One-Year Prospective Prediction of Violence Perpetration Among High Risk Youth from Personal and Social-Environmental Variables

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One-year Prediction of Violence Perpetration Among High-risk Youth

Steve Sussman, PhD; Thomas R. Simon, PhD; Clyde W. Dent, PhD; Jill M. Steinberg, BS; Alan W. Stacy, PhD

Objective: Measures of drug use, law-abiding beliefs, sensation seeking, fear of victimization, high-risk group identification, self-protection needs and behaviors, and demographics were investigated as longitudinal predictors of violence perpetration among 870 high-risk adolescents. Method: Self-reports from the same youth were obtained 1-year apart. Results: In addition to baseline violence perpetration, marijuana use, relatively young age, male sex, high-risk group self-identification, low perceived efficacy of the police department, and nonavoidance of dangerous places predicted later perpetrated violence. Conclusion: Personal and social factors beyond baseline violent behavior predict risk for future violent behavior.

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Violence perpetration among youth is a major concern among public health professionals because of the increase in number of such events compared to 40 years ago, as well as the dramatic impact of these events. In 1995, 19% of all those arrested for violent crimes in the United States were 18 years old or younger, and homicide was the second leading cause of death among 15-to-24-year-old youth. A better understanding of the prospective predictors of violence perpetration may help improve our knowledge of its etiology and suggest effective preventive interventions.

Current knowledge indicates that predictors of youth violence include several personal and social-environmental factors. Personal variables are behaviors or beliefs that reflect a person's inclinations, as opposed to direct interaction with a larger social environment. One personal variable is substance use. Those youth who are involved in some or multiple violent acts also tend to be problem drug users. One may conjecture whether or not this association is due to the composition of an illicit drug distribution system, direct effects on nervous system function, or other reasons.

Another personal variable is one's beliefs pertaining to law abidance. Youth may create ways of comprehending reality that generate violent behavior. For example, law-abiding beliefs that defend perpetration of illegal acts (such as drug use and drug dealing) may involve the same types of logic that defend or facilitate violent behavior, as an aspect of general delinquency. A third personal variable is affect related such variable is sensation seeking who like to do things that are frightening to have fun, for example, act out through violence. In youth who feel stressed or depressed, the response more aggressively to personal conflicts.

Social-environmental variables include demographics. Adolescents are involved in a greater number of violent events than other ethnic groups to be economic-related strains such pathways of economic opportunity.
This study explored personal and social-environmental variables that may predict violence perpetration in high-risk youth.

The Present Study
This study explored personal and social-environmental variables that may predict violence perpetration in high-risk youth. Personal variables were divided into three types: drug-use measures, law-abidance-related beliefs, and affect-related measures. Social-environmental variables were divided into 4 types: victimization-related measures, high-risk group identification measures, self-protection measures, and demographics.

METHODS
School Selection
A total of 29 school districts from a 5-county region of southern California were recruited for participation in a previously conducted study using a procedure approximating random selection. Each of those cooperating districts contained one continuation high school. Twenty-one continuation high schools were selected from that pool for participation in the present study by eliminating schools with atypical student-enrollment size (fewer than 50 or more than 500 students).
Subjects (n=962 pretested students) varied from 14 to 19 years of age at baseline...

Subjects
Subjects (n=962 pretested students) varied from 14 to 19 years of age at baseline; 93% of this sample was 16 to 18 years old (mean age=16.7 years, SD=0.8). The sample was 55% male, 37% white, 49% Latino, 4% Asian American, 8% African American, and 2% Native American; only 1.2% of the sample reported a preference for a language other than English; 46% lived with both parents; approximately 60% of youths’ parents completed high school, and modal occupations were skilled or semiskilled laborers among the fathers (42%), and minor professionals or small business owners among the mothers (31%). A total of 70% of the sample reported having perpetrated some type of violent act against another person or property in the previous year.

Data Collection
Prior to baseline survey administration, all students in the accessible classes were asked to have their parents sign and return an internal review board-approved consent form providing written permission or refusal for participation in any part of the testing. For all students who did not return a signed form, attempts were made by project staff to contact the parent by telephone to describe the study and obtain verbal permission or refusal.

