

Alcohol and Violence

Of the 11.1 million victims of violent crime each year, almost one in four, or 2.7 million, report that the offender had been drinking alcohol prior to committing the crime (Greenfeld 1998). Among the attacks that were committed by current or former intimate partners of the victims, two out of three of the offenders had been drinking prior to the attack (Greenfeld 1998). Over the years, consistent findings such as these have stimulated research into factors that might contribute to alcohol-related violence and the question of whether alcohol use is not merely associated with, but perhaps a cause of, violence.

Alcohol-related violence is the result of complex interactions between individual and environmental factors that either promote or inhibit violence. Findings from numerous studies implicate several variables—including personality factors, individual expectancies, situational elements, and sociocultural influences—that may interact with alcohol's pharmacologic effects. What is not clear is whether and under what circumstances these interactions may combine to lead to violent episodes. It is also not known what interventions might prevent or reduce the likelihood of alcohol-related violence.

In recent years, however, using increasingly sophisticated methodology, researchers have made advances in understanding the individual and environmental factors related to alcohol and violence and in addressing the issue of causation. In addition, the field is progressing as a result of new theoretical frameworks that describe the complex interplay between individual and environmental influences and incorporate an “interactional level” that is influenced by each. This section focuses on recent developments in these areas.

Studies at the individual level include investigations of alcohol use by both the offender and the victim. Regarding the offenders, research has

long indicated that there is an association between drinking and the perpetration of violent acts (for reviews see Collins 1981, 1989; Lipsey et al. 1997; Pernanen 1976, 1981, 1991; Roizen 1993, 1997). More recent research has extended this finding by examining related items of interest such as variations by the amount of alcohol used, the severity of the ensuing injuries, and the social relationship between the offender and the victim.

Regarding the victims of alcohol-linked violence, studies have investigated risk factors for becoming a victim and have examined whether alcohol consumption by the victims, as well as the offenders, might influence those risks. Although the study of alcohol use by victims is newer and somewhat less developed, it is proceeding along some of the same avenues as research on offenders, such as looking at the relationships between offenders and victims.

This section also reviews studies about environmental factors in the relationship between alcohol and violence. These include studies of individual bars and street locations as well as studies of comparative crime rates across cities and States. A key variable in this research is sometimes alcohol availability rather than alcohol consumption. The expectation is that decreased availability might lead to decreased consumption, which might lead in turn to lower rates of violence. Availability is of interest because it is a potential “policy lever” that could be manipulated if a causal relationship between availability and violence rates were firmly established.

An important goal of this research is to advance beyond simply finding that violence rates increase with increasing alcohol consumption, to move toward scientific results that would strengthen our ability to conclude whether this relationship is causal. Two kinds of environmental or policy-based studies are useful steps in this direction:

those that gather data at set intervals over time, and those that gather data both across time and at different locations.

Researchers pursue across-time studies by collecting data in several waves over time (longitudinal survey studies) or by analyzing regularly collected data series, such as annual homicide rates for cities (time-series studies). These study designs help to establish the temporal relationships between variables, an important step toward demonstrating causality. Even though, for example, variables A and B might be related in the sense that whenever A happens, B also happens, A cannot be said to cause B unless A happens before B. Furthermore, when data are collected regularly over time, studies can reveal such associations as two variables rising and falling in synchrony. Demonstration of this kind of relationship would provide more persuasive evidence of an underlying causality than, for example, the finding of a one-time connection among variables through a cross-sectional study. In either case, however, an apparent relationship between two variables may actually be caused by a third, unknown factor. Thus, studies that attempt to establish causality must not only determine the timing of events, but also identify and measure the effects of any intervening factors that may have affected the outcome.

More effective than the across-time approach alone is one that also gathers data from several different locations (across time and across space, or a “pooled, cross-sectional, time-series analysis”). These designs give researchers a particularly strong basis for attributing causality in the findings. Recent work on environmental contributions to violence has pursued both paths in order to gain deeper insights into the question of causality.

Also included in this section is a review of some recent theoretical developments in the field of alcohol and violence. In addition to advances made through research, the knowledge base in this field can increase through the development of new conceptualizations to explain facts or events. After emerging, these conceptualizations become

shared among scientists and eventually are tested in studies. Thus, a look at the developing theories is a preview of the kinds of empirical studies that are likely to be conducted soon.

