

ALCOHOL, DRUGS, AND VIOLENCE

Robert Nash Parker and Kathleen Auerhahn

Presley Center for Crime and Justice Studies, and Department of Sociology,
University of California, Riverside, California 92521; e-mail: robnp@aol.com,
auerhahn@wizard.ucr.edu

KEY WORDS: selective disinhibition, intoxication and aggression, tripartite framework,
alcohol availability, psychopharmacological, economic compulsive, systemic

ABSTRACT

A review of the scientific literature on the relationship between alcohol and violence and that between drugs and violence is presented. A review and analysis of three major theoretical approaches to understanding these relationships are also presented. A number of conclusions are reached on the basis of these efforts. First, despite a number of published statements to the contrary, we find no significant evidence suggesting that drug use is associated with violence. Second, there is substantial evidence to suggest that alcohol use is significantly associated with violence of all kinds. Third, recent theoretical efforts reviewed here have, despite shortcomings, led to significant new understanding of how and why alcohol and drugs are related to violence. Fourth, these theoretical models and a growing number of empirical studies demonstrate the importance of social context for understanding violence and the ways in which alcohol and drugs are related to violence. Fifth, the shortcomings of these theoretical models and the lack of definitive empirical tests of these perspectives point to the major directions where future research on the relationship between alcohol and violence, and between drugs and violence, is needed.

INTRODUCTION

That the United States leads the industrialized nations in rates of interpersonal violence is a well-documented fact (National Research Council 1993). Examples of this can be seen in the extraordinarily high rates of violent crimes such

as homicide, robbery, and rape in the United States (National Research Council 1993, Parker & Rebhun 1995); an additional and disturbing fact that has come to light in recent years is the increasing rate of youth violence, particularly lethal violence (Blumstein 1995; Alaniz et al 1998).

During the last decade, interest has grown in the relationship between alcohol, drugs, and violence. In addition to the mostly misguided attention in mass media and in political circles to the relationship between illegal drugs and violence, a number of empirical studies have attempted to disentangle the associations between alcohol, drugs, and violence. Several studies have attempted to organize this knowledge into a comprehensive theoretical framework. This chapter synthesizes this body of work to assess the state of the art in thinking about the relationships between psychoactive substances and violent behavior.

Defining and understanding the complex relationships among alcohol, drugs, and violence require that we examine issues of pharmacology, settings, and larger social contexts to understand the mechanisms that associate substance use and violence in individuals. In addition to this, we must also consider not only the ways in which individuals are nested within larger social contexts, but also the ways in which these contexts themselves may create conditions in which violent behavior takes place, for example, the ways in which availability of substances, while itself conditioned to some degree by larger social forces, contributes to the spatial distribution of crime and violence.

We do not attempt to review the growing literature on the biological aspects of violence. Despite increased interest in this area of research, no credible scientific evidence currently exists that demonstrates any significant link between biological characteristics and violence (National Research Council 1993). Future research may reveal complex interactions among biological, pharmacological, psychological, and contextual aspects of alcohol- and drug-related violence, but no conclusive evidence exists to support this idea at present.

In addition to trying to understand the ways in which alcohol and drug use may contribute to violent behavior, it is also important to consider the ways that alcohol and other drugs relate to human behavior in general. Some advances have been made in the study of psychological expectancies concerning alcohol's effect on behavior (Brown 1993, Grube et al 1994), the relationship between alcohol and cognitive functioning (Pihl et al 1993), the impact of alcohol on aggressive behavior (Leonard & Taylor 1983), and the dynamic developmental effects of early exposure to alcohol and violence among young people (White et al 1993) and among women who have been victimized as children and as adults (Miller & Downs 1993, Widom & Ames 1994, Roesler & Dafler 1993).

Similar work has attempted to understand the links between illicit drugs and behavior, although due to the attention focused on the illegality of these substances, this body of work tends to be most concerned with illegal behaviors

that might be associated with drugs. Examples from this literature include examinations of the links between drug use and delinquent behavior among juveniles (Watts & Wright 1990, Fagan 1993, Fagan et al 1990); relationships between substance use and domestic violence (Bennett 1995, Bennett et al 1994, Roberts 1987, Blount et al 1994); the ways in which the use and distribution of illicit drugs are related to all types of crime, particularly nonviolent property offenses (Ball et al 1982, Ball 1991, Baumer 1994, Greenberg 1976, Johnson et al 1994, Klein & Maxson 1985, McCoy et al 1995, Meiczkowski 1994, Feucht & Kyle 1996); and the impact of drug use on the ability to maintain interpersonal relationships (Joe 1996, Fishbein 1996, Lerner & Burns 1978).

A fairly common problem specific to theoretical and empirical investigations of the relationship between drugs and violence is the tendency—largely ideological—to lump all illicit drugs together, as if all drugs might be expected to have the same relationship to violent behavior. Different drugs certainly do have different pharmacological effects, which may or may not influence the user's tendency toward violence; this should be treated as a prominent empirical question, rather than as an afterthought usually addressed only when results are disaggregated by drug type. Another problem specific to the analysis of the impacts of illicit drugs on behavior that hinders our understanding of the relationship between drugs and violence in real-world (as opposed to laboratory) settings was cogently pointed out by one researcher—that the degree of both impurity and deception in the illicit drug market “makes any direct inferences between drug-taking and behavior seem almost ludicrous” (Greenberg 1976, p. 119; see also Johnson 1978). Evidence of the greater likelihood of polydrug use among more violent research subjects also confuses any causal inferences that can be made with respect to particular drugs (e.g. Spunt et al 1995, Inciardi & Pottieger 1994).

DRUGS, ALCOHOL, AND VIOLENCE AT THE INDIVIDUAL LEVEL

A rather fragmented research literature attempts to identify links between alcohol, drugs, and violence at the individual or pharmacological level. This work is discussed briefly below, mainly as a prelude to theoretical models developed in light of these empirical findings.

Evidence of an individual level association between alcohol and violence is widespread. For example, Collins (1981) reviewed a number of studies in which alcohol and violence were associated among individuals. Experimental studies have also shown a consistent relationship at the individual level between alcohol use and aggressive behavior, especially in the presence of social cues that would normally elicit an aggressive response; the consumption of alcohol increases the aggressiveness of this response (Taylor 1983, Gantner &

Taylor 1992, Pihl et al 1993). Roizen (1993, pp. 4–5) reports that in nearly 40 studies of violent offenders, and an equal number of studies of victims of violence, alcohol involvement was found in about 50% of the events and people examined. Although most individual-level studies assume that alcohol has a potentially causal role, an argument supported by the experimental studies cited here, some have argued variously that the relationship is spurious (Collins 1989), that both are caused by third factors (Jessor & Jessor 1977), or that aggression and violence precede alcohol and drug abuse (White et al 1987).

