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The Drugs-Violence Nexus Among Mexican-American Gang Members[†]

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Abstract

This study examines hypotheses and builds models to help clarify the causal connections between drugs and violence outcomes among Mexican-American male gang members. The study uses cross-sectional data of 160 male gang members sampled from 26 gangs in a Southwestern city. A life-history/intensive interview using closed and open-ended questions and a violence risk psychometric test (PFAV) also employed 10 *scenario questions* to elicit self-produced accounts of the participant's last fight. Gang member participant's ages ranged from 14 to 25 years with a mean age of 18.5 years. The study concludes that drug use interacts with an individual gang member's risk for violence to affect violent behavior outcomes. Furthermore, an important situational variable explaining violent outcomes among respondents scoring high on the violence risk measure was whether the rival was using drugs that resulted in high intoxication levels. The study concludes that drugs have a modulating and mediating influence on violence that is conditioned by situational and individual level variables among members of these adolescent street gangs.

Keywords

drugs-violence nexus; gangs; Mexican American; violence risk

Delinquent youth frequently use physical violence to resolve interpersonal conflicts (Zimring 1998; Saner & Ellickson 1996). Among subgroups of delinquents associated with street gangs, it has been found that violence is even more prevalent (Sanders 1994; Katz 1988; Vigil 1988b). Moreover, substance use has been associated with young violent perpetrators and victims of violence (Unger, Sussman & Dent 2003; Zun & Rosen 2003; Colsman & Wulfert 2002). There is, however, no compelling consensus on the causal linkages and pathways of drug use and violence in studies of youth. In their milestone comprehensive review of violence, Sampson and Lauritsen (1994) conclude that there is a need for research that contributes to the untangling of causality problems and that would integrate more effectively the individual, situational, and community levels of analysis. In

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this article attention is focused on the understanding of the individual and situational level variables that mediate and modulate the relationship between drugs and violence in a special population of young male Mexican-American gang members. An understanding of these variables will contribute to clarifying causal connections between the drugs and violence nexus (Sampson & Lauritsen 1994; Watters, Reinerman & Fagan 1985).

THE THEORY OF THE DRUGS-VIOLENCE NEXUS

The drugs-violence nexus has emerged as a specific theoretical paradigm from social science research used to understand the relationship between illegal drugs and violence in communities (De La Rosa, Lambert & Gropper 1990; McBride 1981). Earlier research by Paul Goldstein (1985) and his associates first developed the nexus theory as a classificatory framework and typology. The first type, pharmacological violence, is caused by a biochemical action of a drug after consumption. The second type, economic-compulsive violence, is related to the acquisition (in contrast to the consumption) of drugs or money to support an individual's addiction. The third type, systemic violence, is related to the system of transactions and controls of drug distribution and dealing markets. This type of violence has been especially important in the literature because there is a clearly demarcated pathway connecting drug trafficking and violence, as well as other risk behaviors (Li, Stanton & Feigelman 1999).

Longitudinal epidemiological studies of violent persons have continued to provide strong evidence for the nexus theory and have added important modifications. For instance, Spunt and colleagues (1990) observed that gender, ethnic and racial factors modulate and mediate the theory. Gender differences are not only found to vary in relation to the type of drugs-violence nexus, but also to the pathways to violence. Boys have been found to be more likely to engage in violence as a part of a general pattern of peer deviant behavior, while girls become involved in violence because of family problems (Saner & Ellickson 1996). Furthermore, the relationship between drugs and violence among youth is often associated with other concurrent problems such as poor mental health, school drop out, and delinquency. In one multisite study, prevalence estimates for violence co-occurring with three or more other problems ranged from 4% to 21% (Ellickson, Saner & McGuigan 1997).

Ethnic differences in the drug-violence nexus have not been conclusive. For instance, a study of Mexican-American and White high school students in South Texas found no significant ethnic differences in prevalence of drinking alcohol, illicit drug use, fighting, carrying a weapon, or planning or attempting suicide (Grunbaum, Basen-Engquist & Pandey 1998). After adjustment for age, carrying a weapon and fighting were reported to be significantly associated with alcohol and illicit drug use among most of the four gender- and ethnic-specific subgroups in the study. A more recent comparative international drugs-violence nexus study of students in the United States and Canada found that while Canada had significantly lower levels of violent crime, students in both countries reported similar rates of drug use as well as a similar relationship between drug use and violence (Harrison et al. 2001). The study concluded that cannabis and cocaine (as well as alcohol binge drinking) are significantly related to both perpetrator and victim violent behavior in both countries.

Other studies have argued that the pathways to adolescent violence are more influenced by poverty and social class than ethnicity (O'Keefe & Sela-Amit 1997; Guerra et al. 1995). For instance, a longitudinal study of the predictors of repeated violence in adolescents reported that in high socioeconomic status (SES) neighborhoods the violence risk was influenced by biological factors such as impulsivity while for the lower SES-neighborhoods increased risk was related to environmental factors (Beyers et al. 2001).

