The Role of Parents in Protecting Colombian Adolescents From Delinquency and Marijuana Use

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Objectives: To identify general and differentiating risk and protective factors from domains of culture and ecology, peer, family, and personality, related to adolescent delinquency and marijuana use, and to study the protective role of the parent-child mutual attachment in offsetting cultural and ecological risk factors, leading to less delinquency and marijuana use.

Design: Cross-sectional analyses of interview data collected in Colombia.

Participants: A total of 2837 Colombian adolescents, 12 to 17 years of age.

Setting: Adolescents were interviewed in their homes.

Main Measures: Independent variables included measures from 4 domains: culture and ecology, peer, family, and personality. The dependent variables were delinquency and marijuana use.

Results: Several risk factors, such as tolerance of deviance and sensation seeking, were similarly related to both delinquency and marijuana use, suggesting that a common cause underlies the propensity to engage in different deviant behaviors. Some risk factors were more involved in delinquency and other risk factors were more highly related to the adolescent's marijuana use. Finally, when violence is endemic and illegal drugs are readily available, a close parent-child bond was capable of mitigating these risk factors, leading to less marijuana use and delinquency.

Conclusions: The findings have implications for public health policy related to interventions in countries in which violence and drug use are prevalent. The results point to interventional procedures aimed at adolescents vulnerable to marijuana use and delinquency as well as efforts aimed at specific vulnerabilities in these areas. For example, reducing the risk factors and enhancing the protective factors for marijuana use and delinquency may result in less adolescent marijuana use and delinquency.


Editor’s Note: It’s nice to have some evidence that a close parent-child bond can provide protection against illegal or illicit behavior. Too bad we can’t package it.

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SUBJECTS AND METHODS

PARTICIPANTS

The participants were adolescents living in Colombia (N = 2837). The areas selected were in mixed urban-rural communities representative of 3 cities: Barranquilla, Medellin, and Bogota. Bogota was selected because it is the capital of the country and has a population varying in socioeconomic status, large concentrations of young people, and adolescents with varying urban experiences. Medellin was selected because it is the second Colombian city, by size and population, and a recognized, legitimate, commercial and industrial center. Barranquilla was selected because it served as a third major urban area located on the coast of Colombia. Barranquilla is the fourth largest city in Colombia and represents the costeno (Caribbean-like) culture. In all 3 cities, drug use is prevalent. Within each city, a stratified random sample was obtained from census data. Each stratum represented a number of risk factors that have been found to be related to drug use. We sampled in higher- and lower-risk groups to ensure variability in socioeconomic status. The high-risk districts were characterized by drug risk attributes (such as single-headed households, unemployment, and low educational levels).

We moved from census tracts (N = 1000), to households, to individuals, while preserving the random sampling procedures at each stage. Address lists were compiled in this process, and interviewers were sent to the selected addresses. Households with at least 1 child between the ages of 12 and 17 years were qualified for this study. This stratified, random sampling approach permitted the sampling of a sufficiently large number of marijuana users. Since we sampled from only 3 cities, we need to be cautious in our generalizations. Our success rate in interviewing selected subjects was more than 80%, probably because of the incentive (American sports apparel) and the opportunity to participate in a research study.

We examined the interaction of each city with the independent variables by means of regression analysis. The dependent variable in the first regression analysis was marijuana use, and in the second regression analysis, delinquency. Less than 5% of the interaction terms of each city by the independent variables were significant. Thus, the relationships between the independent variables with marijuana use and with delinquency in each of the 3 cities were comparable, increasing our confidence in the results.

When the interview was administered, the mean age of participants was 16 years. Self-reported ethnic identification indicated that the sample was composed of the following: Mestizo (ie, Spanish, Indian, and African-Colombian) (58.9%), Spanish (34.7%), African-Colombian (3.1%), Indian (2.4%), and other (0.9%), and included both girls (47.0%) and boys (53.0%). Sixty-six percent of the sample were living with both parents. Data on education, measured on a 5-point scale that ranged from 1 (grade school) to 5 (post college), indicated a median category of sixth to eighth grade. The demographic characteristics of the adolescents living in the high-risk and low-risk areas were obtained. The adolescent characteristics in the high-risk areas were as follows: 56.2% male; average age, 17 years; median educational level, seventh grade; ethnicity: Mestizo, 65.3%; Spanish, 25.3%; African-Colombian, 5.3%; Indian, 2.6%; and other, 1.3%. The adolescent characteristics in the low-risk areas were as follows: 51.3% male; average age, 17 years; median education level, eighth grade; ethnicity: Mestizo, 50.3%; Spanish, 40.6%; African-Colombian, 3.9%; Indian, 2.3%; and other, 2.9%.

