

Childhood Bullies and Victims and Their Risk of Criminality in Late Adolescence

The Finnish From a Boy to a Man Study

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Objective: To study correlations of childhood bullying and victimization with juvenile criminality.

Design: Longitudinal birth cohort study from age 8 years to ages 16 to 20 years.

Setting: Population-based study from Finland.

Participants: The sample comprised 2551 boys (86.6% of the original birth cohort) with complete information about bullying and victimization from parents, teachers, and children at age 8 years.

Main Outcome Measure: Information about criminal offenses from the National Police Register at ages 16 to 20 years.

Results: Frequent bullies and those who frequently both bullied and were bullied (8.8% of the sample)

were responsible for 33.0% of all juvenile crimes during the 4-year study period. Frequent bully-only status predicted both occasional and repeated offending, whereas bully-victim status predicted repeated offending. Bullying predicted most types of crime (violence, property, drunk driving, and traffic offenses) when controlled with parental education level. However, frequent bullies or victims without a high level of psychiatric symptoms were not at an elevated risk for later criminality.

Conclusions: Boys who frequently bully are at risk for later criminality when this condition is accompanied by a high level of psychiatric symptoms. Frequent bullies should be actively screened for psychiatric problems.

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POPULATION-BASED STUDIES indicate that 20% to 30% of schoolchildren are frequently involved in bullying as perpetrators and/or victims.¹⁻⁴ Bullying is defined as repeated aggression in which 1 or more persons intend to harm or disturb another person physically, verbally, or psychologically.⁵⁻⁸ Bullying is thus regarded as a form of abuse.⁹ Previous studies have shown a strong association between bullying or being bullied and poor psychosocial functioning. Bullying is associated with conduct problems, hyperactivity,^{10,11} and school problems.^{12,13} Some research has shown that the aggression displayed by bullies is likely to reflect a controlled behavior that is oriented toward achieving instrumental outcomes.^{14,15} Victims of bullying tend to be more depressed, anxious, and insecure than others.^{12,16,17} Children who both bully and are bullied (bully-victims) have an even broader range of social and emotional problems.^{10,11,18,19} In

contrast to the more goal-oriented aggression of bullies, bully-victims' aggression is considered to be a reflection of an underlying state of poorly modulated anger and irritability.²⁰

Bullying is a component of an antisocial, rule-breaking pattern of behavior.²¹ In a cross-sectional US study, Nansel et al²² found a strong and consistent relationship between bullying and involvement in violent behaviors. Bullies engage in high rates of interpersonal power dominance and instrumental aggression such as coercing others to give them their property. Longitudinal studies show that this type of behavior pattern, ie, externalizing problems, is relatively stable over time. Aggressive trajectories are associated with subsequent antisocial and criminal behavior in adolescence.^{23,24} Age at onset as well as level and form of aggression have become important factors in understanding antisocial development, as early onset of antisocial behavior is regarded as a reliable predictor of adult antisociality.²⁵

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Research on the long-term consequences of bullying is scarce. The few available prospective studies have generally used symptom checklists or school maladjustment as outcome measures.^{2,26,27} To our knowledge, no long-term population-based prospective study has been published yet that has addressed correlations between bullying status (bully, victim, or both) in childhood and later criminal behavior.

Although evidence to date cumulatively suggests a link between bullying behavior and psychosocial problems, several questions remain unanswered. First, the longitudinal nature of the relationship between childhood bullying behavior and later crime remains unclear. We lack studies that have examined criminality as the outcome of different forms of bully status in childhood. Second, we do not know how the long-term outcome of bullying is related to psychopathological behaviors at the initial assessment. We might expect that boys with both frequent bullying in childhood, indicating deviant peer affiliations and interpersonal problems, and psychiatric problems are at especially high risk for criminality in late adolescence and early adulthood.

In this prospective study, information about bullying was collected from parents, teachers, and 8-year-old children, as was information about various forms of crime from the Finnish National Police Register when the subjects were aged 16 to 20 years. Previous articles on this longitudinal sample include reports about correlations between general psychopathological behavior at age 8 years as well as psychiatric disorders²⁸ and criminality²⁹ in late adolescence or early adulthood. Our aim was to examine the correlations between childhood bully status (frequent bully, victim, or bully-victim status) and criminal offenses in general and as specific types of offenses (violence, property, traffic, drunk driving, and drug offenses). We hypothesized that childhood bullying would predict criminal offending in late adolescence. Because bullying is behavior that victimizes other people, we expected it to especially predict violent rather than non-violent crime. Finally, we hypothesized that child bullies with psychiatric symptoms are the ones for whom early crime prevention efforts should be targeted.