Despite the accumulating evidence on the validity of the drugs-violence relationship, the persistent difficulty in establishing causal linkages remains (Fagan 1993). Before the 1990s much of the accumulated research on the relationship between intoxication and violence found nonexistent or weak relationships (Miczek et al. 1994; Fagan, Weis & Cheng 1990). Studies of arrestees in Texas even found a negative relationship between positive drug test results and aggressive crime (Valdez, Yin & Kaplan 1997; Valdez et al. 1995). In contrast, alcohol use was found to be positively associated with aggressive crime. Recent longitudinal research confirms alcohol use's positive relationship with violence in adolescent school populations. The study also reports a strong negative relationship between illicit drug use and later violence during adulthood (Kaplan, Tolle & Yoshida 2001). Another recent cross-sectional study of youthful offenders also confirms that in comparison to marijuana and heroin, alcohol use is more strongly associated with both violent and nonviolent offenses (Dawkins 1997). The study, however, concludes that the effect of marijuana as well as alcohol seems to be continuously and consistently present in the perpetration of violent offenses in this population. Injury studies continue to document the stronger relationship of alcohol compared to other drugs (Macdonald et al. 1999). What remains clear is that the drugs and violence nexus among adolescents may be spurious and is often associated with other concurrent problems such as poor mental health, school drop out, and delinquency (Ellickson, Saner & McGuigan 1997). These associations, although compelling, are still far away from providing a theory on the causal linkages and pathways of drug use and violence.

MEXICAN AMERICAN GANG MEMBERS AND VIOLENCE

There is ample evidence that interpersonal violence associated with members of youth gangs has grown and spread in segments of the U.S. population that are characterized by poverty and social isolation (Klein 1995; Block & Block 1993; Spergel & Curry 1993; Needle & Stapleton 1983). Following this trend, Mexican-American gangs have grown over the two decades and have become associated with increased episodic violence such as drive-by shootings and assaults (Vigil 2002). In this environment, Mexican-American gang members experience a street socialization process that emphasizes the development of collective and individual identities, norms and emotional coping strategies that legitimize violence as a means of resolving conflicts (Katz 1988; Vigil 1988a, b).

In this process, violence becomes recognized as a norm of collective and individual gang member behavior for Mexican-American gangs as it has for other ethnic and racial groups (Moore 1991a, b; Fagan, Weis & Cheng 1990). Within this context, a "code of the streets" is developed that meets violence with counterviolence and becomes the basis for identity and reputation (Anderson 1999). The use and selling of drugs has been persistently documented to be associated with the violent lifestyle of Mexican-American gang members as it has with that of other ethnic groups (Valdez & Sifaneck 2004; Padilla 1992; Fagan, Weis & Cheng 1990; Moore 1990, 1978; Fagan 1989). Gang related victimization and perpetration provides a persistent source of stress and is the primary cause for the relatively high rate of posttraumatic stress disorders (PTSD) among this population (Hoffer & Cervantes 1992).

CONCEPTUAL APPROACH

An understanding of violence and drugs in this special population of Mexican-American gang members must start with a consideration of individual and situational factors. Individual factors take persons as the unit of analysis. Situational factors have as the unit of analysis a violent incident or event such as a fight. Situational factors include interactional and relational circumstances in a specific social niche where individuals encounter each other. In our conceptual approach and for the purposes of this analysis, social psychological and behavioral characteristics of participants and family background are the main individual

variables. The situational variables consist of specific characteristics of a fight (e.g., weapons used).

In this article the authors will describe patterns of drug use and violence, test hypotheses and build models around the “drug-violence nexus” for a sample of adolescent Mexican-American male gang members. Analytically, we attempt to hold community-level factors as well as the individual factors of gender, age, ethnicity and socioeconomic status constant through studying a relatively homogenous population. The conceptual approach employed in this article brings to the drugs-violence nexus a concern for the propensity or risk for violence as a key individual characteristic. While it is highly unlikely that any theory of violence risk will be able to predict when a gang member will be engaged in a violent act, it has been found that individuals with a specific profile of psychosocial characteristics have a certain probability of experiencing violent behaviors (Plutchik & van Praag 1990).

This article first reports on the application of a standardized psychometric measure of violence risk to construct such a psychosocial profile in the special population of Mexican American gang members. The hypothesis is that drug use variables will moderate the relationship between individual violence risk and violence outcomes. Secondly, we hypothesize that individual variables together with situational variables moderate and mediate violent outcomes. Our objective is to build multipredictive models that specify pathways in which drug use, individual and situational variables and their respective interactions influence violent outcomes.

METHODS

Study Design and Sampling

This research evolved from a study of gang violence among Mexican-American gangs in South Texas sponsored by the National Institute on Drug Abuse in the National Institutes of Health. The focus of the study was to identify and distinguish the relationship between gang violence and drug use among male gangs. The study used multiple methods, including ethnographic field observations, focus groups, and life history/intensive interviews with 160 male gang members sampled in San Antonio, Texas (Valdez & Kaplan 1999; Yin et al. 1996). The study was delimited to two areas of the city’s Mexican-American population. The areas have high concentration of adult criminals, drug trafficking, delinquent behavior and Mexican-American street gangs (Yin et al. 1996; Kasarda 1993; Wilson 1987). This delimitation was based on ecological data such as the U.S. Census, criminal justice data, public housing statistics and previously published government reports and studies.