In general, little evidence suggests that illicit drugs are uniquely associated with the occurrence of violent crime. While respondents of the 1991 National Criminal Victimization Survey perceived more than one fourth of violent criminal assailants to be under the influence of alcohol, less than 10% of these assailants were reported by victims to be under the influence of illicit drugs. Of these, more than half were reported to be under the influence of both alcohol and drugs (Bureau of Justice Statistics 1992a). These percentages are supported by urinalysis data for persons arrested for violent offenses, which yield the finding that in 1990, only 5.6% of violent offenders were under the influence of illicit drugs at the time of their offense (US Bureau of Justice Statistics 1992b).

Studies of the drug and alcohol involvement of homicide offenders and victims also support the notion that alcohol is, overwhelmingly, the substance most frequently implicated in this particular form of violence (Abel 1987, Spunt et al 1994, 1995, Wieczorek et al 1990, Yarvis 1994, Fendrich et al 1995, Goldstein et al 1992). Interview studies with homicide offenders as well as toxicology studies of homicide victims consistently report that approximately half of all homicide offenders are intoxicated on drugs or alcohol at the time of the crime; similar percentages of homicide victims test positive for substance use as well (Abel 1987, Langevin et al 1982, Ray & Simons 1987, Fendrich et al 1995, Spunt et al 1994, 1995, Wieczorek et al 1990, Kratcoski 1990, Welte & Abel 1989, Garriott 1993, Tardiff et al 1995). Some evidence suggests that alcohol is the substance most frequently implicated in other violent events as well (Buss et al 1995, US Bureau of Justice Statistics 1992a).¹

¹Difficulties inherent in trying to assess the involvement of alcohol relative to other drugs in violent events are largely the result of the way in which the research agenda surrounding the relationship between drugs, alcohol, and violence has been constructed. The majority of data collection efforts seem to be focused either on one particular substance (e.g. cocaine) and its relationship to or involvement in violent episodes or on comparisons between alcohol and illicit drugs in general, thereby hindering comparisons not only between alcohol and other drugs, but between different illicit drugs as well. A recent example is the National Institute of Justice report entitled *Drugs, Alcohol, and Domestic Violence in Memphis* (1997), which details research conducted to determine the role of substance use in incidents of domestic violence. At no point in the report are alcohol and drug use separated into distinct phenomena, making it impossible to determine what substances may be associated with domestic violence.

A shortcoming common to much of the work that has attempted to disentangle the individual-level relationships between drugs, alcohol, and violence is that many researchers fail to make a theoretical and/or empirical distinction between different types of drugs. For this reason, a short review of the literature concerning the links between violence and specific types of illicit drugs is presented below in the hope that some general conclusions can be drawn about the nature and magnitude of the relationship between illicit drugs and violence.

Heroin

Evidence to support a link between heroin and violence is virtually nonexistent. While there is some evidence that heroin users participate in economically motivated property crimes (see Kaplan 1983, pp. 51–58 for a thoughtful and critical discussion of this issue), the work of Ball and his colleagues (Ball et al 1982, Ball 1991) fails to uncover persuasive evidence for a link between heroin use and violent crime. Although no specific measures for violent crime are reported in the analysis of self-reported criminality (validated by official records) from a sample of 243 heroin addicts in Baltimore, only 3% of the sample reported committing, on a daily basis, any crime other than theft; the figures for the weekly and “infrequent” commission of crimes other than theft are 3% and 9%, respectively (Ball et al 1982). A later, more comprehensive analysis undertaken to determine whether or not “common forces attributable to heroin addiction are of primary etiological importance with respect to crime” (Ball 1991, p. 413) compares addict samples from three major Eastern cities. Echoing the results of the 1982 study, involvement in violent crime was negligible, accounting for between 1.5% and 5.6% of all addict criminality across cities (Ball 1991, p. 419).

Amphetamines

Considerable investigation has been made into a possible pharmacological link between amphetamines and violence. Some evidence indicates that in rare cases, either sustained periods of heavy use or extremely high acute doses can induce what has variously been called “toxic psychosis” or “amphetamine-induced psychosis,” a reaction that is virtually indistinguishable from schizophrenia (Ellinwood 1971, Fukushima 1994). Aside from these extremely rare cases, some evidence may speak to a link between violent behavior and amphetamine use in ethnographic samples (Joe 1996) and in case-study research (Ellinwood 1971). One researcher notes, however, that this link may result from situational influences: “several...subjects seem to have lost intellectual awareness because they lived alone and had little chance to cross-check their delusional thinking. A long-term solitary lifestyle seems particularly significant in fostering this effect” (Ellinwood 1971, p. 1173).

The importance of context and situation for the association between amphetamine use and violent behavior is supported by animal studies as well; Miczek & Tidey (1989) report that the social relationship between experimental animals significantly influences the level and type of violent behavior that they manifest when on amphetamines (Miczek & Tidey 1989, p. 75). Additionally, the baseline rate of violent or aggressive behavior prior to amphetamine administration was an important predictor of violent behavior after drug administration. The authors conclude from this review of animal studies that:

Among the most important determinants of amphetamine effects on aggressive and defensive responses are the stimulus situation, species, prior experience with these types of behavior, and...dosage and chronicity of drug exposure. (Miczek & Tidey 1989, p. 71)

Cocaine

Some evidence suggests that cocaine use and violent behavior may be associated (Miller et al 1991, Budd 1989, Inciardi & Pottieger 1994); one of the most widely reported pharmacological effects of cocaine in users is feelings of paranoia (Goode 1993, Miller et al 1991). At least one group of researchers suggest that cocaine-associated violence "may in part be a defensive reaction to irrational fear" (Miller et al 1991, p. 1084).

The route of administration may influence the likelihood of violent behavior in users, with methods delivering the most intense and immediate effects being most closely associated with some forms of violent behavior. Users who smoked the drug in the form of "crack" were most likely to engage in violence proximate to cocaine use, followed by users taking the drug intravenously. Users who "snorted" the drug were found to be least likely to engage in violence (Giannini et al 1993).² However, these researchers also reported that forms of violence "requiring sustained activity" (defined by the authors to include such acts as rape and robbery) were not associated with route of administration of cocaine. Because of this, the authors conclude that "circumstance and situation may be as important as route of administration" (Giannini et al 1993, p. 69).

The greater influence of social rather than pharmacological factors on the cocaine-violence relationship has also been reported elsewhere. Goldstein et al (1991) found that the relationship of violence to volume of cocaine use varied according to gender, with only male "big users" of cocaine contributing disproportionately to the distribution of violent events reported by the sample as a

²Miller et al (1991) failed to find any such relationship between route of administration and violence; however, the authors point out that this lack of finding may be explained by the use of a treatment sample of users who were likely using cocaine in such high dosage and frequency as to blur any distinction between acute toxicity effects specific to route of administration (Miller et al 1991, p. 1084).

whole (Goldstein et al 1991, p. 354). Additional evidence for the importance of context can be found in ethnographic research, which reports that a great deal of violent behavior experienced by crack-using women arises as a result of their involvement in prostitution, which is related circumstantially, although not pharmacologically, to their drug use (Mieczkowski 1994, Johnson et al 1994).