PROCEDURE

An individual interview was conducted in the adolescents' homes in private, whenever possible, and was administered by Colombian interviewers. Adolescents participated under a consent procedure in which mothers were given a notice informing them of the nature of the study. To participate in the study, both the adolescent and the adolescent's mother had to sign consent forms. Adolescents were informed that they could refuse or discontinue participation at any time. All protocols were approved by the institutional review board of the Mount Sinai School of Medicine, New York, NY. The interviews took approximately 2 hours to administer. The interviewers read each question aloud and recorded the participant's response on the interview schedule. For sections regarding drug use, participants recorded their responses directly on the questionnaire. The staff...
MEASURES

The scales in this research are composed of a number of items. They are based on item intercorrelations and reliabilities and are grouped into 4 domains of risk factors: (1) adolescent personality attributes, such as unconventionality, intrapersonal distress, and low school achievement; (2) family characteristics, such as parent-child mutual attachment dimensions and sibling marijuana use; (3) peer factors, such as peer marijuana use items, peer delinquency, and quantity of time spent with friends; and (4) cultural and ecological variables. Cultural and ecological variables included violence, drug availability, and work or school stress. Protective factors included familism and an item on religion. Most of the scales have been used extensively in previous research and have been found to work well with white, African-American, and Puerto Rican adolescents in the United States. However, they have been found to predict drug use, delinquency, and psychopathological symptoms. A number of the scales had to be adapted to ensure their linguistic and cultural relevance. Six researchers conversant in both Colombian Spanish and English reviewed the questions, and when there was disagreement with regard to the Spanish-language equivalent of the English meaning, the questions were altered. Then 2 pilot studies were conducted to make certain the psychometric properties of the scales were equivalent to those achieved in the United States. The scales, their sources, their reliabilities, and sample items are shown in Table 1. (The full matrix of intercorrelations between the measures is available on request from the authors.)

The Cronbach α values obtained in this study were similar to those derived from studies conducted in the United States. A few measures had low Cronbach α values. Nevertheless, in a longitudinal study in the United States, the results indicated that many of these scales were correlated over a 2½-year period, suggesting considerable test-retest reliability. One dependent variable was frequency of marijuana use. This is a standard self-report measure of marijuana use, and previous analyses with varying samples support its validity. Marijuana use, and not abuse or dependence, was measured; nevertheless, marijuana use is generally necessary, but not sufficient, precondition for other illicit substance use disorders. The percentage of adolescents who reported marijuana use was assessed as follows: never, 58.6%; once or twice, 23.1%; 3 to 12 times, 10.0%; several times a month, 1.8%; and several times a week to daily, 6.5%. In Bogotá, Barranquilla, and Medellin, the percentage of adolescents who reported marijuana use was 39.4%, 35.3%, and 49.6%, respectively. The other dependent variable was delinquency. The delinquency scale was adapted from the work of Gold and Elliot and colleagues. The α was .86. The mean on the delinquency scale was 19.66 and the SD was 7.73. The correlation between marijuana use and delinquency was 0.50. Thus, the percentage of shared variance was only 25%.

ANALYTIC APPROACH

We ran a series of net regressions described below to examine the interaction of gender with the individual risk factors as related to both marijuana use and delinquency. Of the many interaction terms run, only a few were significant, and no discernible pattern emerged. Therefore, the gender results were probably caused by chance. Consequently, all the analyses were run for the entire sample. In all the analyses, we controlled for gender, ethnicity, and high-risk vs low-risk areas. In the first analyses, the associations between each risk factor and marijuana use and delinquency were examined.

