearing practices at these points of the children's lives reflected an early starting line of poor childrearing or reactions to the fighter boys' misbehavior. Age in itself seems to have an effect on parental behavior, because punishment and rules decreased from age 10 to age 12 in almost all the groups. There was an exceptional trend for the stable high fighters to receive slightly more supervision with increasing age, which could be a sign of parental responses to the boys' earlier fighting behaviors.

A similar conclusion about child's behavior affecting parenting behavior could be drawn from the results regarding the maternal attitudes toward the boys. There have been several suggestions of child behavior influences on parental behavior and the reciprocal effects in parent–child interaction (Bell, 1979; Lytton, 1990; Patterson, Reid, & Dishion, 1992). For example, the child's constant fighting may eventually result in the mother's diminished pleasure and increased exasperation in her exchanges with her child. However, it could be proposed that the child's aggressiveness was originally engendered or compounded by nonsupportive maternal attitudes. At least, it is conceivable that the mother's personality affects her susceptibility to diminished pleasure, exasperation, dominance, and controlling attitudes toward the child. The results obtained in this study do not, however, enable us to draw conclusions regarding the reciprocal effects of child's problem behavior and mother's pleasure or exasperation. We obviously need longitudinal studies from birth to elementary school to sort out these effects (Tonry et al., 1991).

Because high fighting was associated with family adversity in the preschool years, fighting patterns were good predictors of self-reported delinquency once family adversity had been taken into account. Thus, the link between early high fighting and later self-reported delinquency is not only the consequence of their link to early family adversity. There are boys who are brought up in a high-family-adversity environment who do not become fighters in school and delinquents in early adolescence, just as there are boys from a low-family-adversity environment who become fighters and delinquents.

Overall, high fighting throughout the kindergarten and elementary school years, up to age 12, was associated with high self-reported delinquency across ages 10 to 14 years. It may be that the fighting patterns alone are such a powerful predictor of delinquency that their effect masks the possible predictive power of punishment and supervision, when the time interval between measurements of parenting variables (at age 10) and outcome increases. When self-reported delinquency across ages 13 and 14 was considered, only the Punishment × Fighter Group interaction significantly predicted delinquency. The Punishment × Developmental Fighting Pattern interaction appears to be important; the use of punishment may be more harmful for certain fighter boys, compared with the other fighters. In this study, there were more delinquent boys in the high-punished subgroups of the high fighters with late onset, the desisting high fighters, and the nonfighters, compared with the low-punished subgroups. Of course, these results could also reflect differences in perception of punishment in different fighter

groups. Taking these findings together, it appears that the less the boy was experiencing family adversity and perceiving punishment, the less he was at risk of reporting delinquency. Also, the more he perceived supervision, the less he reported delinquency. The role of the rules at home is not as clear-cut. The fighter boys, in general, perceived more rules than the nonfighters. Again, it may be an indication of parental reactions to the boy's behavior, but it is also possible that the parents of the fighter boys contribute to problem behavior by imposing overly strict rules and too much control.

These findings accentuate the importance of perceived parenting behavior in contrast to family context variables and corroborate the results of other studies that have shown punishment to be associated with aggressive behavior and delinquency (Eron et al., 1991; Laub & Sampson, 1988; Loeber & Stouthamer-Loeber, 1986; McCord, 1991; Pulkkinen, 1983). Lack of supervision or rules at home have also been shown to relate to delinquency (Farrington, 1991; Laub & Sampson, 1988; McCord, 1983). The results of our study fit well into these previous findings, but they also pointed out that the developmental course of fighting behavior is an important predictor of later self-reported delinquency. The use of self-report measures for both parenting and delinquency could have had an effect on the results in producing common method variance. This caveat was somewhat balanced by the fact that the assessments were done at different ages; age 10 for perceived parenting and ages 13 and 14 for the delinquency measures included in the logistic regression.

One important contribution of this study was that aggressiveness was measured from an early age. It could be argued, of course, that children's problem behaviors should be measured even earlier than in kindergarten, as externalizing-type behavior problems can be observed as young as age 3 (e.g. Bates, Bayles, Bennett, Ridge, & Brown, 1991). This should be done with a future birth cohort (Tonry et al., 1991). The frequent measurements of aggressiveness that extended over the primary school years can be regarded as an additional strength in this study. The measurements started earlier than in most of the other studies and were repeated often enough on a sample that was large enough to give a reliable account of boys' fighting behavior patterns during the elementary school years.

The number of selected background and parenting variables was limited, and some other aspects of family life could be more important in investigating the relationships between developmental pathways and family factors. Delinquency assessment was limited to self-reports. Nonetheless, this study strongly suggested that there are differences between the early aggressive developmental pathways in family factors and that delinquency outcomes were associated with the patterns of aggressive behavior over 4 years. In addition to early fighting patterns, boys' perception of parental supervision and punishment appear to be good predictors of delinquency, even after family adversity had been taken into account. These variables could thus be used to identify elementary school boys at high risk of early onset of delinquent behavior for prevention interventions. Ideally, however, preventive interventions should aim at preschool fighters with high family adversity, because they are clearly at high risk of early onset of delinquency.

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