After identification of the two study areas, two indigenous field workers began the social mapping of these communities using systematic field observations and recording extensive field notes. The social mapping stage of the study lasted approximately six months, although fieldwork and collection of field notes was a continuous process lasting a total of four years. Social mapping assisted in the identification of gangs and where the target groups congregate, such as public parks, public housing spaces, playgrounds, recreational centers, downtown areas, neighborhood businesses and specific neighborhoods. In conducting this initial fieldwork, field workers were able to establish “an ethnographic presence” (Sifaneck & Neaigus 2001) and maintain a high visibility within the targeted community to help legitimize the project in the community. After this was accomplished, the field workers began to make contacts with the gang members, gain their trust, and obtain access to their social networks. Results of this fieldwork were recorded in daily field notes that were shared and discussed with the research team. All efforts were made not to use information from school officials or police agencies in order to not associate the project with these authorities.

Attention was focused on the primacy of developing and maintaining networks and a research presence in these communities and among the gangs in these areas.

The fieldwork resulted in identifying all 26 active juvenile gangs and their respective rosters in this area whose cumulative membership totaled 404 persons. The validity and accuracy of gang rosters were checked using at least three of four collateral sources: “gatekeepers,” gang member contacts, key respondents, and field workers’ observations. Gatekeepers are those who control access to information, other individuals and places (Hammersley & Atkinson 1995). Fieldworkers were able to acquire information for initially classifying membership (leader, core, peripherals), gang type, and to delineate the gang’s territory (neighborhood/catchment area). This information was used as the study’s sampling frame parameters and was used to design a stratified sample that generated the 160 gang members interviewed for this study (see Yin et al. 1996 for a detailed description of this sampling procedure). Approximately 10 gang members originally selected refused to be interviewed, giving us a refusal rate that is not different from those of more conventional surveys. A monetary incentive of \$50 was provided to the gang member for participating in the interview.

Study Participants

The study sample consisted of 160 male gang member participants ranging in age from 14 to 25 years, with a mean age of 18.5 years. Approximately 43% of the respondents reported living in single headed households with a large proportion living with mothers (39%). Only 21% were living in households where both parents were present. The remaining 37% were currently living by themselves or with friends or other relatives including grandparents, wives, uncles and aunts. Interestingly, however, 31 % of the subjects reported having children. Only 26% reported being currently enrolled in middle or high school. Sixty eight percent reported having lived or living in public housing.

Measures

A life history/intensive interview instrument was used to collect data from the participants. The instrument uses a battery of closed and open-ended questions and a psychometric test and also employs 10 *scenario questions* to elicit self-produced accounts of special interest including those of the participant’s last fight. Scenario questions have been reported to be especially useful in a complex measurement design consisting of quantitative and open-ended responses in eliciting narratives of behavior in the participant’s own words (Page 1990). The fight scenario questions were accompanied by a matrix of items to guide interviewer probing.

The instrument consisted of nine sections encompassing the areas of family history, neighborhood and community/institutional relations, gang structure, violence, drug use, illegal and violent activities, friendship patterns, school experiences and sexual behavior. The administration of the instrument took between two and three hours.

Descriptive Variables

Five situational variables were used to examine the characteristics of the “last fight” derived from the scenario question. These descriptive variables were: reason for the fight, relationship with the other person involved in the fight, others involved, individual initiating the fight, and location. Other descriptive variables include the use of four drugs: amphetamines, heroin and cocaine mixed (speedballs), prescription drugs, and inhalants. The descriptive analysis will also include the dependent and independent variables described below.

Dependent Variables

Three dependent variables (violent outcomes) were used in this analysis: number of fights in the past three months, intensity of fight, and severity of fight. The first dependent variable consists of the number of fights the individual was involved in within the last three months from the time of interview. For the purposes of this analysis, this measure was used as an individual dependent variable. The remaining two dependent variables (intensity and severity of fight) were used in the analysis as situational variables. These two measures were derived from the scenario question that asked the respondent to describe their last fight. The scenario descriptions were coded for intensity and severity of injury of the fight. The intensity variable coded the type of weapon used in the fight and placed them on a scale ranging from 0 to 6: no weapon (0), rocks and bricks (1), glass object (2), metal object (3), baseball bat (4), knife (5) and gun (6). The severity measure of the fight was a similarly constructed scale of levels of injury to the rival ranging from not hurt (0), bruised (1), cut/bleeding (2), knocked out teeth (3), stitches (4), broken bones (5), unconscious (6), hospitalized (7), to death (8).¹

Independent Variables

The independent variables utilized in this analysis consist of both individual (i.e., social psychological and behavioral) and situational (i.e., last fight) variables. These independent variables are presented as violence, drug use and background measures.