In the second analyses, we used the net regression procedure developed by Cohen and Cohen to see whether the risk factors were more highly related to marijuana use or to delinquency. This technique tests the statistical significance of the difference between the effects of risk factors on 2 outcome variables. Finally, regressions were run to determine if cultural and ecological risk factors for marijuana use and delinquency could be offset by family factors. In all of the analyses, we controlled for gender, ethnicity, and high-risk vs low-risk areas.

RESULTS

Pearson correlations were run between demographic factors, each of the risk factors, and marijuana use and delinquency. Boys were more likely than girls to use marijuana and engage in delinquent behavior \( r = 0.19, P < .001; r = 0.24, P < .001 \), respectively. Ethnicity was not significantly related to either marijuana use or delinquent behavior. Parental marital status (ie, single-headed households), low parental education, and parental unemployment were related to adolescent delinquent behavior \( r = 0.06, P < .01; r = 0.08, P < .001; r = 0.09, P < .001 \), respectively. Parental marital status was significantly related to adolescent marijuana use \( r = 0.09, P < .001 \).

As noted in Table 2, all of the risk factors were correlated with both marijuana use and delinquency. Overall, the highest correlations with marijuana use and delinquency included the following: tolerance of deviance and low achievement in the personality domain, peer delinquency and marijuana use in the peer domain, and violence and work or school stress in the cultural and ecological domain. The risk factors in the family area were...
The percentage of variance accounted for by the independent variables was 46% for marijuana use and 61% for delinquency. Table 3 presents the differences between the association of the risk factors with marijuana use and delinquency. The differences in the magnitude of the risk factors’ associations with marijuana use and delinquency were significant for 68% of the risk factors.

Delinquency and marijuana use had a number of specific risk factors (Table 3). The number of risk factors showing a higher association with delinquency was far greater than the number of risk factors showing a higher association with marijuana use. Only 5 variables were more highly related to marijuana use than to delinquency. Two of the 5 variables involved direct modeling of marijuana use, namely, sibling marijuana use and peer marijuana use. Drug availability may also involve modeling of drug use. Among the personality variables, high intrapersonal distress, low femininity, and low ratings of school achievement were more highly related to delinquency than to marijuana use. Low parent orientation was also more related to delinquency than to marijuana use. Within the peer domain, it is noteworthy that peer delinquency was more highly related to self delinquency than to self marijuana use; peer marijuana use was more highly related to self marijuana use than to self delinquency. A parallel pattern emerged in the cultural area. Violence toward the subject was more highly related to self delinquency than to self marijuana use, whereas drug availability was more highly related to self marijuana use than to self delinquency. Nevertheless, it is important to note that all the risk factors were significantly related to both marijuana use and delinquency. We were interested in determining the extent to which a close parent-child mutual attachment could offset cultural risk factors for marijuana use and delinquency, leading to less marijuana use and delinquency in the adolescents. Consequently, a composite parent-child mutual attachment index was constructed consisting of the following scales: parent identification, maternal affection, and parent-child nonconfictual relationship. The correlations among the parent-child mutual attach-
and drugs are readily available and violence is endemic; (2) a number of risk factors in Colombia have been shown to be more highly related to either marijuana use or delinquency; (3) the findings are maintained when marijuana and delinquency are studied simultaneously on the same sample and when tests of the significance of the difference between the associations of the risk factors and the problem behaviors are performed; and (4) protective factors related to the parent-child bond have been shown to be capable of buffering, to a limited extent, the adverse effects of cultural and ecological factors, thereby leading to both less marijuana use and less delinquency.

The findings indicate that delinquency and marijuana use are correlated during adolescence. Apart from risk factors, the common variance may be caused by a reciprocal relationship between the 2 components themselves. These findings were based on data obtained from a Colombian adolescent sample. They add to the results of investigators who have studied these 2 components at an earlier developmental level. In addition, the present study focuses on the general and differentiating risk factors for marijuana use and delinquency. The significant association between marijuana use and delinquency variables were significant. The Cronbach α was .94. The top 50% of the distribution on this variable was considered protective. Two series of regressions were run. In the first, we examined the interaction of cultural risk factors with the parent-child mutual attachment, with marijuana use as the dependent variable. In the second regression, the dependent variable was delinquency.