Finally, a few words on the scope of this review. First, it does not address self-inflicted violence (that is, suicide). Second, it focuses on epidemiologic or population-based studies and thus omits ample research using laboratory animals (for reviews of this literature see Brain et al. 1993; Higley and Linnoila 1997; Miczek et al. 1997; Yudko et al. 1997) and human laboratory experimental studies (for recent meta-analyses of this literature see Bushman 1997; Lipsey et al. 1997). These studies suggest that there is no simple or inevitable relationship between alcohol and aggression. Psychopharmacologic, personality, cognitive, and situational factors all appear to play important roles in influencing whether violence will occur. Nevertheless, experimental findings do suggest that, in laboratory settings, alcohol tends to increase aggressive responses in a way that might be interpreted as relatively strong support for a causal effect of alcohol consumption on violence.

Individual-Level Studies: Drinking by Offenders

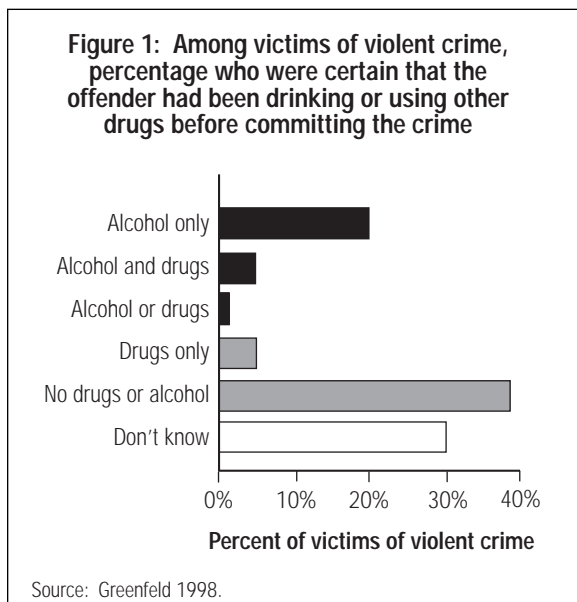
The National Crime Victimization Survey (NCVS) has found consistently that alcohol is more likely than other drugs to be involved in substance-related violence. According to data from 1992 through 1995, nearly one-fourth of all victims of violent incidents were reasonably certain that one or more of the offenders had been drinking alcohol before committing the offense (Greenfeld 1998). In 20 percent of all incidents the offender used alcohol only; in 5 percent the offender used both alcohol and other drugs; and in 1 percent the offender was known to be under the influence but it was not known whether the offender was using alcohol or drugs (figure 1). By comparison, in only 5 percent of the incidents was the assailant reported to be under the influence of drugs but not alcohol. Thus, despite the popular conception that violent crime is strongly linked to drug use by offenders, this study indicates that

there is actually a much greater probability that any given violent incident will be related to alcohol use than to use of other drugs by the offender.

Furthermore, the 25-percent estimate of drinking among offenders reported by the NCVS is likely to be an underestimate. This is because homicides, which are omitted from the NCVS data, consistently have a higher proportion of alcohol involvement than do the less serious forms of violence that are included in the NCVS (for reviews see Collins and Messerschmidt 1993; Lipsey et al. 1997; Murdoch et al. 1990; Pernanen 1991; Roizen 1993). For example, in one recent study where 268 homicide offenders were interviewed about their crimes, 32 percent reported being intoxicated at the time of the offense (Spunt et al. 1994, 1995). In a study of 1,768 homicide case records in New York State in 1984 through 1988, more than 47 percent of the homicides involved alcohol use by the offender (Goldstein et al. 1992). In addition, according to the Bureau of Justice Statistics, convicted murderers in State prisons reported that alcohol was a factor in half the murders they had committed, with alcohol involvement higher in murders of intimates (54 percent) than murders of acquaintances (50 percent) or strangers (47 percent) (Greenfeld 1998).

Not only is the use of alcohol prevalent among offenders, but the amount of alcohol consumed at the time of the offense is likely to be quite high (Greenfeld 1998). In one study, the estimated average blood alcohol concentration (BAC) of offenders who had been drinking was in the range of double or triple the thresholds of impairment most commonly used in State driving while intoxicated (DWI) laws. The study estimated average BAC's of 0.18 percent for probationers, 0.20 percent for local jail inmates, and 0.28 percent for State prisoners at the time of their offense, while blood alcohol limits for DWI are usually either 0.08 or 0.10 percent (Greenfeld 1998).