An issue of research design has emerged in the extensive literature surrounding cocaine use and violence. Chitwood & Morningstar (1985) report systematic differences between samples of cocaine users in and out of treatment programs, with samples from those in treatment characterized by greater cocaine use in both frequency and volume. This difference has been reported elsewhere (e.g. Miller et al 1991); Inciardi & Pottieger (1994) also report that a comparison of cocaine users in treatment to users not in treatment reveals that treatment users were substantially more likely to be polydrug users and to engage in violence. These findings are important in that the type of sample used may, at least in the case of cocaine, greatly influence the findings about a drug-violence association.

Phencyclidine

Phencyclidine (PCP) is widely believed to be associated with violence; this conclusion is based almost exclusively on case study research, often of individuals with psychiatric disturbances (e.g. Lerner & Burns 1978, McCarron et al 1981). Ketamine, a drug pharmacologically quite similar to PCP, has enjoyed increasing popularity in recent years (Dotson et al 1995). PCP and Ketamine are classified as “dissociative anaesthetics” because they diminish awareness not only of pain but also of the environment in general. Delusions, paranoia, and (in rare cases) psychosis are among the most commonly reported effects of these drugs by users and clinicians (Marwah & Pitts 1986, Lerner & Burns 1978, McCarron 1986, Dotson et al 1995). However, one researcher concludes that “emotionally stable people under the influence of PCP probably will not act in a way very different from their normal behavior” (Siegel 1978, p. 285).

Official crime statistics fail to show conclusive evidence for a unique link between PCP use and violent crime; arrestees who were not under the influence of illicit drugs (according to urinalysis) were more likely to be charged with assault than were persons testing positive for PCP (Wish 1986). Among PCP-positive arrestees, the conditional distribution of offenses is influenced toward a greater likelihood of robbery charges, but Wish (1986) notes that this may be an artifact of demographic coincidence; PCP users tend to be younger than the average user of illicit drugs and thus coincide with the age group that dominates robbery arrests (Wish 1986, Maguire et al 1993).

Summary

This review of the evidence concerning the relationship between the use of various illicit drugs and violence makes it clear that support for such linkages is absent. At best, we can characterize the available results as inconclusive. The strongest evidence is for a link between cocaine use and violence; however, the conclusions of researchers whose findings support this idea universally highlight a social rather than a pharmacological basis for this link. At present, no compelling evidence exists to support an association between violence and amphetamines, Phencyclidine/Ketamine, or heroin. While there is some evidence that some of these drugs may induce psychosis, this reaction is exceedingly rare; virtually all research on this phenomenon consists of case studies, making it impossible to even estimate the frequency of such reactions in the population.

The most extensive research literature concerning drugs and violence is that of investigations of the relationship between cocaine use and violence. A search through *Sociological Abstracts* reveals that this literature has grown concurrently with concern about, if not use of, cocaine (see White House Office of National Drug Control Policy 1997 for use statistics). Between 1970 and 1980, only four articles with "cocaine" or "crack" in the title are indexed, while between 1980 and 1990 there are approximately 75; in the 1990s, this figure is at nearly 200 before the decade's end. However, even in the face of this profusion of research interest, we are still unable to say with any certainty that cocaine use and violent behavior are related. In part this may be attributable to the limitations inherent in ideologically driven research (e.g. Inciardi & Pottieger 1994); it may also indicate that such a link really does not exist, and that any amount of looking will continue to fail to uncover it. At this point in the state of our knowledge, it is clear that we must look beyond the level of the individual user in order to adequately understand and characterize the relationship (if any) between illicit drugs and violence.

THEORETICAL APPROACHES

We have identified four recent attempts to specify and/or explain the linkages among drugs, alcohol, and violence that are worthy of discussion, either for the fact of their prominence in the research literature or for the promise of greater understanding that they afford. Three of these four approaches have associated with them at least some empirical tests of the theories; these are discussed along with the explication of the theories. Each is discussed in turn, with attention then passing to the commonalities between these theories, to determine whether a useful synthesis can be made.

Fagan's Approach: Intoxication, Aggression, and the Functionality of Violence

Jeffrey Fagan has produced several attempts to formulate a comprehensive theory of the relationship between the use of psychoactive substances, violence, and aggression (Fagan 1990, 1993, Fagan et al 1990). In addition, he has also been part of a joint effort to further our understanding of youth violence in general (Fagan & Wilkinson 1998); this work is discussed here briefly vis-à-vis its complementarity with Fagan's formulations of the relationship of alcohol, drugs, and violence.

Above all, Fagan and his colleagues argue for the use of hierarchical or "nested contexts" models if we are to gain any understanding of the etiology of violence in general and of the relationships between substance use and violence (Fagan 1993, 1990). In his most recent work Fagan has argued for a "situated transactions" framework as the most promising way to understand youth violence (Luckenbill 1977).

In assessing the relationships between alcohol, drugs, and violence, Fagan (1990) has reviewed research and theoretical arguments from biological and physiological research, psychopharmacological studies, psychological and psychiatric approaches, and social and cultural perspectives in an attempt to present a comprehensive model of this relationship. He argues that the most important areas of consensus from these different perspectives are that intoxication has a significant impact on cognitive abilities and functioning, and that the nature of this impact varies according to the substance used but is, in the last instance, moderated by the context in which behavior takes place. For example, social and cultural meanings of how people function under the influence of alcohol, understandings about the impact of intoxication on judgment, the ability to perceive social cues, and the ability to focus on long- as well as short-term outcomes and desires are all extremely important factors in determining the outcome of a social situation in which drugs or alcohol are present and whether that situation will result in violence. The nature of the setting in which interaction takes place and the absence or presence of formal and informal means of social control are also important factors whereby intoxication influences aggression. Fagan also posits that intoxicated individuals tend to have limited response sets in situations of social interaction (1990, pp. 299–300); Fagan & Wilkinson (1998) extend this view to a general analysis of the etiology of youth violence.

To date, no empirical tests of this model exist. Fagan's approach leads to a very general theoretical model that would require substantial revision to permit empirical testing. For example, the outcome measure, aggression, is hardly the same thing as violence, although there is certainly some relationship between these concepts. Further theoretical explanation is needed to establish the

transition from aggression to violence, as well as the linkages between the antecedents of aggression and aggression itself.

Fagan & Wilkinson propose a general model of youth violence that is relevant to this discussion. They propose that youth violence is “a functional, purposive behavior that serves definable goals within specific social contexts” (Fagan & Wilkinson 1998, p. 2). Fagan & Wilkinson argue that one of the most important benefits that accrue to youth from the use of violence is the attainment of status, something to which youths have limited access. The social world in which adolescents operate places an increasingly high premium on status and reputation; broader contextual influences such as technology (in the form of weapons) are important in “raising the stakes” of potentially violent situations, which may change the meanings attributed to different behaviors (Fagan & Wilkinson 1998). Another factor that may influence the meanings attributed to the actions of others is the consumption of drugs or alcohol, due to the behavioral expectancies that may be associated with them. These potentially violence-producing combinations in meaning-assignment may be particularly significant when considered in the context of the cognitive limitations of the developmental stage of adolescence (Leigh 1987). Dating violence may be a particularly relevant phenomenon to examine within this framework, given the highly charged adolescent expectancies surrounding alcohol consumption and sexuality (George et al 1988, Corcoran & Thomas 1991) as well as the heightened importance of sexuality to status attainment at this developmental stage (Fagan & Wilkinson 1998).