Baseline measures were collected during single classroom sessions during regular school hours from October 1994 to July 1995. Different measures were placed in three different questionnaire “sections.” Demographic and drug use-related items were placed in a core section, which was always at the beginning of the surveys. Psychosocial items, such as sensation seeking, were placed in a psychosocial section of the questionnaire. Knowledge and belief items were among those placed in a knowledge section. The psychosocial and knowledge section placement order was rotated at baseline. Questionnaire forms were randomly distributed to subjects within classrooms. The questionnaire completion rate was sufficiently high (84%) that a fixed item order was used at 1-year follow-up.

A follow-up data collection effort was completed an average 13.5 months after the baseline (SD=1.7 months) and serves as the outcome endpoint for the present analysis. Follow-up surveys were administered in several different ways. If a targeted student was still enrolled at the continuation high school (23% of those surveyed), project staff (previously unknown to the student) went to the school and surveyed that student using a paper-and-pencil questionnaire. The majority of follow-up students (77%) were surveyed by telephone using an interview format. Project staff (previously unknown to the student) contacted the subjects by telephone, read the questionnaire items to them, and recorded their responses on a survey form. Survey items and response categories were identical to the in-school questionnaire format, and subject responses generally consisted of innocuous words, such as numbers, letters, agree-disagree, or true-false. All collection efforts were stopped after 4 months of attempting to followup a given subject (mean number of follow-up days=25.8, SD=32.9 days).

Of the pretested students, 1,587 (79%) provided parental consent allowing a resurveying of the student in the future. The homes of 76% of the targeted sample were reached at the 1-year follow-up. However, 6% of the students were not available for interview after repeated attempts, and 3% of the youth or their parents refused to continue participation. Successful resurveying of 1,074 (67%) of the target follow-up sample was achieved. The follow-up measurement rate obtained in this study is comparable to that obtained with traditional school samples at 1-year follow-up as documented in a review by Hansen and colleagues.

The retained sample size for the present analyses varied between 808 and 962, depending on the statistical model. Attrition analyses indicated that there were no statistically significant baseline value differences on any variable assessed for this study between subjects measured at both occasions and all those measured at baseline. Thus, the analysis sample approximated a random subsample of baseline subjects, indicating good external validity for analyses to be done, the confidential nature of the telephone did not differ for the sample, and those measured at follow-up did not differ in in-person reports from those anonymously at baseline.

Measures
The measures presented include perpetration measures (current drug and alcohol use, and use of social-environmental variables for victimization/victimization group identification, self-perceptions). To establish consistency on measures common items, a Pearson’s r correl when and when the sample consisted of the same or more items, Cronbach’s was calculated.

Violence-Perpetration
Violence perpetration adapted from the 1981 A Future survey form (Cronbach’s 82) and consisted of a response of four 6-point item anchors ranged from “never” to frequent “many times have you”: “I threaten to use a weapon like a knife, gun, or club?”,”I used a weapon like a club to threaten a person?”,”I threatened to use a weapon like a club to threaten a person?”,”I damaged or stolen property on purpose?” Violence perpetration measured seven items. Three origi pertained to theft or property damage and one pertained to threatening to attack or threaten to attack or steal someone else’s property. Each item was scored exactly once. The total violence-perpetration measure was the sum of all seven items. At follow-up, the sample reported having injured someone, 20% reported using a weapon like a knife, 29% reported using a weapon like a club, and 31% reported stolen property or damaged property for checks. Thus, the analysis sample included measures of the others item-total measure corre the pattern of all results the same whether or not included. Thus, we retained the measure.

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documented in a review by
 collegues.