The cultural risk variable was dichotomized at the 50th percentile. The means are presented for each of the significant interactions in Table 4. Drug availability, low familism, and low identification with one’s heritage were offset by a close parent-child mutual attachment relationship, thereby leading to less marijuana use. With regard to delinquency, with 1 exception, all the cultural and ecological risk factors were buffered by a close parent-child mutual attachment relationship. The percentage of variance contributed by the interactions for marijuana and delinquency were 1% in each case.

This research has identified general and differentiating intrapersonal and interpersonal risk factors for adolescent marijuana use and delinquency in Colombian adolescents. Our results suggest that the general and differentiating risk factors stem from several domains: culture and ecology, peer, family, and individual personality attributes. These results represent the first time, to our knowledge, that (1) certain general risk factors have been shown to be similarly related to both marijuana use and delinquency in a culture in which drug use is increasing.

### Table 2. Pearson Correlations Between Risk Factors and Marijuana and Delinquency

<table>
<thead>
<tr>
<th>Measure</th>
<th>Marijuana Use</th>
<th>Delinquency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personality/behavior/attitudes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ego integration (low)</td>
<td>0.19</td>
<td>0.30</td>
</tr>
<tr>
<td>Femininity</td>
<td>-0.08</td>
<td>-0.17</td>
</tr>
<tr>
<td>Pathology</td>
<td>0.22</td>
<td>0.41</td>
</tr>
<tr>
<td>Perception of school achievement (low)</td>
<td>0.36</td>
<td>0.52</td>
</tr>
<tr>
<td>Religion</td>
<td>0.12</td>
<td>0.11</td>
</tr>
<tr>
<td>Sensation seeking</td>
<td>0.23</td>
<td>0.23</td>
</tr>
<tr>
<td>Tolerance of deviance</td>
<td>0.31</td>
<td>0.37</td>
</tr>
<tr>
<td>Family</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s resistance to maternal control</td>
<td>0.20</td>
<td>0.21</td>
</tr>
<tr>
<td>Child’s resistance to paternal control</td>
<td>0.18</td>
<td>0.14</td>
</tr>
<tr>
<td>Maternal affection</td>
<td>-0.11</td>
<td>-0.15</td>
</tr>
<tr>
<td>Maternal identification (low)</td>
<td>0.20</td>
<td>0.25</td>
</tr>
<tr>
<td>Paternal identification (low)</td>
<td>0.19</td>
<td>0.24</td>
</tr>
<tr>
<td>Parent orientation (low)</td>
<td>0.16</td>
<td>0.30</td>
</tr>
<tr>
<td>Sibling marijuana use</td>
<td>0.28</td>
<td>0.17</td>
</tr>
<tr>
<td>Peer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer delinquency</td>
<td>0.26</td>
<td>0.59</td>
</tr>
<tr>
<td>Peer marijuana use</td>
<td>0.59</td>
<td>0.44</td>
</tr>
<tr>
<td>Time spent with friends</td>
<td>0.20</td>
<td>0.35</td>
</tr>
<tr>
<td>Culture/ecology</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drug availability</td>
<td>0.24</td>
<td>0.15</td>
</tr>
<tr>
<td>Familism (low)</td>
<td>0.17</td>
<td>0.26</td>
</tr>
<tr>
<td>Heritage</td>
<td>0.10</td>
<td>0.13</td>
</tr>
<tr>
<td>Violence toward subject</td>
<td>0.38</td>
<td>0.57</td>
</tr>
<tr>
<td>Work or school stress</td>
<td>0.21</td>
<td>0.31</td>
</tr>
</tbody>
</table>

*For each measure, P<.001.