Selective Disinhibition: Parker's Approach

Parker (1993) and Parker & Rebhun (1995) attempt to specifically link alcohol and violence in an overall conceptual model, utilizing rates of homicide as the indicator of violent behavior. Parker & Rebhun (1995) advance a sociological approach to the relationship between alcohol and violence that is much different from earlier, biologically based formulations of this relationship (see Room & Collins 1983 for a review of that literature and the widespread criticisms applied to this notion). In these earlier conceptualizations, alcohol was conceived as a biochemical agent that had a universal effect on social behavior, despite substantial evidence from cross-cultural studies that alcohol has a differential impact on behavior depending on the social and cultural contexts in which it is consumed (see Marshall 1979 for a number of examples of this point).

Noting this limitation of previous formulations, Parker & Rebhun (1995) advance a social disinhibition approach, which tries to explain why normatively proscribed behavior is “disinhibited” in relatively few cases. Alcohol selectively disinhibits violence depending on contextual factors specific to the situation, the actors involved and their relationships to one another, and the im-

pect of bystanders. In US society, norms about the appropriateness of violence in solving interpersonal disputes argue both for and against such behavior (Parker 1993). The theory proposes that individuals are constrained from engaging in certain behaviors in a social situation by the norms that they have internalized; however, people do violate norms and may have conflicting sets of norms to draw on in some situations. It is possible that norms that have the least institutional support are more likely to be disinhibited in a situation, all else being equal (Parker 1993, p. 118).

To explain how choices are made between these conflicting normative structures, Parker & Rebhun (1995, p. 34–35) introduce the tandem concepts of active and passive constraint. In potentially violent situations, it takes active constraint—a proactive and conscious decision not to use violence to “solve” the dispute—to preclude violence. In some of these cases, alcohol may disinhibit norms that usually prevent or constrain individuals from engaging in violent behavior. Thus, the selective nature of alcohol-related homicide is dependent upon the interaction of an impaired rationality and the nature of the social situation. The nature of the social situation, or the context in which behavior takes place, is of paramount importance in determining the outcome of a potentially violent situation. This is indicated by the fact that most alcohol-involved interpersonal disputes do not result in violence and homicide, but a few of these situations do (Parker & Rebhun 1995; see also Wilbanks 1984).

Parker & Rebhun (1995) further refined and specified their theoretical model of the ways in which alcohol consumption and homicide rates might be related at the aggregate level by incorporating into the model control variables suggested by previous literature on the etiology of homicide, such as subcultural theories (e.g. Wolfgang & Ferracuti 1976), social bonds theory (e.g. Hirschi 1969, Krohn 1991), deterrence theory, routine activities (Cohen & Felson 1979), and, taking a cue from strain and social disorganization theories (e.g. Merton 1949, also Wilson 1987), controls for economic inequality and poverty rates.

A test of this particular specification of the theory was reported by Parker (1995). Cross-sectional analysis of state-level data was undertaken for five different types of homicide, differentiated by circumstances of crime and/or victim-offender relationship (e.g. robbery homicide, family homicide). Alcohol consumption was a significant predictor of family intimate and primary nonintimate homicide, or those homicides involving the closest interpersonal relationships. These results suggest that norms prohibiting violence in resolving interpersonal disputes in close or intimate relationships may be weaker than such norms prescribed in other interactions; alcohol consumption would appear to contribute to the “selective disinhibition” of an already weak normative apparatus. Parker (1995, p. 27) also reported that the impact of poverty on robbery and other felony homicides was stronger in states with above average

rates of alcohol consumption; the deterrent effect of capital punishment on homicide rates was strongest in states that had below average rates of alcohol consumption, providing further support for the importance of the interplay between alcohol consumption and contextual and social situational factors in the disinhibition of active constraint.

Parker & Rebhun (1995) also report the results of two tests of this approach that utilize longitudinal research designs. The first, using city-level data, yielded evidence that increases in alcohol availability help to explain why homicide nearly tripled in these cities between 1960 and 1980. This study also found some evidence for mediating effects of poverty, routine activities, and a lack of social bonds on the relationship between homicide and alcohol availability at the city level.

In an examination of the general hypothesis that alcohol has a causal impact on homicide, Parker & Rebhun (1995, p. 102–17) conducted a dynamic test of the impact of increases in the minimum drinking age on youth homicide at the state level. Using data from 1976 through 1983, Parker & Rebhun (1995) estimated a pooled cross-section and time series model in which two general types of homicide, primary and nonprimary (based on the prior relationship between victim and offender), in three age categories (15–18, 19–20, and 21–24) were analyzed. In the presence of a number of important predictors, the rate of beer consumption was found to be a significant predictor of homicide rates in five of the six age-homicide type combinations, and increases in the minimum drinking age had a negative and significant impact on primary homicides in all age categories.

Violence Across Time and Space: The Cultural Consequences of Availability

In another theoretical formulation that attempts to explain the links between alcohol availability and violence, Maria Luisa Alaniz, Robert Nash Parker, and others (1998, 1999) propose some mechanisms by which the spatial distribution of alcohol outlets and the targeted advertising of alcohol to particular communities—in both the spatial and demographic sense—may mediate this relationship.

The work of Alaniz et al (1998, 1999) focuses on the relationship of youth violence to alcohol availability. Given the recent increases in youth violence, including the increasing proportional contribution to overall rates of lethal violence (Blumstein 1995), this appears to be a very fruitful line of research to pursue, if one of the ultimate goals of such research is the prevention and reduction of the incidence of violence. Additionally, these authors propose that due to the differences in cultural and legal status for alcohol and drugs (even taking into account the illegality of alcohol to minors), the relationship be-

tween illicit drugs and violence is more likely to stem from properties of the illicit distribution system (see Goldstein 1985), while the relationship between alcohol and violence would be expected to be more related to ingestion of the substance, whether due to the effects of pharmacology, cultural expectancies surrounding alcohol's use, or both (Parker 1995, Alaniz et al 1998).