Violence-Perpetration Measure
Violence perpetration was an index
adapted from the 1981 Monitoring the
Future survey form 25 (Cronbach's
alpha=.82) and consisted of the mean
response of four 6-point items (response
anchors ranged from "never" to "5 or more")
that assessed "In the last 12 months, how
many times have you”: “used a weapon
like a knife, gun, or club to injure some-
one?”, "used a weapon like a knife, gun or
cub to threaten a person?”, "slapped,
punched, kicked, or beaten up someone?”,
or "damaged or stolen someone else's
property on purpose?" The original vio-
ence-perpetration measure consisted of
seven items. Three original items that
pertained to theft or property damage were
standardized and averaged to form an
elicit-drug-use index at
baseline (Cronbach's alpha=.82). A total of
31% of the baseline sample reported use of
a hard drug in the last 30 days. In
clusion, current use of the
remaining illicit drugs was re-coded as binary
current use items, and their mean composed
an index of how many of these drugs the
subjects used at least once in the last 30
days. The baseline sample reported a
mean of .40 (SD=0.82) hard drugs
used in the last 30 days.

Law-Abidance Beliefs
Five binary variables included items

The baseline sample
reported a mean of .40
(SD=0.82) hard drugs
used in the last 30 days.

Personal Measures
Current Drug-use Measures
To access current drug-use behavior at
baseline, subjects were asked "How many
times in the last month have you used..." each
eight different drug categories.
Questions were directed to frequency of
use of "cigarettes," "alcohol," "marijuana," "coca-
(81 touch (crack)," "hallucinogens (LSD,
acid, mushrooms)," "stimulants (ice,
speed, amphetamines)," "inhalants (rush,
notious)," and "other drugs (depressants,
PCP, steroids, heroin, etc.)." Eleven re-
sponse choices were offered on each item;
the first choice was "0", and other re-
sponse choices were provided increasing in
intervals of 10 (e.g., "1-10 times", "11-20
times") with a last category being "91-
100+ times." A total of 57%, 65%, and 55%
of the baseline sample reported use of
marijuana in the last
30 days. Cigarette, alcohol, and mari-
juana use were standardized and mea-
sure as separate items. The remaining
5 items were standardized and averaged
to form an illicit-drug-use index at
baseline (Cronbach's alpha=.82). A total of
31% of the baseline sample reported use of
a hard drug in the last 30 days. In
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remaining illicit drugs was re-coded as binary
current use items, and their mean composed
an index of how many of these drugs the
subjects used at least once in the last 30
days. The baseline sample reported a
mean of .40 (SD=0.82) hard drugs
used in the last 30 days. The test-retest reliabil-
ity of these measures has been
previously demonstrated.26
These items are of
the format used by the Monitoring the
Future Study. A final, sixth drug-use re-
related measure was addiction concern, a
2-item index that assessed concern about
becoming a drug addict or alcoholic
(.63).27

Law-Abidance Beliefs
Five binary variables included items

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such as "Frank was very drunk; he walked by the car of a schoolmate he does not like. He scratched the paint near the car door with his keys. Was he responsible?" Responses included "yes" versus "no, the schoolmate probably had it coming, the car's insured anyway." Another example is "When one gets into trouble with the authorities because of drug use..."; responses included "the authorities are trying to protect people from harm." A final, sixth law-abandon belief consisted of two 4-point items that assessed the degree to which one perceives that drug use is "wrong" and they would feel "guilty" if they used drugs (morality of drug use; r=.59).

**Affect Related**
The sensation-seeking measure consisted of 11 true-false items from the Zuckerman-Kuhlman Personality Questionnaire.\(^8\) One item included "I like doing things for the thrill of it" as an example (Cronbach's alpha=.75). Perceived stress included 3 binary items: "In the last month, I have often been upset because of something that happened," "In the last month, I have often felt unable to control the important things in my life," and "In the last month, I have often felt nervous and stressed" (adapted from the Perceived Stress Scale [Cronbach's alpha=.68]).\(^9\) Three of the original 14 perceived-stress items were retained, and responses were changed from a rating scale format to binary responses, for easier completion by adolescents. Depression in the last week was measured by calculating the mean score on the 20-item Center for Epidemiological Studies-Depression Scale, CES-D.\(^30\) The 4 response choices ranged from "rarely or none of the time (less than 1 day)" to "most of the time (5-7 days)" (Cronbach's alpha=.84).