The violence variables included four measures: two individual and two situational. The first of these is the *violence risk* which is measured by a standardized psychiatric assessment instrument, the 12-item self-report Past Feelings and Acts of Violence (PFAV) scale (Plutchik & van Praag 1990). The scale has a proven reliability and validity in assessing self-reported feelings and history of acts of violence in normal, criminal and psychiatric populations. Consisting of 11 four-point items (never, sometimes, often, very often), the scale measures whether the participant had ever caused injury in a fight, hit or attacked a member of the family; hit or attacked someone who is not a member of the family; used a weapon to try to harm someone, and had feelings of anger. The twelfth item, keeping weapons in your home that you know how to use, requires a “yes” or “no” response. The violence score was calculated as the total numeric weight on the 12 items. Cumulative scores range from a low of 0 to a high of 34. Participants scoring at least five affirmative answers (“affirmative” is defined as any response other than “never”) were considered potentially violent according to the established norms of the scale. Correlation, reliability (Cronbach’s alpha) and factor analyses established that this scale was statistically valid and reliable for the sample. The second individual variable was measured by the *frequency of fighting in middle school* using a four-point likert scale ranging from never, sometimes, often, to very often. The remaining two situational variables were derived from the “last fight” scenario question. These included whether *the fight was gang related* and if the *rival was high on alcohol or other drugs during the fight*.

The four individual level drug use variables were measured by the number of days in the past 30 days the participant used marijuana, cocaine, noninjecting heroin and injecting heroin. The number of days these drugs were used ranged between 0 and 30 days in the past month.

Finally, four individual background variables were used for this analysis. The first was *suicide ideation* (dummy coded) measured by asking the respondents whether they had ever

¹Injury to respondent was not used because of social desirability issues associated with fighting among this population that resulted in the individual’s underestimating their injuries.

considered suicide during their lifetime. The second variable was dichotomized into the *subject's self perceived quality of parental relationship* as being strained or not. The third measure was a dichotomy determining whether the respondent *grew up with drugs* in the family household. Related to this was the variable that measured the respondent's family involvement with illegal activities. Finally, the last background variable is a seven-point Likert scale measuring *physical neglect* that asked the respondents whether when they were growing up their family ever had a "rough time" with things like food, clothes and housing.

Data Analysis

Analysis proceeded in three stages: description, hypothesis testing and model estimation. In the descriptive stage the frequency distributions of categorical data and measures of central tendency and deviation of the interval level variables were examined; the distributions were examined for normality. As part of the descriptive stage, cutting points for the PFAV scale were established on the basis of the percentage distributions. Three groups were distinguished: a *low group* ($N = 53$) consisting of participants scoring less than or equal to 15; a *medium group* ($N = 50$) scoring greater than or equal to 16 and less than or equal to 18, and a *high group* ($N = 57$) scoring more than 19 on the scale items.

The second stage of the analysis was the hypothesis testing. Since the sample in this study was relatively homogeneous in terms of age, ethnicity, gender, education and socioeconomic status, adjustment for these covariates was not necessary. A significance level of $p < .05$ was set to confirm hypotheses and a p value of .20 or less to qualify as a reportable trend. The first step in this stage employed one-way analysis of variance. The hypothesis that states the independent variable violence risk (PFAV) will be associated with the dependent variables (violent outcomes) was tested. Next, successive one-way analysis of variance of subgroups defined by PFAV and the specific independent drug use variables were conducted in order to test the hypotheses that these variables will moderate the relationship between violence risk and violent outcomes. The Levene statistic test was used to determine the homogeneity of variance of the three violence risk groups under specific drug use conditions in relation to the dependent variables. For the most part, the assumption for homogeneity of variance was met. However, in several instances, a nonparametric Kruskal-Wallis test was applied. In order to further elaborate the moderating effects of the drug use variables. General Linear Modeling (GLM) procedures were applied that enabled the inclusion of interaction effects in the one-way analysis of variance.

Finally, the third stage of model estimation was conducted. Mediating independent background variables and interaction terms were used for the estimation of successive multivariate models. Multiple regression procedures were applied that simultaneously included interval-level and dummy variables as independent variables. The models were built upon theoretically and empirically significant findings in the hypothesis testing stage. Because of the limitations of a relatively small sample size and the cross-sectional research design, the criterion of the percentage of the variance explained was taken as the main standard to evaluate the models. The final successive models included 13 key independent variables and four interaction terms of PFAV and selected independent variables. For the purposes of this stage, the total score of the PFAV was used. Standardized Beta values were calculated for each effect. In addition, the R square statistic was calculated to estimate the percent of variance explained by each model.

RESULTS

Descriptive

Table 1 reports the results of the descriptive analysis of the situational characteristics of the last fight along with some key background violence-related individual characteristics. Overall, participants reported an average of five fights in the past three months. The following variables address the drugs-nexus theoretical typology. Thirty seven percent of the fights occurred when the participant was high on drugs and over two-fifths of the participants reported that the other person was high on drugs or had been using alcohol (44%). Only 3% of the fight scenarios were classified as involving systemic violence. Economic-compulsive violence associated with drug or money acquisition to support an addiction was also described in only 3% of the fights. Motives for the fights were also related to sexual activities, with 10% reporting conflict “over a woman.” However, fighting related to the gang (61%) was the most important reason reported. This is discussed further in the following sections.

Table 1 indicates that the mean score on the intensity of the fight was 1.33. This variable was highly skewed in that 67% reported that no weapons were used during the fight. When a weapon was used, these included rocks and bricks (4%), glass objects (2%), metal objects (3%), baseball bats (5%), knives (14%), and guns (5%). As seen in Table 1, the severity scale resulted in a mean score of 2.13. The majority of the participants indicated minor levels of injury to their opponents in the fights: 15% reported not hurting them and 40% only causing bruises. However, almost a quarter of the fights resulted in cuts and bleeding. Twenty-seven percent of the participants indicated that the level of injury to the other person was more serious, with some requiring medical attention (6%). Death was reported in only one case.