The authors propose two pathways by which alcohol availability may be related to youth violence. The first of these is largely grounded in Parker & Rebhun's (1995) selective disinhibition approach, in specifying the ways in which norms proscribing violence may be overcome (disinhibited) given the particular characteristics of a social situation, including the presence of alcohol. The second considers the distribution of alcohol outlets in physical space and the ways in which this distribution may produce "great attractors" (Alaniz et al 1998, p. 14), areas where social controls of all kind are diminished, if not completely absent; such areas have also been conceptualized as "hot spots" (Sherman et al 1989, Roncek & Maier 1991) and "deviance service centers" (Clairmont & Magill 1974). Alaniz et al theorize that in this kind of "anything-goes" atmosphere (1998, p. 15), active constraint may be more likely to become disabled. Add to this the kinds of circumstances in which youths usually drink; due to the illegal status of alcohol for minors, youths must usually consume alcohol in "semi-private" spaces, such as cars or deserted public parks, "thus [further] limiting the effectiveness of most external forms of social control" (Alaniz et al 1998, p. 13)

Alaniz et al (1999) also highlight the role of advertising in helping to articulate the link between outlet density and youth violence that is particularly relevant in minority communities, which bear a disproportionate share of all types of violence, including youth violence. This aspect of the theory is further explicated by Alaniz & Wilkes (1995), who undertook a semiotic analysis of alcohol advertising targeted at Latino communities. The authors argue that such attempts to target minority communities are very effective because, for minority groups in the United States,

...the state exhibits indifference or hostility to claims of citizenship; the market openly embraces the same people...components of Latino cultural armature are appropriated by advertisers, reinvented, and returned...[.] this form of reinvention constructs a symbolic system that builds alcohol consumption into an idealized lifeworld of its constituents. (Alaniz & Wilkes 1995, p. 433)

While this process of transforming cultural symbols into the commodity form is relevant for all sorts of products and services, it is especially relevant in the case of alcohol, given the highly charged nature of cultural expectancies surrounding its use (Brown et al 1987). In support of this thesis, Alaniz et al (1999) found that the density of alcohol advertising using sexist and demean-

ing images of minority women was associated, at the neighborhood level, with rates of sexual violence against females aged 12–18.

The importance of context and the cultural effects of advertising on youths is demonstrated particularly well by the findings of researchers who initially set out to study links between illicit drugs and delinquency among Latino youth populations; these researchers found that tobacco use was significantly related to violent delinquency, while the use of alcohol and illicit drugs was not found to be so related. The authors explain this finding thus:

Youngsters who use tobacco act out tobacco-associated identities available in the media and popular culture. They express a range of symbols about themselves that suggest being independent, adult, adventuresome, and tough. These values are also associated with drug use and violent delinquency. (Watts & Wright 1990, p. 152)³

Goldstein's Tripartite Framework

In 1985, Paul J Goldstein made an explicit attempt to develop a theoretical framework to describe and explain the relationship between drugs and violence. Goldstein developed a typology of three ways in which drug use and drug trafficking may be causally related to violence.

“Psychopharmacological violence” is violence that stems from properties of the drug itself. In Goldstein’s framework, this can be violence associated with drug ingestion by the victim, the perpetrator, or both. “Economic compulsive violence” is violence associated with the high costs of illicit drug use. This type of violence does not stem directly from the physiological effects of drugs but is motivated by the need or desire to obtain drugs. Based on the capacity to induce physical dependency, the drugs one would expect to be most often associated with economic compulsive violence would be opiates (particularly heroin) and cocaine, due to the capacity of these to produce strong physical and psychological dependencies in users. “Systemic violence” is defined by Goldstein as that type of violence associated with “traditionally aggressive patterns of interaction within the system of drug distribution and use” (Goldstein 1985, p. 497). Goldstein maintains that the risks of violence are greater to those involved in distribution than to those who are only users (Goldstein et al 1989).

In the years since Goldstein’s original formulation, a fairly large number of empirical studies have been undertaken using this framework. Nearly all of them have been produced by researchers associated with Narcotic and Drug Research, Inc. as part of one of two major research initiatives; these are the

³It should be pointed out that the majority of the variance in violent delinquency is explained by prior incarceration; however, tobacco use also emerges as a significant, albeit weaker, predictor of violent delinquency, thus highlighting the importance of social context in the links between substance use and violent behavior.

Drug Relationships in Murder (DREIM) and the Drug Related Involvement in Violent Episodes/Female Drug Related Involvement in Violent Episodes (DRIVE/FEMDRIVE) projects.

The DREIM project involved extensive interviews with 268 homicide offenders incarcerated in New York State correctional facilities. One of the purposes of this project was to gain a more extensive understanding than that afforded by official police records of the role that drugs and alcohol play in homicide.

The DREIM project data indicated that the substance most likely to be used by homicide offenders on a regular basis as well as during the 24 hours directly preceding the crime was, overwhelmingly, alcohol. Marijuana and cocaine were the second and third most frequently implicated drugs in the lives of homicide offenders as well as in the offense itself (Spunt et al 1994, 1995).

Other empirical investigations that rely on the Goldstein framework have attempted to classify the relationship between drugs and all types of violence, under the auspices of the DRIVE/FEMDRIVE research initiative. The data collection for this project consisted of interviews with 152 male and 133 female subjects concerning both drug and alcohol use and also their participation in violent events, over an eight week period. In one analysis, Spunt et al (1990) reported that violent events are drug-related if any of the participants report drug use proximate to the incident; similarly, if there is no link to drug distribution or robbery, these "drug-related events" are classified as psychopharmacological. These researchers fail to identify any mechanism by which these psychopharmacological effects of drugs manifest themselves in violent behavior. For example, they conclude that "heroin and methadone were the [illicit] drugs most likely to be associated with psychopharmacological violence" (Spunt et al 1990, p. 299), despite the fact that virtually no evidence exists to support individual-level associations between opiate use and violence (Kaplan 1983, Ball et al 1982, Ball 1991).

Goldstein et al (1989) reported the results of research that was concerned primarily with the effect of the "crack epidemic" on homicide. Utilizing data from official police reports of homicides supplemented by an observational instrument designed by Goldstein and his research team, the authors concluded that slightly over half of the 414 New York City homicides sampled were drug-related. Evidence from official records indicated that 65% of these drug-related homicides involved crack cocaine as the primary substance, while another 22% were related to other forms of cocaine; combined, nearly 90% of drug-related homicides in the sample involved cocaine. Of these, the overwhelming majority (74.3% of all drug-related homicides) were classified as "systemic" by the researchers. Interestingly, all homicides in which alcohol was the primary substance involved were classified as psychopharmacological.

Another example of the use of the Goldstein typology is the analysis of nine female homicide offenders, reported by Brownstein et al (1994). This analysis provides further evidence that alcohol is the substance most commonly associated with homicide. The authors also conclude from these data that the use of alcohol or drugs by either perpetrator or victim proximate to the homicide makes the homicide primarily drug- or alcohol-related (Brownstein et al 1994, p. 110) despite the fact that the authors report, in some cases, long histories of spousal abuse on the part of the homicide victim, which another researcher might consider at least as important a causal factor as the fact of drug or alcohol consumption in leading up to the homicide.

A central problem that characterizes all the work that utilizes the Goldstein tripartite framework is that it is not treated as a set of testable propositions but rather as a set of assumptions about the nature of drug- and alcohol-related violence. Because of this, studies guided by this set of assumptions do not address the task of explaining mechanisms by which violent events might be related to the presence or use of drugs or alcohol; additionally, all of these studies fail to provide a detailed explanation of the way in which study events come to be classified into one type or another. Another problem with Goldstein's classificatory scheme is that the categories are not mutually exclusive. For example, many of the situations coded by researchers as events of systemic violence are economic in nature. Robbery of a drug dealer would seem to be an economically motivated crime but is classified as systemic in this framework, based on drug trafficking involvement of the victim and/or perpetrator. In short, the Goldstein framework seems biased toward support of the systemic model of drug-effected violence, which also limits the utility of the framework for explaining the relationship between alcohol—the substance most frequently implicated in violent events of all kinds—and violence. Additionally, the rigidity and inherently descriptive nature of the classification scheme fails to take into account the possibility of interactions between social context, individuals, and pharmacology.