**Social-environmental Variables**

**Victimization-related Measures**
Three measures were assessed. The violence-victimization measure was an index adapted from the 1981 Monitoring the Future survey-form 2 in the same way as the current violence-perpetration measure.\(^25\) (Cronbach's alpha=.77), and consisted of four, 6-point items that assessed being injured with a weapon, threatened with a weapon, injured by someone without a weapon, or having had property damaged or stolen in the last 12 months. We were also interested in assessing perceived vulnerability to future victimization, which was not included in the Monitoring the Future survey. Therefore, we created our own measure, using the same format as the perpetration and victimization measures. It consisted of four 4-point items that assessed perceived likelihood of being injured with a weapon, threatened with a weapon, injured by someone without a weapon, or having one's property damaged or stolen in the next 12 months (Cronbach's alpha=.81). Finally, perceptions regarding the efficacy of the police department was measured with one 5-point item, "In your opinion, how often is the police department effective in protecting you from crime?" ("never" to "always"). This one item was measured at the 1-year follow-up, whereas all other items were measured at baseline. This item was included because it provided a measure of trust of institutionalized protection agents. Although this was not a prospective measure, it was theoretically useful, and the results of the study on other variables did not change by not including it.

**High-risk Group Identification**
Two measures were included. One item asked if the subject had ever been a member of a gang (not a tagging crew) and was coded as yes or no. A total of 25% of the sample reported having ever been a member of a gang. The second item asked the subject which one group or clique the subject currently most identified with from a list of 17 group names. Those 5 groups that were high risk (ie, "rappers (rap club)," "stoners (burnouts, druggies)," "heavy metalers (rockers)," "gang member," or "taggers") were coded as "high-risk" and all others were coded as "no high-risk."\(^21\) Examples of nongroup names are "jocks (athletes)," "popular (socials, preppies)," names was developed from studies that began as open-ended names and subsequent closed-ended categories. In study, as opposed to some studies that examined multiple genea; a simple high-risk/non-high-risk dichotomy was used. A total of 20% of the sample reported currently id as a high-risk group. A total of 11% of those who had reported ever being reported identification with a gang. Conversely, a total of 90% who reported current identified a high-risk group also reported ever been in a gang.

**Self-protection**
Nine measures were included in these measures were assigned to the question "Have you done each of these three things this year to feel more safe?" (responses ranged from "never" to "always"). One measure, weapon carry of the mean of three 5-point items that assessed the measure of having a blunt object such as a bat, knife, or "carry a gun" (Cronbach's alpha=.75). The other 8 assessed as separate items alone, "stay away from people who might hurt you," "not go to places you thought it might be unsafe," "avoid fights," "stay away from people that you think are unsafe," or other drugs to feel more safe, not use alcohol or other drugs, and "work out to feel more safe." These items originally were through a previous self-reporting open-ended items (n=50 data). Means of self-protective safety were assessed. In that further study.

**Demographics**
Eight measures were included in this study. Birth year was derived from each subject's birth year. Ethnicity was included as a binary variable as W
Environmental Variables

Environmental Variables were assessed. The intoxication measure was adapted from the 1981 Monitoring Survey-form 2 in the same current violence-perpetration (Cronbach's alpha = .77), and 39 items that assessed perceived vulnerability to future harm were also interested in assessing. The present study, as opposed to some previous work that examined multiple general groups, a simple high-risk/non-high-risk group dichotomy was used. A total of 26% of the sample reported currently identifying with a high-risk group. A total of 44% of those who had reported ever being in a gang also reported identification with a high-risk group. Conversely, a total of 43% of those who reported current identification with a high-risk group also reported having ever been in a gang.

Self-protection

Nine measures were included. All of these measures were assessed in response to the question “How often have you done each of these things in the last year to feel more safe?” (Five-point responses ranged from “never” to “always.”) One measure, weapon carrying, consisted of the mean of three 5-point items, “carry a blunt object such as a bat or club,” “carry a knife,” or “carry a gun” (Cronbach's alpha = .75). The other 8 measures were assessed as separate items: “avoid walking alone,” “stay away from people who might hurt you,” “not go to a party, because you thought it might be dangerous,” “avoid fights,” “stay away from places that you think are unsafe,” “use alcohol or other drugs to feel more safe,” “deliberately not use alcohol or other drugs to stay aware,” and “work out to build muscle strength or take self-defense training.” These items were generated through a previous self-report study, using open-ended items (n=504; unpublished data). Means of self-protection to feel more safe were assessed. In that study, 22 self-protection responses had been generated. Those 11 responses that were within the subjects' control, and were endorsed by at least 20% of the sample, were retained for further study.