### Table 3. Net Regression Analysis: Significant Differences in Risk Factors

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Delinquency Variables</th>
<th>Marijuana Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Personality/behavior/attitudes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ego integration (low)</td>
<td>0.06†</td>
<td>NS</td>
</tr>
<tr>
<td>Femininity</td>
<td>-0.05†</td>
<td>NS</td>
</tr>
<tr>
<td>Pathology</td>
<td>0.21‡</td>
<td>0.07§</td>
</tr>
<tr>
<td>Perception of school achievement (low)</td>
<td>0.35‡</td>
<td>0.24‡</td>
</tr>
<tr>
<td>Religion (low)</td>
<td>NS</td>
<td>0.08§</td>
</tr>
<tr>
<td>Sensation seeking</td>
<td>0.08§</td>
<td>0.10‡</td>
</tr>
<tr>
<td>Tolerance of deviance</td>
<td>0.15‡</td>
<td>0.16‡</td>
</tr>
<tr>
<td>Family</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Child’s resistance to maternal control</td>
<td>0.11‡</td>
<td>0.10‡</td>
</tr>
<tr>
<td>Child’s resistance to paternal control</td>
<td>NS</td>
<td>0.09§</td>
</tr>
<tr>
<td>Maternal affection</td>
<td>NS</td>
<td>NS</td>
</tr>
<tr>
<td>Maternal identification (low)</td>
<td>-0.08§</td>
<td>-0.07§</td>
</tr>
<tr>
<td>Paternal identification (low)</td>
<td>-0.12‡</td>
<td>-0.09§</td>
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<td>0.12‡</td>
<td>0.26‡</td>
</tr>
<tr>
<td>Peer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer delinquency</td>
<td>0.47‡</td>
<td>0.08§</td>
</tr>
<tr>
<td>Peer marijuana use</td>
<td>0.24‡</td>
<td>0.55‡</td>
</tr>
<tr>
<td>Time spent with friends</td>
<td>0.16‡</td>
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</tr>
<tr>
<td>Drug availability</td>
<td>0.07§</td>
<td>0.17‡</td>
</tr>
<tr>
<td>Familism (low)</td>
<td>0.13‡</td>
<td>0.06‡</td>
</tr>
<tr>
<td>Heritage</td>
<td>0.05†</td>
<td>NS</td>
</tr>
<tr>
<td>Violence toward subject</td>
<td>0.47‡</td>
<td>0.32‡</td>
</tr>
<tr>
<td>Work or school stress</td>
<td>0.14‡</td>
<td>0.08§</td>
</tr>
</tbody>
</table>

*NS indicates not significant.
†P<.05.
‡P<.001.
§P<.01.
The magnitude of the risk factors for delinquency was greater than for marijuana use. For the most part the magnitude of the difference, while significant, was modest. As noted in a previous article, these results may reflect the fact that delinquency is a behavior that is broader than marijuana use. Delinquency consists of acts of aggression, vandalism, and theft, whereas the dependent variable marijuana use is confined to a specific behavior. Consequently, one might assume that it is easier for many more diverse underlying factors to have a strong impact on delinquency.

**CULTURE AND ECOLOGY**

Cultural and ecological factors, such as drug availability, violence toward the subject, and familism, are more highly related to either marijuana use or delinquency. This contrasts with findings in the United States, where cultural and ecological risk factors are similarly related to marijuana use and delinquency. This study further demonstrates that in Colombia drug availability is more highly related to marijuana use, whereas violence toward the subject is more highly related to delinquency. The greater availability of drugs and the greater presence of violence in Colombia may in part account for these findings.

The high correlation of violence experienced by the adolescent with the adolescent’s own delinquency supports the recommendation made by the American Medical Association to decrease access to guns to lessen the harmful effects of interpersonal aggression during adolescence.

**FAMILY**

The findings indicate an association between a positive parent-child mutual attachment relationship and lessened delinquency and marijuana use. Further results indicate that a positive parent-child mutual attachment relationship also offsets, to a limited degree, risk factors in the cultural and ecological domain. These add to the literature in important ways by demonstrating that even in a country in which violence is endemic and drugs of abuse are readily available, a close parent-child mutual attachment (eg, feelings of affection from the mother, identification with the parent, a nonconflicting parent-child relationship) may offset some of these risk factors for marijuana use and delinquency. For example, the adverse effect of violence directed at the adolescent is mitigated by a strong parent-child mutual attachment, leading to less delinquent behavior. The influences of risk factors present in the neighborhood (drug availability), risk factors reflective of more individual than family values (low familism), and limited religious affiliations (low religiosity) are buffered by the protection of a close parent-child bond, leading to less delinquency and marijuana use. In contrast to the main effects, the interactions of culture with the parent-child relationship were quite limited. Nevertheless, as noted by Jessor and colleagues, when interactions emerge in nonexperimental studies, it is often the case, as in this study, that they involve only 1% to 3% of the total variance. Given the presence of these adverse societal conditions conducive to problem behavior in a culture, it becomes even more important that family bonding be strengthened. At the present time, there appears to be a decrease in the strength of family ties in Colombia. Consideration should be given, therefore, to developing prevention programs aimed at family bonding, not only for its intrinsic value, but also for its long-range implications for decreased marijuana use, delinquency, and ultimately violence.