CONCLUSIONS

Several clear conclusions can be drawn from this extensive review of the literature concerning drugs, alcohol, and violence. One is the overwhelming importance of context in any relationship that may exist between substance use and violent behavior. Our review of the literature finds a great deal of evidence that the social environment is a much more powerful contributor to the outcome of violent behavior than are pharmacological factors associated with any of the substances reviewed here.

The other consistent finding that we can report from this review of the empirical evidence is that when violent behavior is associated with a substance,

that substance is, overwhelmingly, alcohol. Study after study indicates that, even in samples containing relatively high baseline rates of illicit drug use, violent events are overwhelmingly more likely to be associated with the consumption of alcohol than with any other substance. In fact, a review of the literature concerning rates of co-occurrence of violent crimes with the use of illicit substance fails to provide any support whatsoever for a link. The 1991 Criminal Victimization Survey indicates that less than 5% of violent assailants were perceived by their victims to be under the influence of illicit drugs; the corresponding figure for alcohol is more than four times that.

The consensus among the authors of previous reviews of research on alcohol, drugs, and violence (Roizen 1993, Collins 1981, Permanen 1991) was that evidence existed for an association especially between alcohol and violence, but that the research base would not support any stronger conclusions. These and other reviews would invariably end with a call for more and better research to address the issue of whether evidence about a causal relationship between alcohol, drugs, and violence could be found. What was missing from those reviews, however, was a full recognition of the importance of theoretical development in the search for evidence about causality. Until the last ten years, such efforts were largely absent; a number of the studies cited here would replicate associational findings and end with this same lament about the absence of causal evidence. However, recent developments, especially the work of Goldstein and colleagues, Fagan, and Parker and colleagues, have led to an increased conceptual and theoretical base from which questions of causality can be better assessed. None of these approaches has succeeded in fully theorizing the potential relationships among alcohol, drugs, and violence, and none of these perspectives has provided definitive empirical tests of these theoretical models. Indeed, all of these approaches need more theoretical development as well as better data and methodological approaches to advance the state of knowledge about these relationships. However, at least it is reasonable to claim that research on alcohol, drugs, and violence demonstrates some promising theoretical approaches and some useful empirical studies based on those approaches. Much work is yet to be done, but the prospects for greater understanding of how and why alcohol and drugs contribute to violence have never been brighter.

ACKNOWLEDGMENTS

We would like to acknowledge the support of the University of California, Riverside; Raymond Orbach, Chancellor; David Warren, Vice Chancellor; Carlos Velez-Ibanez, Dean of the College of Humanities, Arts and Social Sciences; Linda Brewster Stearns, Chair, Sociology Department; as well as the State of California, for their support of the Presley Center for Crime and Justice Studies, which supported the authors during the completion of this article.

Visit the *Annual Reviews* home page at
<http://www.AnnualReviews.org>.

Literature Cited

- Abel EL. 1987. Drugs and homicide in Erie County, New York. *Int. J. Addictions* 22(2):195-200
- Alaniz ML, Parker RN, Gallegos A, Cartmill RS. 1998. Immigrants and violence: the importance of context. *Hispanic J. Behav. Sci.* 20(2): In press
- Alaniz ML, Parker RN, Gallegos A, Cartmill RS. 1999. Ethnic targeting and the objectification of women: alcohol advertising and violence against young Latinas. In *Currents in Criminology*, ed. RN Parker.
- Alaniz ML, Wilkes C. 1995. Reinterpreting Latino culture in the commodity form: the case of alcohol advertising in the Mexican American community. *Hispanic J. Behav. Sci.* 17(4):430-51
- Ball JC, Rosen L, Flueck JA, Nurco DN. 1982. Lifetime criminality of heroin addicts in the United States. *J. Drug Issues* 12: 225-39
- Ball JC. 1991. The similarity of crime rates among male heroin addicts in New York City, Philadelphia, Baltimore. *J. Drug Issues* 21:413-27
- Baumer E. 1994. Poverty, crack, crime: a cross-city analysis. *J. Res. Crime Delinq.* 31:311-27
- Bennett LW. 1995. Substance abuse and the domestic assault of women. *Soc. Work* 40: 760-71
- Bennett LW, Tolman RM, Rogalski CJ, Srinivasaraghavan J. 1994. Domestic abuse by male alcohol and drug addicts. *Violence Victims* 9:359-68
- Blount WR, Silverman IJ, Sellers CS, Seese RA. 1994. Alcohol and drug use among abused women who kill, abused women who don't, their abusers. *J. Drug Issues* 24(2):165-77
- Blumstein A. 1995. Youth violence, guns, the illicit drug industry. *J. Crim. Law Criminol.* 86(1):10-36
- Brown SA. 1993. Drug effect expectancies and addictive behavior change. *Exp. Clin. Psychopharmacol.* 1(Oct):55-67
- Brown SA, Christiansen BA, Goldman MS. 1987. The alcohol expectancy questionnaire: an instrument for the assessment of adolescent and adult alcohol expectancies. *J. Stud. Alcohol* 48(5):483-91
- Brownstein HH, Spunt BJ, Crimmins S, Goldstein PJ, Langley S. 1994. Changing patterns of lethal violence by women: a research note. *Women Crim. Justice* 5: 99-118
- Budd RD. 1989. Cocaine abuse and violent death. *Am. J. Drug Alcohol Abuse* 15: 375-82
- Bureau of Justice Statistics. 1992a. *Drugs and Crime Facts. 1992*. Washington, DC: USGPO
- Bureau of Justice Statistics. 1992b. *Drugs, Crime, the Justice System*. Washington, DC: USGPO
- Buss TF, Abdu R, Walker JR. 1995. Alcohol, drugs, violence in a small city trauma center. *J. Substance Abuse Treat.* 12:75-83
- Chitwood DD, Morningstar PC. 1985. Factors which differentiate cocaine users in treatment from nontreatment users. *Int. J. Addictions* 20:449-59
- Clairmont DH, Magill D. 1974. *Africville: The Life and Death of a Canadian Black Community*. Toronto: McClelland & Stewart
- Cohen LE, Felson M. 1979. Social change and crime rate trends: a routine activities approach. *Am. Sociol. Rev.* 44:588-607
- Collins JJ Jr. 1981. Alcohol use and criminal behavior: an empirical, theoretical, methodological overview. In *Drinking and Crime: Perspectives on the Relationship between Alcohol Consumption and Criminal Behavior*, ed. JJ Collins Jr, pp. 288-316. New York: Guilford
- Collins JJ Jr. 1989. Alcohol and interpersonal violence: less than meets the eye. In *Pathways to Criminal Violence*, ed. NA Weiner, ME Wolfgang, pp. 49-67. Newbury Park, CA: Sage
- Corcoran KJ, Thomas LR. 1991. The influence of observed alcohol consumption on perceptions of initiation of sexual activity in a college dating situation. *J. Appl. Soc. Psychol.* 21:6:500-7
- Dotson JW, Ackerman DL, West LJ. 1995. Ketamine abuse. *J. Drug Issues* 25:751-57
- Ellinwood EH Jr. 1971. Assault and homicide associated with amphetamine abuse. *Am. J. Psychiatry* 127:1170-75
- Fagan J. 1993. Interactions among drugs, alcohol, violence. *Health Affairs* 12(4):65-79