Consistent with the gang-related nature of these fights, over half of the respondents’ opponents were rival gang members. However, members of the participant’s immediate family, relatives or friends were mentioned as opponents in more than one-fourth of the fights (29%), Strangers were somewhat less likely to be opponents (13%). Most fights (52%) occurred in the presence of others, usually bystanders who functioned as spectators to the event. The initiator of the fight was most likely to be the participant himself (54%). Twenty five percent of these violent confrontations were mutually initiated. Table 1 also indicates that one half of the fights occurred in the respondent’s neighborhood (51%).

Table 1 illustrates some of the family background and individual characteristics hypothetically associated with problem behaviors, including violence, in adolescence. Twenty-five percent of the sample said that they had experienced suicide ideation while on and off drugs in their lifetimes. Twenty four percent of the participants reported that the relationship with their parents was strained. Related to their family experience, 70% of the sample said that they were physically neglected as a child. The physical neglect scale revealed a mean of 2.98 for the participants. An equally high percentage of the participants also reported that their family was involved in illegal activities (73%). Over 50% also reported that they grew up in families where there were drugs in the household. School experience was also characterized by violence in that participants reported being involved in fighting during middle school sometimes (41%), often (31%) and very often (23%).

The developmental adaptation of these adolescents to this specific family dynamic and school experience in the context of the street environment is reflected in the high propensity for violent acts and feelings found in the descriptive analysis. The mean, median and mode scores of the violence risk measure PFAV were in the 17 to 18 interval ($SD = 3.79$). These scores are almost three times higher than the clinical norms set for violent psychiatric

patients (mean 6.5, SD = 5.1) and almost six times higher than those set for college students (mean 3.4, SD = 2.6). Virtually the entire sample (98%) exceeded the established clinical norms for violence risk.

Table 2 presents lifetime and current use of selected drugs including mean number of days in the past month. These gang members have exceptionally high levels of lifetime and current use of illicit drugs such as marijuana (lifetime 98%; current 75%), cocaine (lifetime 90%; current 53%) and heroin (lifetime 57%, current 26%). Recreational use of prescription drugs such as Valium, Xanax, Rohyphnol, etc, (lifetime 75%; current 28%) were also reported. Marijuana was consumed daily by the majority of the sample. The mean number of days of marijuana use in the past 30 days was 20.02, with a large standard deviation (11.35). Heroin was used an average of 12.19 days and cocaine somewhat less (7.62). Current use of noninjection heroin was reported by 25% of the sample, and 3% reported being injectors with a mean of approximately 11 days of use in the past month. Amphetamine (lifetime 29%, current 7%) and inhalant (lifetime 35%, current 4%) use was less prevalent. Although not shown, crack was also used to a lesser extent (lifetime 26%, current 6%) among this population of drug users.

Hypothesis Testing

Table 3 provides a summary overview of the hypothesis testing stage of the analysis. The hypothesis that violence risk (PFAV) will be associated with violent behavior outcome variables was not supported by the analysis. However, the hypothesis that drug use variables would moderate the relationship between violence risk and violent outcomes was partially supported. For instance, cocaine use was significantly related to the number of fights in that more days used was associated with a higher number of fights in the past three months. As well, the interaction between cocaine use and violence risk resulted in the highest number of fights compared to any other drug subgroup (5.76).² Within the cocaine users, those participants with high violence risk reported more fights than the other two groups. The high violence risk subgroup of cocaine users with 6.19 reported more fights than any other drug subgroup except for the high violence risk subgroup of heroin users (6.29). Marijuana use also had a significant effect on the number of fights in the past three months, but no interaction with violence risk was detected. The result that the days of heroin use was not significantly related to the number of fights was partially accounted for by the relatively small number of heroin users in the sample (42).

As the literature suggests, hypotheses concerning situational-level variables were more difficult to confirm than those concerning individual-level variables. The one-way analysis of variance showed no significant association among the violence risk and drug use subgroups and the intensity of the fight. However, additional analysis of the interactions within the heroin user subgroups applying the GLM procedures revealed that heroin use interacted with violence risk to moderate the intensity of the fight ($F=3.989, p < .04$). More specifically, the days of injection heroin use also interacted with the violence risk to effect the intensity of the fight ($F = 3.332, p < .039$). A significant main effect for days of injecting heroin was also found ($F = 6.263, p < .013$). These results, however, need to be interpreted cautiously because of the small number of injection heroin users in the sample. For the situational-level variable of severity, a significant association was found for the days of heroin use that also pointed to an interaction of these variables. Medium (and to a lesser degree high) violence risk subgroups who used heroin had three (to two) times as many fights as the low violence risk subgroup.

²The GLM interaction findings conducted in the second stage of the analysis (hypothesis testing) are not presented in Table 3 but available from the authors upon request.