METHODS

SUBJECTS

This investigation is a part of the nationwide From a Boy to a Man study, a follow-up study that formed part of the Epidemiological Multicenter Child Psychiatric Study in Finland.³⁰ The study design and material have been described previously.^{28,29} The research plan was approved by the Joint Commission on Ethics of Turku University and Turku University Central Hospital. Participation in the study was voluntary. Informed consent was obtained from the children's parents at the initial assessment. Permission to use the National Police Register data was obtained from the Ministry of the Interior. The combination of information from the questionnaires and the police register was analyzed in such a way that the subjects could not be identified.

The original study sample was drawn from the total population of Finnish children born in 1981 ($n=60\,007$). The original representative sample comprised 6017 children, compos-

ing 10.0% of the basic population. Of these 6017 children, 5813 (96.6%) took part in the study in 1989. Of the 5813 children, 2946 were boys. Owing to missing identification numbers, police register information was obtained for 2866 boys. Complete information about bullying from 3 different outcome sources (parents, teachers, and 8-year-old children) and information about criminal offenses during the 4-year period when the subjects were aged 16 to 20 years were obtained from 2551 subjects (86.6% of the original study sample). When the group of children with no information available at follow-up was compared with the rest of the sample, no significant differences were found in living in intact vs nonintact families, parental education level, or being screen positive in parent or teacher Rutter total scores^{31,32} at age 8 years. To note, the study sample included only those children born in Finland, and the rate of immigrants in Finland is the lowest in the European Union. In 1990, the prevalence of nationalities other than Finnish among children was only 0.4%.³³

ASSESSMENT AT AGE 8 YEARS

Whether the child was a bully was registered by giving the child 3 alternatives to choose: (1) "I bully other children almost every day"; (2) "I bully sometimes"; or (3) "usually I do not bully." Victimization of bullying was registered by means of the alternatives: "Other children (1) bully me almost every day, (2) bully me sometimes, or (3) usually do not bully me." Similar questions focusing on bullying and victimization were included in parent and teacher questionnaires, with probe and response items worded as follows: "The child bullies other children: (1) does not apply; (2) applies somewhat; or (3) certainly applies." An additional item about the child being a victim of bullying was also included in the parent and teacher questionnaires with the 3 alternatives (does not apply, applies somewhat, or certainly applies). For the purposes of this study, the first and second alternatives in the parent and teacher questionnaires were regarded to indicate no bully or victim status or bully or victim status only sometimes, whereas the third alternative indicated frequent bully or victim status.

On the basis of our preliminary findings that frequent bullying or victimization carries a much higher risk of adverse outcomes than bullying or victimization only sometimes, we classified the sample into the following groups: (1) those who never or only sometimes bully (but are not victimized) according to parent reports, teacher reports, and self-reports (84.8% of the sample); (2) those who frequently bully (but are not victimized) according to at least 1 informant (6.0%); (3) those who are frequently only victimized (6.4%); and (4) those who frequently both bully and are victimized (2.8%). The aggregation of parent, teacher, and child reports of information about bullying or victimization using the "or" rule was motivated by the finding that the interrater agreement was rather low and bully or victim information from all of the 3 informants was associated with the outcome (weighted κ in the range of 0.11-0.22).

Details of the assessment procedures at age 8 years have been described previously.^{28,29} In this study, we analyzed teacher reports of the children's psychiatric symptoms as possible covariates and moderating variables. Parents and teachers completed the Rutter scales,^{31,32} including 3 subscales (conduct, hyperactivity, and emotional subscales). A total score cutoff point at 13 on the parent scale and 9 on the teacher scale (both corresponding to about the 85th-percentile cutoff point) were used as indicators of possible caseness. These cutoff points have previously been widely used in child psychiatric epidemiology studies both internationally and in Finland.³⁰ As described previously, screen-positive status in parent and teacher scales at age

8 years predicted psychiatric disorders and criminality in adolescence and early adulthood.^{28,29}

Furthermore, to study interactions between bully or victim status and different psychopathological domains, parent and teacher information was pooled to create conduct, hyperactivity, and emotional scales.