Demographics

Eight measures were assessed. Age in years was derived from birth date. Gender was assessed. Ethnicity was coded into four binary variables as White/non-White, Latino/non-Latino, African American/non-African American and Other ethnicity (ie, Asian or Native American)/non-Other ethnicity. Socioeconomic status was measured through use of a 4-item rating scale-type index, based on a weighted score of parent education (two, 6 forced-choice scales) and occupation (two, 9 forced-choice scales), averaged over mother and father (Cronbach's alpha = .68). Socioeconomic status was composed very similarly to the original measure, except that “location in city” was not coded along with education and occupation, and both father's and mother's education and occupation were coded as opposed to only the head of the household to account for the greater current prevalence of 2-income homes. Finally, living situation was coded to assess whether or not one was living with both parents or (or stepparents).

Analysis and Results

Three-Stage Prediction of Drug Use

A 3-stage general linear model (GLM) analysis protocol was completed on prospective data. In all models calculated, the dependent variable was violence perpetration. Also, violence perpetration was measured both at baseline (as a predictor) and at 1-year postbaseline in all models. First-stage models. The first set of 1-year prospective models examined the prediction of violence perpetration from baseline perpetration and each predictor examined singly (ie, 15 personal variables and 22 social-environmental variables). These prospective 2-predictor models permitted elimination of those variables that did not have a direct effect on later perpetration, controlling for baseline perpetration. The Ns in the addiction-concern and socioeconomic-status models were 855 and 899, respectively; the Ns on all other of these models varied from 927 to 962. All model Fs(2,N-1) were sig-

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**TABLE 1**

| Predicting Violence Perpetration From Personal or Social-environmental Variables |
|---------------------------------|-----------------|
| **Predictor**                    | **Effect F**    |
| Personal Variables               |                 |
| Addiction concern                | 6.30**          |
| Current cigarette smoking        | 15.63***        |
| Current alcohol use              | 5.05*           |
| Current marijuana use            | 19.07***        |
| Current hard drug use            | 13.29***        |
| Number of hard drugs currently used | 16.92***  |
| "Probably had it coming" belief | <1.00           |
| "Authorities pick on people" belief | 1.17        |
| "It's no big deal to break the law" belief | 1.36 |
| "People who suspended her, too rigid" belief | <1.00 |
| "Drug dealing is okay" belief   | 3.10+           |
| Morality of drug use             | 11.98***        |
| Sensation seeking                | 4.24*           |
| Perceived stress                 | 2.06            |
| Depression                       | <1.00           |
| Social-environmental Variables   |                 |
| Fear of victimization            | 16.57***        |
| Victimization                    | 12.21***        |
| Not trust police                 | 26.64***        |
| Self-identify with high-risk group | 21.18***   |
| Ever member of gang              | 6.78*           |
| Not avoid walking alone          | <1.00           |
| Not stay away from dangerous people | 5.69*      |
| Go to a dangerous party          | <1.00           |
| Not avoid fights                 | 7.39*           |
| Not stay away from unsafe places | 10.89***        |
| Use alcohol or drugs to feel safe| 1.33            |
| Not use alcohol or drugs to stay aware | <1.00 |
| Work out for self-defense        | <1.00           |
| Carry a weapon                   | 10.48***        |
| Younger age                      | 16.27***        |
| Male gender                      | 11.30***        |
| White ethnicity                  | 1.79            |
| African American ethnicity       | 4.24*           |
| Latino ethnicity                 | <1.00           |
| Other ethnicity                  | <1.00           |
| Live with parents or step-parents| <1.00           |
| Lower socioeconomic status       | 4.21*           |

**Note.**  +p<.1, *p<.05, **p<.01, ***p<.001

significant at p<.001 (Fs ranged from 114.76 to 136.02; R-squares ranged from .20 to .23), due to the predictive effects of baseline perpetration (effect Fs ranged from 137.93 to 260.58). Twenty-one of 37 other predictor Fs were significant at p<.05, and 1 additional test was marginally significant. Only 2 such tests would have been significant at p<.05 by chance alone. These results are shown in Table 1.