Using GLM procedures, additional analyses were conducted on interactions with selected situational level variables for the intensity and severity of violence outcomes. For instance, the situational variable of whether the rival was high during the fight was found to strongly moderate the effect of violence risk on the severity of the fight ($F = 3.905, p < .006$). The effect was specific for the high violence risk subgroup. If these individuals encounter a rival in the fight who is high on drugs, the severity will be significantly higher than in any other condition. The GLM analysis further confirmed the hypothesis that when the participant was with others, significantly higher levels of severity ($F = 5.580, p < .020$) and intensity ($F = 4.021, p < .047$) occurred in the fight. The intensity of the fight was also significantly related to whether the fight was gang-related ($F = 4.547, p < .035$) with higher levels of intensity occurring for the gang-related fight (1.50 versus .82). The GLM procedure also revealed that the individual level variable of suicide ideation was significant. Although the variable did not significantly interact with violence risk, suicide ideation was found to be significantly associated with the severity of the fight ($F = 4.851, p < .029$) as well as with the individual level variable of the number of fights in the past three months ($F = 4.932, p < .028$).

Model Estimation

Table 4 presents the standardized Beta regression coefficients in estimating three multivariate models. These include the dependent violent outcome variables with independent variables on violence, drug use and background domains as well as certain interactions with PFAV. The results show an acceptable level of variance explained, and those variables that were significant or showed a trend. In terms of explained variance the results are comparable to published research in the field of gang studies that used larger samples and longitudinal designs (Thomberry et al. 2003).

The *Number of Fights in Past Three Months Model* accounted for 29% of the variance of this individual level dependent variable. The strongest effect in the model was found for the interaction variable of violence risk and the rival high in the last fight. If the participant was higher on the violence risk measure and his rival in the last fight was high, the participant will have reported a greater number of fights in the past three months. The relationship between whether the rival was high in the fight and the number of fights also was found to be significant, but the direction was inverse. Thus, generally speaking, if the rival was high in the last fight, the number of fights of the participant will be less except under the condition of higher violence risk when the fights will be more. Suicide ideation also was found to have a significant effect. If the participant had suicide ideation he will have less fights. The days of marijuana use had a notable trend, with the number of fights increasing with more days of marijuana use. The background variable of parental relationship also had a notable influence in the model, indicating that a strained parental relationship led to more fights.

Summarizing the model heuristically, more fighting behavior can be observed for those of higher violence risk and in whose last fight the rival was high. Absence of suicidal ideation will also increase the incidence of fighting behavior. The days of using marijuana provides a marker of increased levels of fighting, with the background developmental antecedent of a strained parental relationship indicating the beginning point of the pathway to more fights.

Situational violence outcomes (intensity and severity) are acknowledged to be more difficult to explain than the individual-level (number of fights past three months). The *Intensity of the Fight Model* was able to account for 25.7% of the variance. A significant effect was found for childhood physical neglect. The greater the physical neglect as a child, the more intense the last fight. A trend was also seen for the days of marijuana use. The intensity of the fight increases as the number of days used marijuana increases.

The *Severity of the Fight Model* was able to account for 24.6% of the variance. The only significant contribution came from the interaction of whether the rival was high and violence risk. A negative trend was also found between the rival being high and the severity of the fight. This pattern of effects was similar to what was observed in the number of fights model. Generally, the fight will be less severe if the rival is high unless the participant scores high in violence risk, making the fight more severe. The model also indicates that if the rival is drunk on alcohol the fight will be more severe.

DISCUSSION

The majority of fights resulted in minor injuries, even those with rival gang members, dispelling the view that gang fights are excessively violent. The majority of these Mexican-American gang members did report that they were high on drugs during their last fight. Related to the drug-violence nexus, pharmacologically-induced violence was one of the most frequently reported types in this analysis (Goldstein 1985). This analysis, however, goes beyond the scope of the drug-nexus framework/theory and comments on other dimensions of the fight including intensity, severity and individual characteristics of the participant and rival. Interestingly, the severity and number of fights was found to be negatively related to the rival being high. However, the inverse was found if the participant scored high on violence risk as measured by the PFAV. Consistent with other studies, the presence of alcohol increased the severity of violence relative to drug use. These results, along with other research findings that have identified relevant psychological characteristics (i.e. inadequacy, impotency, worthlessness, etc), contribute to the identification of persons highly susceptible to violence and situational variables that can affect the relationship between drugs and violence (Kaplan, Tolle & Yoshida 2001; Wurmser & Clare 1983).

The present findings are consistent with the literature that contends that family process variables are important antecedents in accounting for violent behavior among these adolescents (Sampson & Lauritsen 1994). The families in this study are characterized by intergenerational transmission of drug use and criminal activity and correspond to unconventional or *cholo* families described by other researchers (Moore 1990). Our models revealed that growing up in families in which the participant experienced physical neglect and to a lesser extent strained parental relationships were associated with violent outcomes. The inability of the family to physically provide for the child seems to contribute to the strain experienced by the participants and their parents (Agnew et al. 2002). Santisteban and his colleagues (2003) argue that this condition leads to pernicious patterns of family interactions that underlie the causes of adolescent problems. Growing up in this environment may also result in “negative social capital” that contributes to specific problem behaviors such as violence and drug use (Sampson, Morenoff & Earls 1999).