To control for socioeconomic status, a variable concerning parents' education was extracted from the 1989 data, when the subjects were aged 8 years. Low parental education level was indicated if neither of the parents had completed upper secondary school after comprehensive school (summing to a total of 12 years of schooling). In Finland, basic education consists of 9 years of primary and secondary school, after which education can be continued in either a vocational school or upper secondary school. As described previously, a low level of parental education at age 8 years predicted psychiatric disorders and criminality in adolescence and early adulthood.^{28,29}

CRIMINAL OFFENSES AT FOLLOW-UP

Data on the cohort's criminal behavior were obtained from the Finnish National Police Register. This is a nationwide electronic database kept by the administration of the Finnish police. Access to the register was granted by the Police Department, Ministry of the Interior.

The nationwide police register dates back to 1997. The register includes all cases where the police suspect someone of an offense. However, mere admonitions are not usually covered by the register, nor are municipal parking fines. The current study is limited to acts registered during 1998 to 2001. Data are removed from the police register according to a schedule determined by the statute of limits. Data were collected from the register at 2 points in time (at the beginning of 2000 and 2002) to ensure that information registered between 1998 and 2001 was complete. Information for 1997 was not included because of missing data. Petty traffic offenses such as minor speeding have been excluded from the analysis as trivial.

To study different types of crime, criminality was divided into 5 categories: drug, violent, property, and traffic offenses and drunk driving. The subjects could be included in more than 1 group. Drug offenses refer to various kinds of drug-related activity: manufacturing, importing, exporting, distributing, purchasing, or merely possessing illegal drugs, all of which are forbidden in Finland. We defined violence as overt aggressive behavior toward another human being. The main subgroups were various kinds of assault and battery as well as robbery. Property crime included covert behavior targeted not at human beings but at property. This category included different kinds of stealing, illicit use of another person's motor vehicle, receiving stolen goods, and vandalism. Economic crime (fraud, embezzlement, and forgery) was also included in this category. Traffic offenses consisted of reckless driving and driving without a license. As mentioned, minor traffic violations (157 offenses) were excluded. The fifth group was drunk driving offenses. In Finland, drunk driving is based on a blood alcohol concentration greater than 0.05%.

STATISTICAL ANALYSIS

The associations between bullying variables and the number of crimes were estimated by means of multinomial logistic regression analysis. Multinomial logistic regression for a polytomous response variable is a generalization of the methods of logistic regression analysis for a dichotomous response variable.³⁴ Associations between bullying variables and type of crimes were estimated by means of binary logistic regression analysis. The multivariate analyses of the associations were carried

out by multivariate logistic regression analysis. These associations were quantified by calculating odds ratios (ORs) with 95% confidence intervals (CIs). $P < .05$ was considered statistically significant. Statistical computations were performed using the SAS system for Windows, release 8.2/2000 (SAS Institute, Inc, Cary, NC).

RESULTS

During the 4-year study period, a total of 2794 criminal offenses were committed by 567 (22.2%) of 2551 subjects for whom complete information at the initial assessment and follow-up was available. The mean (SD) number of crimes among children who did not frequently bully or were not frequently victimized was 0.8 (3.8) crimes. The mean (SD) numbers of crimes were 4.7 (24.1) crimes among frequent bullies, 2.8 (8.1) crimes among frequent bully-victims, and 0.9 (3.7) crimes among frequent victims. Although frequent bullies or bully-victims accounted for only 8.8% of the sample, they were responsible for 33.0% of all crimes and 23.4% of violent crimes.

Among the subjects, 20.4% of the children with no frequent bullying or victimization, 25.2% of frequent victims, 39.2% of frequent bullies, and 33.8% of bully-victims committed at least 1 criminal offense during the 4-year period. Subjects were further categorized into 3 groups: (1) those with no criminal offenses during the 4-year period; (2) those with occasional offenses (1-2 offenses); and (3) recidivist offenders (>2 offenses). **Table 1** shows the descriptive data and results of logistic regression analysis between the bullying status and the level of offending adjusted for the level of parental education. Frequent bully status predicted both occasional and recidivist offending, whereas bully-victim status predicted recidivist offending.