- Fagan J. 1990. Intoxication and aggression in drugs and crime. In *Crime and Justice: A Review of Research*, ed. M. Tonry, JQ Wilson, 13:241–320. Chicago: Univ. Chicago Press
- Fagan J, Wilkinson DL. 1998. The functions of adolescent violence. In *Violence in American Schools*, ed. DS Elliott, KR Williams, B Hamburg. Cambridge Univ. Press
- Fagan J, Weis JG, Cheng Y. 1990. Delinquency and substance use among inner-city students. *J. Drug Issues* 20(3): 351–402
- Fendrich M, Mackesy-Amiti ME, Goldstein P, Spunt B, Brownstein H. 1995. Substance involvement among juvenile murderers: comparisons with older offenders based on interviews with prison inmates. *Int. J. Addictions* 30(11):1363–82
- Feucht TE, Kyle GM. 1996. *Methamphetamine Use Among Adult Arrestees: Findings from the Drug Use Forecasting (DUF) Program*. Washington, DC: Natl. Inst. Justice
- Fishbein DH. 1996. Female PCP-using jail detainees: proneness to violence and gender differences. *Addictive Behav.* 21(2): 1:55–172
- Fukushima A. 1994. Criminal responsibility in amphetamine psychosis. *Jpn. J. Psychiat. Neurol.* 48(Suppl.):1–4
- Gantner AB, Taylor SP. 1992. Human physical aggression as a function of alcohol and threat of harm. *Aggressive Behav.* 18:(1) 29–36
- Garriott JC. 1993. Drug use among homicide victims: changing patterns. *Am. J. Forensic Med. Pathol.* 14(3):234–37
- George WH, Gournic SJ, McAfee MP. 1988. Perceptions of postdrinking female sexuality: effects of gender, beverage choice, drink payment. *J. Appl. Soc. Psychol.* 18(15):1295–1317
- Giannini AJ, Miller NS, Loiselle RH, Turner CE. 1993. Cocaine-associated violence and relationship to route of administration. *J. Substance Abuse Treatment* 10:67–69
- Goldstein PJ. 1985. The drugs/violence nexus: a tripartite conceptual framework. *J. Drug Issues* 15:493–506
- Goldstein P, Brownstein HH, Ryan PJ, Bellucci PA. 1989. Crack and homicide in New York City 1988: a conceptually based event analysis. *Contemp. Drug Problems* Winter: 651–87
- Goldstein P, Brownstein HH, Ryan PJ. 1992. Drug-related homicide in New York: 1984 and 1988. *Crime Delinq.* 38(4):459–76
- Goldstein PJ, Bellucci PA, Spunt BJ, Miller T. 1991. Volume of cocaine use and violence: a comparison between men and women. *J. Drug Issues* 21:345–67
- Goode E. 1993. *Drugs in American Society*. New York: McGraw-Hill. 4th ed.
- Greenberg SW. 1976. The relationship between crime and amphetamine abuse: an empirical review of the literature. *Contemp. Drug Probl.* 5:101–30
- Grube J, Ames GM, Delaney W. 1994. Alcohol expectancies and workplace drinking. *J. Appl. Soc. Psychol.* 24(7):646–60
- Hirschi T. 1969. *Causes of Delinquency*. Berkeley: Univ. Calif. Press
- Inciardi JA, Pottieger AE. 1994. Crack-cocaine use and street crime. *J. Drug Issues* 24:273–92
- Jessor R, Jessor SL. 1977. *Problem Behavior and Psychosocial Development: A Longitudinal Study of Youth*. New York: Academic
- Joe KA. 1996. The lives and times of Asian-Pacific American women drug users: an ethnographic study of their methamphetamine use. *J. Drug Issues* 26:199–218
- Johnson BD, Natarajan M, Dunlap E, Elmoghazi E. 1994. Crack abusers and noncrack abusers: profiles of drug use, drug sales, nondrug criminality. *J. Drug Issues* 24: 117–41
- Johnson KM. 1978. Neurochemical Pharmacology of Phencyclidine. In *Phencyclidine (PCP) Abuse: an Appraisal, NIDA Research Monograph No. 21*, ed. RC Petersen, RC Stillman, pp. 44–52. Rockville, MD: Dep. Health Human Serv.
- Kaplan J. 1983. *The Hardest Drug: Heroin and Public Policy*. Chicago: Univ. Chicago Press
- Klein MW, Maxson CL. 1985. 'Rock' sales in central Los Angeles. *Sociol. Soc. Res.* 69: 561–65
- Kratcoski PC. 1990. Circumstances surrounding homicides by older offenders. *Criminal Justice Behav.* 17(4):420–30
- Krohn MD. 1991. Control and deterrence theories. In *Criminology: A Contemporary Handbook*, ed. J Sheley, pp. 295–314. Belmont, CA: Wadsworth
- Langevin R, Paitich D, Orchard B, Handy L, Russon A. 1982. The role of alcohol, drugs, suicide attempts, situational strains in homicide committed by offenders seen for psychiatric assessment. *Acta Psychiatr. Scand.* 66(3):229–42
- Leigh BC. 1987. *Drinking and unsafe sex: background and issues*. NIMH/NIDA Workshop, Women and AIDS: Promoting Healthy Behaviors. Washington, DC
- Leonard KE, Taylor SP. 1983. Exposure to pornography, permissive and nonpermissive cues, male aggression toward females. *Motivation Emotion* 7(3):291–99
- Lerner SE, Burns RS. 1978. Phencyclidine use