**Second-stage models.** The second stage of analysis placed all significant predictors from the first-stage models in simultaneous multivariable regression models, grouped by personal environmental substantive. 3 personal categories (drug-abstinence beliefs, and affect than 1 significant predictor was found only for drug measures had been sign first-stage analysis). Only abstinence-belief measures significant (ie, morality of only sensation seeking habit in the first-stage most affect-related measures). Of 4 social-environmental factors (fear of victimization/ victim group, self-protection, and more than 1 significant category was found for fe (3 of 5 measures had been significant), self-pro

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TABLE 2
Predicting Violence Perpetration One Year Later From Baseline Perpetration and Other Predictor Sets

<table>
<thead>
<tr>
<th>Model F</th>
<th>R2</th>
<th>Drug Use Predictor Set Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>33.42***</td>
<td>.23</td>
<td>Addiction concern</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current cigarette smoking</td>
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<td></td>
<td></td>
<td>Current alcohol use</td>
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<td></td>
<td></td>
<td>Current marijuana use</td>
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<tr>
<td></td>
<td></td>
<td>Current hard drug use</td>
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<tr>
<td></td>
<td></td>
<td>Number of hard drugs used currently</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Model F</th>
<th>R2</th>
<th>Fear of Victimization/Victimization Predictor Set Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>78.88***</td>
<td>.25</td>
<td>Fear of victimization</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Victimization</td>
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<td></td>
<td></td>
<td>Not trust police</td>
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<table>
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<tr>
<th>Model F</th>
<th>R2</th>
<th>High-risk Peer Group Predictor Set Effects</th>
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</thead>
<tbody>
<tr>
<td>91.03***</td>
<td>.23</td>
<td>Self-identify with high-risk group</td>
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<td></td>
<td></td>
<td>Ever member of gang</td>
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<table>
<thead>
<tr>
<th>Model F</th>
<th>R2</th>
<th>Self-protection Predictor Set Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>78.88***</td>
<td>.25</td>
<td>Not stay away from dangerous people</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not avoid fights</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not stay away from unsafe places</td>
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<tr>
<td></td>
<td></td>
<td>Carry a weapon</td>
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</table>

<table>
<thead>
<tr>
<th>Model F</th>
<th>R2</th>
<th>Demographics Predictor Set Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>59.87***</td>
<td>.25</td>
<td>Younger age</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male gender</td>
</tr>
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<td></td>
<td></td>
<td>African-American ethnicity</td>
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<tr>
<td></td>
<td></td>
<td>Lower socioeconomic status</td>
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</tbody>
</table>

Note. + p<.1, *p<.05, **p<.01, ***p<.001

Only 2 such tests would significant at p<.05 by chance uls as shown in Table 1. e models. The second is placed all significant the first-stage models in multivariable regression models, grouped by personal and social-environmental substantive categories. Of 3 personal categories (drug use, law-abidance beliefs, and affect related), more than 1 significant predictor in a category was found only for drug use (six of 6 measures had been significant in the first-stage analysis). Only 1 of 6 law-abidance-belief measures had been significant (ie, morality of drug use), and only sensation seeking had been significant in the first-stage models among the affect-related measures.

Of 4 social-environmental categories (fear of victimization/victimization, peer group, self-protection, and demographics), more than 1 significant predictor in a category was found for fear of victimization (3 of 5 measures had been significant), Peer group (2 of 2 measures had been significant), self-protection (4 of 9 measures had been significant), and demographics (4 of 8 measures had been significant). To the extent that a variable's coefficient in these 4 models decreases from those of the first-stage model, the variable's influence must be either indirect, through 1 or more other predictor variables correlated with it in these models, or spurious.