Table 2 shows the descriptive characteristics of bully groups and 5 specific crime types (violence, property, traffic, drunk driving, and drug offending). Altogether, 3.4% of the subjects had committed drug offenses, 6.8% violent offenses, 10.6% property offenses, 10.6% traffic offenses (not including minor traffic violations), and 5.2% drunk driving. Of the offenders, 40.3% were involved in more than 1 of the 5 crime categories. As Table 2 shows, frequent bully and frequent bully-victim status predicted violent, property, traffic, and drunk driving offenses when the reference group was children who did not bully or were not victimized frequently. Frequent victim status predicted only property offenses. Drug offenses were not predicted by any of the bully groups. When the analyses were controlled for the level of parental education, the results remained similar.

In multivariate analyses that included all of the specific crime groups and the parental education level, violent offenses were independently predicted by frequent bully status (OR, 2.9; 95% CI, 1.7-4.9), whereas property offenses were predicted by bully-victim status (OR, 2.7; 95% CI, 1.4-5.3) and frequent bully status (OR, 1.9; 95% CI, 1.1-3.1). Bully status did not independently predict traffic, drunk driving, or drug offenses.

To study the outcome of bullying associated with being screen positive for psychiatric symptoms at the initial as-

Table 1. Associations of Childhood Bullying Categories, Parental Education Level at Age 8 Years, and Level of Criminal Offenses at Ages 16 to 20 Years

Bullying Category	Subjects, No. (N = 2551)	Subjects Who Committed 0 Crimes, % (n = 1984)	Subjects Who Committed 1-2 Crimes, % (n = 366)	Subjects Who Committed >2 Crimes, % (n = 201)	OR (95% CI)*	
					Subjects Who Committed 1-2 Crimes	Subjects Who Committed >2 Crimes
Not frequent bully or victim	2164	79.6	13.6	6.8	1 [Reference]	1 [Reference]
Frequent victim only	163	74.8	16.0	9.2	1.3 (0.8-2.0)	1.3 (0.7-2.4)
Frequent bully only	153	60.8	24.8	15.9	2.4 (1.6-3.6)†	2.6 (1.6-4.3)‡
Both frequent bully and victim	71	66.2	12.7	21.1	1.2 (0.6-2.5)	2.8 (1.5-5.6)‡

Abbreviations: CI, confidence interval; OR, odds ratio.

*Results of multinomial logistic regression analysis adjusted for parental education level.

†P<.01.

‡P<.001.

Table 2. Bullying Categories at Age 8 Years and Specific Types of Crime at Ages 16 to 20 Years

Bullying Category	Subjects, No. (N = 2551)	Violent Offense (n = 174)		Property Offense (n = 271)		Traffic Offense (n = 272)		Drunk Driving Offense (n = 133)		Drug Offense (n = 86)	
		%	OR (95% CI)*	%	OR (95% CI)*	%	OR (95% CI)*	%	OR (95% CI)*	%	OR (95% CI)*
Not frequent bully or victim	2164	6.0	1 [Reference]	9.5	1 [Reference]	9.8	1 [Reference]	4.7	1 [Reference]	3.3	1 [Reference]
Frequent victim only	163	4.9	0.9 (0.4-1.8)	14.7	1.6 (1.04-2.6)	9.8	1.1 (0.6-1.8)	4.9	1.1 (0.5-2.3)	3.7	1.2 (0.5-2.8)
Frequent bully only	153	17.0	3.7 (2.3-6.0)	15.7	2.2 (1.4-3.5)	19.0	2.6 (1.6-4.0)	9.8	2.8 (1.6-5.0)	4.6	1.8 (0.8-4.1)
Both frequent bully and victim	71	14.1	2.8 (1.4-5.6)	25.4	3.2 (1.8-5.6)	21.1	2.6 (1.4-4.7)	12.7	3.2 (1.5-6.8)	1.4	0.5 (0.1-3.7)

Abbreviations: CI, confidence interval; OR, odds ratio.

*Results of univariate logistic regression analysis.

assessment, the frequent bully, victim, and bully-victim groups were further classified into those who were screen positive and those who were screen negative according to parent or teacher symptom checklists. As **Table 3** shows, screen-positive but not screen-negative frequent bullies and frequent victims were at risk for subsequently committing criminal offenses. Among the bully-victim groups, almost all of the children were screen positive, thus predicting later crimes.