The models also demonstrate that suicide ideation affects violent outcomes in a counterintuitive manner. Previous research has found that many violent delinquent youth are simultaneously suicidal (Christoffersen, Poulsen & Nielsen 2003; Cleary 2000; Porterfeld 1952). Ironically, study participants in this research who did not consider suicide were more violent than those who did. Plutchik’s research findings that found suicide to be violence projected inward rather than outward may provide an explanation for this seemingly contradictory result (Plutchik & van Praag 1989; Plutchik, van Praag & Conte 1989). In a violence prone environment that provides numerous opportunities through its “code of the streets” ethics to engage in violence, persons with suicide ideation may be less willing to engage in this behavior (Evans et al. 1996). This may also be suggestive of a sociological mechanism that decreases the individual’s social integration with his gang peer network and subsequently results a decrease in gang violence activities (Pescosolido & Georgianna 1989). Although this Mexican-American suicide ideational subgroup may be less violent, it

is highly likely that they will have other psycho-pathological symptoms such as depression that warrant specialized attention (Roberts & Chen 1995).

The analysis in this article has been suggestive of hypotheses and causal pathways that have theoretical significance, but are limited by methodological constraints. A limitation was the small sample size that limited more advanced statistical methods such as structural equation and multilevel, hierarchical linear modeling that could have increased the power of the analysis. The choice of measurements for violence outcomes has been recognized as another persistent limitation in producing valid causal models. For example, the validity of one of the most significant measures (i.e., rival being high) was collected from the self-report of the participant rather than from the rival. While many of the results are likely to be replicated in other adolescent populations, increasing the study's generalizability, there still may be special populations of youth in which heavy drug use and violence have little relationship (Baron & Hartnagel 1998). Future research, as others have suggested, should consider collective-level variables such as gang type and gang activity and community-level variables in multilevel models (Drukker et al. 2003; Sampson, Morenoff & Earls 1999; Sampson, Raudenbusch & Earls 1997; Jencks & Peterson 1991; Jencks & Mayer 1990; Moore 1989). Finally, future research designs on Mexican-American gang member populations should be longitudinal and involve multiple cohorts in order to understand how the intergenerational process will effect the drugs-violence nexus in the long term.

CONCLUSION

Most violence research, especially with a clinical or forensic orientation, has tended to focus on individual level variables as determinants of violent behavior. This study contributes to violence studies in that it examines hypotheses and builds models to help clarify the causal connections between drugs and violence outcomes among Mexican-American gang members using both individual and situational variables. The study concludes that drug use, specifically cocaine and heroin, interacts with an individual gang member's risk for violence to affect violent behavior outcomes. Cannabis use, however, revealed a direct affect on violence outcomes independent of an individual's violence risk levels. Furthermore, an important situational variable that emerged and needs to be considered in future research is whether rivals involved in the incident are using drugs at intoxicating levels. This is especially important in cases where the respondent is classified as having higher violence risk as measured by the PFAV. While drugs therefore can be said to have an influence on violence, the study also concludes that they cannot be viewed in isolation. The results of this study support the theory that drug use and violence in this specific adolescent population are part and parcel of a "package" of adolescent risk behaviors and social influences (Jessor 1993; Donovan 1991; Jessor, Donovan & Costa 1991). It needs to be noted that findings from this research are specific to a population of polydrug users who primarily consume marijuana, cocaine and heroin. Future research should examine the drugs-violence nexus among other distinct populations who use such emerging drugs as Ecstasy and methamphetamine. Furthermore, the study has contributed methodologically in that it used both qualitative and quantitative data to develop measures.

Finally, the analysis presented here suggests the need for police, judges and other policy makers to understand the relationship between the use of illegal drugs and violence. It is clear that this relationship is not as straightforward as has been assumed in the past. That is, individual and situational variables need to be taken into consideration together with drug use to explain violent outcomes, especially for poor youth in this social context. Despite the contributions of this article in addressing issues of violence among this minority adolescent population, future research should not ignore the important effects of larger societal factors on violence, such as the deleterious influence of inner city neighborhoods (Sampson,

Raudenbush & Earls 1997), Thus, changes in policy would shift the emphasis away from incarceration to more family therapy, suicide prevention and other mental health services for this adolescent gang population.

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TABLE 1

Percentage Distribution (N of Cases) and Means (Standard Deviation) of Situational and Background Variables

Variables	Percentage (n)	Mean (SD)
Situational		
Fight cause		
Systemic	3(4)	
Economic-compulsive	3(5)	
Pharmacological*		
Participant high	37 (56)	
Rival high	44 (40)	
Woman	10(16)	
Gang related	61 (96)	
Intensity Scale		
Severity Scale		1.33 (2.12)
Relationship with other		2.13 (2.11)
Rival	58 (92)	
Stranger	13 (20)	
Social network	29 (46)	
Other third parties involved		
Alone	48 (76)	
Others	52 (82)	
Individual initiating the fight		
Participant	54 (85)	
Other	46 (72)	
Location		
Neighborhood	51(81)	
School	13(21)	
Outside neighborhood	23 (37)	
Number of fights in the past three months		5.02 (5.90)
Background		
Suicide ideation	25 (40)	
Relationship with parents strained	24 (39)	
Family drug use in the household	51 (82)	
Physical neglect		2.98(1.66)
Family involved in illegal activities	73(117)	
Frequent fighting in middle school		2.70 (0.88)
PFAV Total Score		17.4 (3.79)
Low	33 (53)	
Medium	31 (50)	
High	36 (57)	

* Total percentages are calculated using a total sample of 91 and 152 for rival and participant high, respectively. The total sample of 160 was not used given the presence of missing cases for each of the two variables.