**PEERS**

Two aspects of the influence of the peer group in Colombia are noteworthy. First, our findings indicate that peer delinquency was more highly related to delinquency and marijuana use in Colombia than in the United States. The possible aspects of the Colombian culture that explain these relationships are the following: (1) there is greater peer deviance; (2) there is a more cohesive peer deviant group;
(3) there is greater time spent with peers; (4) there is greater group pressure on the individual to conform to peer norms; and (5) there is greater freedom provided by the peer group in contrast to more stringent parental codes. It would be important in future research to explore these various aspects of peer interactions with the individual. As social and economic conditions press more and more parents to work, consideration should be given to having sufficient time to be more involved in the child’s activities to counteract the influence of deviant peer networks.

Second, peer marijuana use was more highly related to the adolescent’s marijuana use, whereas peer delinquency was more highly related to self delinquency. This finding points to the importance of the peer group in modeling particular behaviors, whether delinquency or marijuana use. Such specific modeling leads to further differentiation between these 2 components of problem behavior.

PERSONALITY

General factors in the personality area include tolerance of deviance, low ego integration, and sensation seeking. These factors have been found to be associated with drug use and delinquency in the United States. In contrast, low femininity and low school achievement were more highly related to delinquency than to marijuana use. One possible interpretation for these findings is that adolescents characterized by low femininity and low achievement are more likely to associate with delinquent peers. This is particularly true in Colombia, where the qualities of femininity in women are highly valued. The relationship between poor school achievement and delinquency was particularly high. Adolescents who are performing badly in school are one group of youngsters who might benefit from intensive prevention programs. This lends support to a recent proposal for a comprehensive school that incorporates the provision of educational and health services.

The study has several caveats. First, the scale assessing violence directed toward the adolescent was treated as a predictor of marijuana use and delinquency. Violence directed toward the youth can be considered a consequence of the youth placing himself or herself in a high-risk situation, or perhaps even initiating a fight. Nevertheless, the correlation between violence directed toward the adolescents and their marijuana use was maintained with control on the personality variables such as sensation seeking. Second, since this is a cross-sectional study, we can only say that the risk factors are associated with marijuana use and delinquency. Future longitudinal research will provide us with the ability to make generalizations regarding temporal ordering of the risk factors with regard to marijuana use and delinquency.

CONCLUSIONS

This is the first study of the general and differentiating risk factors for delinquency and marijuana use, conducted in a country in which drugs are readily available and violence is very prevalent. The study is somewhat limited in that it is based on cross-sectional data. Consequently, specific causality cannot be assigned. Although the study is based on cross-sectional data, the study has implications for public policy dealing with interventions attempts at both individual and familial levels, particularly in cultures where delinquency and drug use are endemic. The research adds to our knowledge of general and differentiating risk factors for marijuana use and delinquency. Adolescents who rate high on the differentiating risk factors (e.g., peer delinquency or peer marijuana use) might benefit from more intense intervention in those areas where the adolescents appear to be most vulnerable. The parent-child bond afforded some protection in attenuating the effect of cultural and ecological risk factors on marijuana use and delinquency. The research should assist physicians and other health care providers and educators in developing programs that reduce the risk factors and enhance the protective factors for marijuana use and delinquency, particularly the parent-child bond, thereby resulting in lessened adolescent marijuana use and delinquency.

Accepted for publication September 18, 1998.

We thank Lisa Jaeger, MPH, for contributions throughout the project, and Pe Thet Win, MD, MPH, for assistance in analyzing the data. In addition, we are grateful to the editor of this journal and all of the anonymous reviewers for their helpful suggestions.

This research was supported by Research Scientist Award DA 002244 and research grant DA 10348 from the National Institute on Drug Abuse, National Institutes of Health, Bethesda, Md.

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