Finally, we studied interactions between bully and victim groups and 3 psychopathological domains (conduct, hyperactivity, and emotional scales pooled from parent and teacher Rutter scales) for having at least 1 crime at follow-up. Significant positive interactions were found between frequent bully status and conduct (OR, 1.2; 95% CI, 1.1-1.3 for 1-point rise in symptom scale score) and hyperactivity (OR, 1.1; 95% CI, 1.01-1.3) scale scores. Similarly, positive interactions were found between frequent victim status and conduct (OR, 1.2; 95% CI, 1.1-1.4) and hyperactivity (OR, 1.2; 95% CI, 1.1-1.4) scale scores.

COMMENT

To our knowledge, this is the first population-based prospective study that examines the late-adolescence criminal outcomes of children who bully, are victims of bullying, or both. Knowledge of the nature or etiology of criminality is of paramount importance for the design of

Table 3. Associations of Screen Scale–Positive and Screen Scale–Negative Frequent Victims, Bullies, and Bully-Victims at Age 8 Years and Criminal Offenses at Ages 16 to 20 Years

Bullying Category	Subjects, No. (N = 2551)	Subjects Committing Any Crime, No. (%) (n = 567)	OR (95% CI)
Not frequent bully or victim			
Screen negative	1710	319 (18.7)	1 [Reference]
Screen positive	454	123 (27.1)	1.6 (1.3-2.1)
Frequent victim only			
Screen negative	82	15 (18.3)	1.0 (0.5-1.7)
Screen positive	81	26 (32.1)	2.1 (1.3-3.3)
Frequent bully only			
Screen negative	31	7 (22.6)	1.3 (0.5-3.0)
Screen positive	122	53 (43.4)	3.3 (2.3-4.9)
Both frequent bully and victim			
Screen negative	2	2 (100.0)	NA
Screen positive	69	22 (31.9)	2.0 (1.2-3.4)

Abbreviations: CI, confidence interval; NA, not applicable because of 0-frequencies; OR, odds ratio.

crime prevention intervention programs. Our results show that frequent bullying in childhood predicts criminality in late adolescence. Boys who bully frequently in childhood are at elevated risk for recidivism and for commit-

ting violent, property, traffic, and drunk driving offenses in late adolescence. To illustrate this, 21.1% of frequent bully-victims and 15.9% of those with frequent bully-only status were recidivist offenders, compared with only 6.8% of those who did not exhibit frequent bullying behavior. Although frequent bullies and bully-victims composed only 8.8% of the total sample, they were responsible for 33.0% of all offenses during the 4-year period between the ages of 16 and 20 years, ie, 8 to 12 years after the initial assessment.

These results have considerable significance for the early prevention of criminality, indicating that early crime prevention that focuses on bullying should be one of the highest priorities in child public health policy. Frequent bullying may serve as an important red flag that something is wrong and that intensive preventive or ameliorative interventions are warranted. In contrast, being a frequent victim does not appear to be related to significant later delinquency and aggression but may instead involve internalizing and covert behaviors (including property offenses) rather than crimes directed against other people.

Almost all of the frequent bully-victims displayed high levels of psychiatric symptoms, and that status predicted later crimes. However, frequent bullying without a high level of psychiatric symptoms was not associated with an elevated risk of later criminality, whereas psychiatric symptoms in concert with reported bullying did reveal such an association. At age 8 years, 97.2% of bully-victims, 79.7% of frequent bullies, and 49.7% of frequent victims were screen positive, indicating a high level of psychiatric symptoms and possible caseness. First, these results show that most frequent bullies display high levels of psychiatric symptoms in childhood. Second, they indicate that it is the presence of psychiatric symptoms in association with frequent bullying, victimization, or bully-victimization rather than individual factors appearing alone that is an important childhood marker of criminality in late adolescence. Third, the results showed positive interactions between status as bully or victim and conduct and hyperactivity symptoms. Bullying others is part of the definition of conduct disorder. As the American Psychiatric Association³⁵ points out, such behavior often involves a repetitive and persistent pattern in which there is a violation of the basic rights of others (eg, aggression to people) or of major age-appropriate societal norms or rules. These findings suggest that we increase our predictive power to predict criminality more than with simple additive effects when rating scales (particularly for conduct and attention-deficit/hyperactivity symptoms) and bully or victim status are used together to identify boys most in need. These results can be seen in Table 3, where combinations of screen-positive and bully or victim status were related to increased risk of later criminality.