- among youth: history, epidemiology, and acute and chronic intoxication. See Johnson 1978, pp. 66–118
- Luckenbill DF. 1977. Criminal homicide as a situated transaction. *Social Probl.* 25: 176–86
- Maguire K, Pastore AL, Flanagan TJ, eds. 1993. *Sourcebook of Criminal Justice Statistics 1992*. US Dep. Justice, Bur. Justice Statist. Washington, DC: USGPO
- Marshall M, ed. 1979. *Beliefs, Behaviors, Alcoholic Beverages: A Cross-Cultural Survey*. Ann Arbor: Univ. Mich. Press
- Marwah J, Pitts DK. 1986. Psychopharmacology of phencyclidine. In *Phencyclidine: An Update, NIDA Res. Monogr. No. 64*, ed. DH Clout, pp. 127–35. Rockville, MD: Dep. Health Human Serv.
- McCoy HV, Inciardi JA, Metsch LR, Pottieger AE. 1995. Women, crack, crime: gender comparisons of criminal activity among crack cocaine users. *Contemp. Drug Probl.* 22:435–51
- McCarron M. 1986. *Phencyclidine intoxication*. In *Phencyclidine: an Update, NIDA Res. Monogr. No. 64*, ed. DH Clout, pp. 209–217. Rockville, MD: Dep. Health Human Serv.
- Merton RK. 1949. *Social Theory and Social Structure*. Glencoe, IL: Free
- Miczek KA, Tidey JW. 1989. Amphetamines: aggressive and social behavior. In *Pharmacology and Toxicology of Amphetamine and Related Designer Drugs*, ed. K Asghar, E Souza, pp. 68–100. Washington, DC: USGPO
- Mieczkowski T. 1994. The experiences of women who sell crack: some descriptive data from the Detroit Crack Ethnography Project. *J. Drug Issues* 24:227–48
- Miller BA, Downs WR. 1993. The impact of family violence on the use of alcohol by women: research indicates that women with alcohol problems have experienced high rates of violence during their childhoods and as adults. *Alcohol Health Res. World* 17(2):137–42
- Miller NS, Gold MS, Mahler JC. 1991. Violent behaviors associated with cocaine use—possible pharmacological mechanisms. *Int. J. Addictions* 21:1077–88
- National Institute of Justice. 1997. *Drugs, Alcohol, Domestic Violence in Memphis: Research Preview*. Natl. Criminal Justice Ref. Serv.
- Parker RN. 1995. Bringing 'booze' back in: the relationship between alcohol and homicide. *J. Res. Crime Delinquency* 32 (1):3–38
- Parker RN. 1993. Alcohol and theories of homicide. In *Advances in Criminological Theory*, ed. F Adler, W Laufer, 4:113–42. New Brunswick, NJ: Transaction
- Parker RN, with LA Rebbun. 1995. *Alcohol and Homicide: A Deadly Combination of Two American Traditions*. Albany: State Univ. NY Press
- Pernanen K. 1991. *Alcohol in Human Violence*. New York: Guilford
- Pihl RO, Peterson JB, Lau MA. 1993. A biosocial model of the alcohol-aggression relationship. *J. Stud. Alcohol* 11(Sept):128–39 (Suppl.)
- Ray MC, Simons RL. 1987. Convicted murderers' accounts of their crimes: a study of homicide in small communities. *Symbolic Interact.* 10(1):57–70
- Reiss AJ Jr, Roth JA, eds. 1993. *Understanding and Preventing Violence*. Washington, DC: Natl. Acad. Press
- Roberts AR. 1987. Psychosocial characteristics of batterers: a study of 234 men charged with domestic violence offenses. *J. Family Violence* 2:81–93
- Roesler TA, Dafler CE. 1993. Chemical dissociation in adults sexually victimized as children: alcohol and drug use in adult survivors. *J. Substance Abuse Treatment* 10: 537–43
- Roizen J. 1993. *Issues in the Epidemiology of Alcohol and Violence in Alcohol and Interpersonal Violence: Fostering Multidisciplinary Perspectives*, Natl. Inst. on Alcohol Abuse and Alcoholism Res. Monogr. No. 24, ed. SE Martin. Washington, DC: Natl. Inst. Health
- Roncek DW, Maier PA. 1991. Bars, blocks, crimes revisited: linking the theory of routine activities to the empiricism of 'hot spots'. *Criminology* 29:725–54
- Room R, Collins G, eds. 1983. *Alcohol and Disinhibition: Nature and Meaning of the Link*. Washington, DC: Natl. Inst. Alcohol Abuse and Alcoholism, Res. Monogr. No. 2.
- Sherman LW, Gartin PR, Buerger ME. 1989. Hot spots of predatory crime: routine activities and the criminology of place. *Criminology* Vols. 27–56
- Siegel RK. 1978. Phencyclidine, criminal behavior, the defence of diminished capacity. In *Phencyclidine (PCP) Abuse: An Appraisal*, ed. RC Petersen, RC Stillman, pp. 272–88. Rockville, MD: Dep. Health Human Serv.
- Spunt B, Brownstein H, Goldstein P, Fendrich M, Liberty HJ. 1995. Drug use by homicide offenders. *J. Psychoactive Drugs* 27(2):125–34
- Spunt B, Goldstein P, Brownstein HH, Fen-

- drich M, Langley S. 1994. Alcohol and homicide: interviews with prison inmates. *J. Drug Issues* 24(1):143-63
- Spunt BJ, Goldstein PJ, Belluci PA, Miller T. 1990. Race, ethnicity and gender differences in the drugs-violence relationship. *J. Psychoactive Drugs* 22:293-303
- Stets JE. 1990. Verbal and physical aggression in marriage. *J. Marriage Family* 43: 721-32
- Tardiff K, Marzuk PM, Leon AC, Hirsch CS, Stajik M, et al. 1995. Cocaine, opiates, ethanol in homicides in New York City: 1990 and 1991. *J. Forensic Sci.* 40(3): 387-90
- Taylor SP. 1983. Alcohol and human physical aggression. In *Alcohol, Drug Abuse, Aggression*, ed. E Gottheil, KA Druley, TE Skoloda, HM Waxman. Springfield, IL: Thomas
- Watts WD, Wright LS. 1990. The drug use-violent delinquency link among adolescent Mexican-Americans. In *Drugs and Violence: Causes, Correlates, Consequences*, NIDA Res. Monogr. No. 103, ed. M De La Rosa, EY Lambert, B Gropper, pp. 136-159. Washington, DC: USGPO
- Welte JW, Abel EL. 1989. Homicide: drinking by the victim. *J. Stud. Alcohol* 50(3): 197-201
- White HR, Hansell S, Brick J. 1993. Alcohol use and aggression among youth. *Alcohol Health Res. World* 17(2):144-50
- White HR, Pandina RJ, LaGrange RL. 1987. Longitudinal predictors of serious substance abuse and delinquency. *Criminology* 25(3):715-40
- White House Office of National Drug Control Policy. 1997. *Fact Sheet: Drug Use Trends. National Criminal Justice Reference Service*. Available online at <http://www.ncjrs.org>
- Widom CS, Ames MA. 1994. Criminal consequences of childhood sexual victimization. *Child Abuse Neglect* 18(4):303-18
- Wieczorek W, Welte J, Abel E. 1990. Alcohol, drugs, murder: a study of convicted homicide offenders. *J. Criminal Justice* 18: 217-27
- Wilbanks W. 1984. *Murder in Miami*. Lanham, MD: Univ. Press Am.
- Wilson WJ. 1987. *The Truly Disadvantaged: The Inner City, the Underclass, Public Policy*. Chicago: Univ. Chicago Press
- Wish ED. 1986. PCP and crime: just another illicit drug? In *Phencyclidine: An Update*. NIDA Res. Monogr. No. 64, ed. DH Clout, pp. 174-89. Rockville, MD: Dep. Health Human Serv.
- Wolfgang ME, Ferracuti F. 1976. *The Subculture of Violence: Towards an Integrated Theory in Criminology*. London: Tavistock
- Yarvis RM. 1994. Patterns of substance abuse and intoxication among murderers. *Bull. Am. Acad. Psychiatry Law* 22(1):133-44