The results of the 1-year prospective models are shown in Table 2. Baseline perpetration was a significant predictor in all models (Fs=193.20, 152.12, 161.00, 103.98, and 110.23, all ps<.001; ns=899, 808, 937, 910, and 939, respectively). In the drug-use model, only current marijuana use was a significant predictor. Those who reported greater marijuana use were relatively likely to report having perpetrated violence the next year. All 3 fear-of-victimization/victimization mea-
TABLE 3
One-year Prospective, Multivariable Prediction of Violence Perpetration (n=868)

<table>
<thead>
<tr>
<th>Model F</th>
<th>R²</th>
<th>Predictor Effect</th>
<th>Cumulative Effect # of Significant Predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td>24.83***</td>
<td>.29</td>
<td>Baseline perpetration</td>
<td>47.96***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Current marijuana use</td>
<td>8.25**</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Morality of drug use</td>
<td>&lt;1.00 0 25%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Sensation seeking</td>
<td>&lt;1.00 1 31%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fear of victimization</td>
<td>2.80+ 2 39%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Victimization</td>
<td>3.33+ 3 51%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not trust police</td>
<td>10.52*** 4 63%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identify with high-risk group</td>
<td>6.61** 5 78%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Ever member of gang</td>
<td>&lt;1.00 6 87%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Not stay away from unsafe places</td>
<td>3.69* 7 93%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Carry a weapon</td>
<td>&lt;1.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Younger age</td>
<td>13.47***</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Male gender</td>
<td>3.70*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>African American ethnicity</td>
<td>3.57+</td>
</tr>
</tbody>
</table>

Note. +p<.1, *p<.05, **p<.01, ***p<.001

The observed probability of being above the median split of violence perpetration 1 year later by number of significant baseline multivariable predictors was calculated. This analysis was completed to conform with earlier work that states that the more drug-related “risk factors” one is exposed to, the more likely one will use drugs later on.13,33 To do this analysis, a median split of violence perpetration was calculated across combi-
The probability of being above the median on violence-perpetration reports 1 year later varied from 25% to 93%...
It is curious that marijuana use was the only nonredundant drug use-related predictor of violence perpetration.

use with potentially violent behavior within a subculture of youth, that direct effects on loss of inhibitions leads to violence, that the illegality of its use tends to become associated with other deviant or problem-prone actions such as violence, or that marijuana-use prevalence is higher and a more reliable predictor of various behaviors than is the use of other illicit drugs. All of these possible explanations should be pursued.

It also is curious that not trusting police as protection agents and venturing into dangerous areas are both nonredundant prospective predictors of violence perpetration. Perhaps neighborhoods that continually undergo rapid population changes encourage less attachment to the neighborhood and less surveillance of public places; thus, violence perpetration and victimization rates increase. (Both fear of victimization and victimization were marginal predictors in Table 3.) Alternatively, or in addition, possibly some youths take it upon themselves to protect their neighborhood, leading to zealous attempts at controlling or patrolling others. These youth may identify with a high-risk group that associates itself with a social image of being tough. Of course, these interpretations are speculative. Future research should examine these implications of neighborhood disorganization.

High-risk group self-identification was a significant predictor in all models, suggesting either the operation of a violent social milieu or social perceptions that condone or facilitate violent behavior. Because high-risk group self-identification was a better predictor of violence perpetration than reporting ever being in a gang, possibly there are more self-identified groups than just gangs that are associated with violence. An examination of violence perpetration at follow-up from specific group names at baseline reveals that all self-identified high-risk groups reported relatively high and equivalent mean levels of violence the next year. The one exception was for the "heavy metalers," who reported a mean level of violence that was lower than the other high-risk groups but still higher than the mean for all others. Thus, being a "rapper," "stoner," or "tagger," and to a lesser extent, a "heavy metaler," or being a "gang member," signifies greater risk for violent behavior. Apparently, high-risk group self-identification suggests youths' awareness of their status as problem-prone youth, at risk for a variety of social maladies including drug use and violence.