The high rate of bullying and its consequences for school achievement, the social environment, and peers emphasize the need to implement empirically validated school-based programs to prevent bullying. Reflections about rules for interpersonal conduct and the consequences of misconduct should be an explicit part of the school curriculum. Effective prevention of bullying requires insight into the social and environmental factors

that facilitate and inhibit bullying and peer aggression. School-based interventions to stop bullying have demonstrated positive outcomes in Norway and the United Kingdom, with reductions in bullying of 30% to 50%.^{36,37}

However, although school-based interventions may have positive effects, an important finding is that frequent bullies with conduct and hyperactivity problems and not the bullies per se are the ones at elevated risk for later criminality. Frequent bullying signals an elevated risk of subsequently committing crimes and indicates the necessity for assessment of mental health needs. Furthermore, most frequent bullies and almost all frequent bully-victims have a high level of psychiatric symptoms.

These findings indicate that these children should be actively screened for psychiatric problems. School-based screening could be implemented simply by means of parent and teacher symptom checklists. If a frequent bully has a high level of psychiatric symptoms, he or she should be referred for further psychological assessment. Ideally, mental health services should be an integrated and active part of the school environment, as effective prevention requires the shortest possible delay between detection and intervention. Although some initial financial investment would be required, the personal and socioeconomic savings for individuals, schools, and society as a whole are enormous. Cohen³⁸ calculated that the value to society of successfully diverting 1 high-risk child from a life of crime could be as much as \$1.7 million to \$2.3 million (in 1998 dollars).

The community-based sample was representative of the target population, and the design was a prospective follow-up study. Attrition was low considering the duration of the follow-up and the sample size. Although we had an inability to determine whether every child in the cohort was alive or not immigrated at follow-up, this does not affect the results because of the age range of the follow-up sample. The strengths of the study also include the involvement of 3 different classes of informant, ie, children, parents, and teachers. Unfortunately, information about criminality was collected only for boys and the results do not necessarily generalize to girls. A limitation is that only bullying in general was probed and different types of bullying were not specified (eg, physical aggression, physical bullying, verbal aggression, and social exclusion). However, the findings of the study by Smith et al³⁹ suggest that at age 8 years, children contrast aggressive and nonaggressive scenarios but do not distinguish so clearly between different forms of aggression.

Obviously, the National Police Register only includes offenses that have come to the attention of the police and have been registered. The role of police activity is particularly decisive in drug crime in the absence of an outsider victim. Rates of traffic offenses and drunk driving also largely depend on police surveillance. Furthermore, police may exercise some discretion as to what incidents they register, and practice may vary with officer, suspect, and police district. The National Police Register is continuously updated and well maintained. Corruption in Finland is among the very lowest in the world and the importance of accurate registration of every offense is emphasized in the instructions given by the police administration. The problem of false positives is not

regarded as a critical source of bias owing to the strict regulation and control of the Finnish police. Police data were preferred to court data, which only include convicted offenders and ignore a huge amount of crime. Self-report methods would have also revealed undetected offenses but are subject to bias owing to forgetting, distortion, and reluctance to mention certain acts, typically those that are more serious.

CONCLUSIONS

Bullying is an aspect of a serious antisocial trajectory that is rather stable over time and involves a wide variety of crime. Bullying may signal an elevated risk of committing crimes, but the child's behavior needs to be assessed in its entirety. In addition to the personal costs and pain these children bring to their fellow human beings and themselves, their serious and persistent problems result in huge public costs. Greater investment in prevention systems and procedures in children's natural environments such as home, kindergarten, and school could be of immense benefit to society. Interventions must be tailored to the needs of the child and his or her family as well as to the systems of which they are a part. It is therefore immensely important to have systematic research efforts be an integrated part of these endeavors.

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Illinois Governor Blagojevich wants to make it a felony for an adult to post personal information about a teen—such as a name, address, or phone number—on a Web site like MySpace.com without the teen's consent. Current law bans posting of that information only on pornographic Web sites.

—From "Safety Net for Your Kids" by Dave McKinney, *Chicago Sun Times*, October 3, 2006