TABLE 2

Percentage Distribution of Current and Lifetime Illicit Drug Use (% and Mean Days) of Mexican American Gang Members

Illicit drug use	Lifetime	Current	Mean (SD)
Marijuana	98 (156)	75 (120)	20.02 (11.35)
Cocaine	90 (144)	53 (85)	7.62 (7.73)
Amphetamines	29 (46)	7 (11)	1.91 (1.38)
Heroin	57 (91)	26 (42)	12.19 (11.16)
Noninjecting		25 (40)	11.40 (10.87)
Injecting *		3 (5)	11.60 (14.62)
Heroin and cocaine mixed	44 (71)	14 (23)	6.09 (8.42)
Prescription drugs	74 (119)	28 (45)	3.76 (4.50)
Inhalants	35 (56)	4(6)	2.00(1.10)

* Three people used heroin by injection and noninjection methods

Mean Number of Fights in the Last Three Months, Mean Intensity Score of Last Fight, and Mean Severity Score of Last Fight by Violence Risk and Illicit Drug Use Among Mexican American Gang Members (Standard Deviation)

TABLE 3

Illicit Drug Use	Number of Fights PFAV					Intensity of Fight PFAV					Severity of Fight PFAV				
	Low	Medium	High	Total	N	Low	Medium	High	Total	N	Low	Medium	High	Total	N
No Drug Use	2.70 (2.91)	2.17 (2.70)	4.86 (6.91)	3.22+ (4.41)	23	2.11 (2.71)	2.83 (2.56)	1.86 (1.95)	2.23 (2.37)	22 [‡]	2.44 (3.21)	3.17 (3.06)	2.00 (2.31)	2.50 (2.81)	22 [‡]
Marijuana	5.22 (5.25)	5.51 (5.32)	5.24 (4.91)	5.32* (5.10)	120	1.76 (1.78)	1.82 (1.45)	1.89 (1.63)	1.83 (1.61)	113 [‡]	1.94 (2.13)	2.03 (1.82)	2.09 (1.10)	2.03 (2.10)	117
Heroin	4.46 (4.43)	4.58 (4.30)	6.29 (5.90)	5.24 (5.03)	42	.923 (.756)	2.67 (2.18)	1.94 (1.57)	1.76 (1.63)	38	0.92 (0.76)	3.11 (2.67)	2.06 (1.88)	1.92* (1.96)	40 [‡]
Cocaine	5.04 (5.29)	5.91 (5.22)	6.19 (5.33)	5.76** (5.24)	86	1.73 (1.64)	1.96 (1.67)	2.00 (1.60)	1.91 (1.62)	77 [‡]	1.91 (1.10)	2.24 (2.09)	2.23 (1.10)	2.14 (2.01)	84
N	53	50	57	4.80 (6.83)	160	48	46	55	1.92 (1.73)	149	50	49	57	1.32 (2.21)	156

 $p \leq .00$.

**
 $p \leq .01$.

*
 $p \leq .05$.

+
 $p \leq .15$

[‡]The Kruskal-Wallis test.

TABLE 4

Standardized Beta Coefficients of Number of Fights in the Past Three Months, Fight Intensity and Fight Severity Multiple Regression Models of Mexican American Gang Members

Variable	Standardized Beta Coefficients		
	Number Fights Past 3 Months	Intensity of Fight	Severity of Fight
Violence			
Violence risk (PFAV)	.031	.146	-.719
Gang-related fight	-.009	.135	.111
Rival high on drugs during the fight	-1.654*	-.103	-1.578 ⁺⁺⁺
Rival on alcohol during the fight	.520	.683	.926 ⁺⁺
Involved in fights in middle school	.391	-.350	-.439
Drug use			
Marijuana days used	.200 ⁺⁺⁺	.213 ⁺⁺⁺	.021
Cocaine days used	-.216	-.159	.441
Non-injection heroin days used	-.150	.027	.078
Injection heroin days used	.094	-.189	-.152
Background			
Suicide ideation	-.285*	.107	-.102
Parent relationship	.192 ⁺⁺⁺	-.074	-.087
Growing up with drugs	-.018	-.046	.132
Physical neglect	.008	.263*	-.090
Family involved with illegal activities	-.288	.833	-.054
Interaction			
PFAV × Days Used Cocaine	.382	.360	-.272
PFAV × Rival High during Fight	1.816*	.022	1.742*
PFAV × Rival on Alcohol during Fight	-.342	-.644	-.922
PFAV × Freq Fighting in Middle School	-.266	.242	.687
PFAV × Family Involved Illegal Activities	.110	-.892	-.154
R Square	.290	.257	.246

* $p < .05$

⁺⁺⁺ $p < .20$

⁺⁺ $p < .15$

⁺ $p < .20$