Finally, relatively young age and male gender within this sample of continuation high school youth remained a significant predictor of violence perpetration (African American ethnicity was a marginal predictor in Table 3). Possibly, older youths have adjusted to their new, continuation high school environment after leaving the regular high school system. Alternatively, older youths may have become more focused on graduating and changing their lives. On the other hand, younger male youths may feel a need to demonstrate their prowess in their new school context. By engaging in violent acts, they may be trying to protect themselves (albeit unsuccessfully) from threats from new school acquaintances. Again, more research is needed to examine this issue within this school system, especially because a positive association is found between age and violence among general populations of youth.

Potential prevention-program implications of these results include the need for correction of misperceptions regarding the appropriateness of violent behavior under different circumstances, the need for expanded or improved agents of protection in changing neighborhoods (eg, police relations campaigns or more police), instruction in effective violence-avoidance strategies in dangerous areas, and programming to help youth transition smoothly to the continuation high school environment. These implications are speculative, of course, but worthy of testing in the development of violence-prevention programming. Exposure to traumatic events has been found to be associated with posttraumatic symptomatology in male adolescent juvenile offenders, such as hypervigilance, nightmares, and somatic complaints, some attention to posttraumatic symptom reduction or cognitive restructuring and consideration in future work with youth.

LIMITATIONS AND CONCLUSIONS

There are at least 8 limitations of this study. First, the students differ in many ways from general population studies. Also, the sample was homogeneous ethnically. It is possible that results differ from other, more heterogeneous populations of youth. These differences may be because the sample is relatively large in size and students (approximately half the sample) were not likely to be causally associated with school attendance and gang membership.

Additionally, this study provided some results that would replicate for specific populations. Second, search should examine etiologies of the prevalence of gang membership (eg, perhaps violence self-protection for one group of acquiring status). Or, the study provided some results that would be more likely to occur in the context of violence perpetration. Alternatively, older youths may have become more focused on graduating and changing their lives. On the other hand, younger male youths may feel a need to demonstrate their prowess in their new school context. By engaging in violent acts, they may be trying to protect themselves (albeit unsuccessfully) from threats from new school acquaintances. Again, more research is needed to examine this issue within this school system, especially because a positive association is found between age and violence among general populations of youth.

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**LIMITATIONS AND CONCLUSIONS**

There are at least 8 limitations of the information presented. First, the results of this study are only generalizable to subjects who are similar to those examined in this study. Continuation high school students differ in many important ways from general population youth.\textsuperscript{19-20} Also, this sample was highly heterogeneous ethnically. It is possible that these results differ from other, more homogeneous populations of youths. However, the relatively large number of schools (21) and students (approximately 870) used in this study provides some confidence that results would replicate for similarly composed populations. Second, future research should examine ethnic-group differences in the meanings of violence. For example, perhaps violence is a means of self-protection for one group but a means of acquiring status for another. A thorough list of such variables is not contained herein. Third, self-report inherently incurs potential for bias in any study. However, the associations found were not likely to be caused by response biases because the reports from the baseline anonymous surveys did not differ from those of the confidential surveys. Fourth, the police-protection measure used was a limitation. This measure was tacked on only measured at the second wave. Additionally, this measure consisted of only 1 item. Still, our other results do not change if the measure had not been used. Our findings suggest the importance of perceptions of police protection, but more work is needed with multiple items measured at a first wave. Fifth, several of the instruments measured herein should be examined further to better demonstrate their construct va-lidity (eg, violence perpetration should correlate with school suspensions and arrest records). Sixth, most of the variance in violence perpetration remained unexplained, even though the R-square was moderately high for a psychosocial-type model; much more research into the prediction of violence perpetration needs to be completed. Seventh, these results are limited to those who had telephones. Those without telephones may or may not exhibit more problem behaviors later in time, although those followed up at school (not followed by telephone) did not differ from the full sample at follow-up on the measures included herein. Also, the data collected confidentially at baseline (which became the pool of those subjects followed up later, primarily by telephone) did not differ from the data obtained anonymously.\textsuperscript{23-24} Thus, it is not likely that responses varied due to differing response demands. Finally, although prospective empirical studies such as the present one are sorely needed, more theoretically rich studies are imperative to better understand the roots of adolescent violence.

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**REFERENCES**