A broad-based review of the literature on individual-level studies of offenders' drinking and violence—among both adolescents and adults—yielded a somewhat similar picture of the relationship between drinking and violent behavior (Lipsey et al. 1997). This review of 129 studies published between 1950 and 1994 found repeated evidence of an overall relationship between greater alcohol use and criminal and domestic violence, with particularly strong evidence in studies of domestic violence. However, when researchers accounted for a greater number of “control variables” (such as gender, age, social class, criminal status, childhood abuse, and use of other drugs in addition to alcohol), they tended to find that these control variables weakened the strength of the original relationship between violence and alcohol consumption, in some cases to the point of no association. For example, in 6 of the 14 studies of criminal violence that had data on control variables, no statistically significant relationship between alcohol and violence remained after the influence of control variables was removed. In the domestic violence studies, however, while control variables reduced the association, 11 of the 13 studies reported statistically significant levels of association that remained after the analysis controlled for other variables. The researchers concluded that, although research to date shows substantial evidence of an association between alcohol and violence that is consistent with a causal relationship, it will not be possible to state conclusively



that alcohol causes violence until further research using a wider array of control variables is conducted.

Alcohol and the Severity of Violence and Injuries

Studies have generally found that the more serious the crime or injuries, the more likely alcohol was involved. For example, a recent study showed that drinking offenders committed 15 percent of robberies, 26 percent of aggravated and simple assaults, and 37 percent of rapes and sexual assaults (Greenfeld 1998). Moreover, as noted previously, homicides are more likely to involve alcohol than are less serious crimes.

An earlier study on injury severity showed that the use of alcohol by men was associated with more severe violence and a greater severity of injuries among victims who were intimate partners (Stets 1990). More recently, researchers using NCVS data from 1992 and 1993 found a significant association between assailant alcohol use and injury severity for men's assaults on intimate female partners (Martin and Bachman 1997). This link between increased alcohol use and greater injury severity persisted even after the researchers made statistical adjustments for the victim's marital status, victim's age, and place of injury occurrence.

Another recent study also found that alcohol consumption by husbands increased the severity of domestic violence (Leonard and Quigley 1999). In this survey of marital violence among newlyweds, researchers found that physically aggressive episodes were four times as likely as verbally aggressive episodes to involve the husband's drinking. In cases where both physically and verbally aggressive episodes occurred during their first year of marriage, couples reported nearly twice as much overall alcohol involvement in the physically aggressive episodes than in the verbally aggressive episodes.

A study using NCVS data from 1992 through 1994 found that alcohol use by perpetrators did not affect the likelihood that rape would be

completed or that medical treatment for the victim would be needed, but did increase the chances that the victim would suffer additional physical injuries beyond the trauma of sexual assault (Martin and Bachman 1998). Thirty-nine percent of the victims who perceived the offender to have been drinking were injured, whereas 25 percent who did not perceive the offender to have been drinking were injured. When the investigators conducted a second analysis that controlled for a range of variables in addition to assailant drinking (such as the victim's race, age, and income as well as presence of a weapon, place of the attack, and physical resistance), the offender's use of alcohol was still positively associated with the likelihood of additional injuries, but was not statistically significant.

Attacks on Intimate Partners Versus Strangers

As mentioned previously, research has also indicated that violence against intimate partners is much more likely to involve alcohol than is violence against strangers. In NCVS data, alcohol was used by 67 percent of persons who victimized an intimate (that is, a current or former spouse, intimate partner, or boyfriend or girlfriend) compared with 38 percent of those who victimized an acquaintance and 31 percent who victimized a stranger (Greenfeld 1998).

In other research, investigators found that half of alcoholic men who were receiving treatment had been violent toward an intimate partner in the year before alcoholism treatment (O'Farrell and Murphy 1995). The same researchers reported that levels of domestic violence significantly decreased after behavioral marital therapy, particularly among alcoholics who did not relapse.

The Role of Personality Factors

Other studies have tried to examine the development of both alcohol use and violent behavior during adolescence and youth. The aim of these studies has been to understand how links form between alcohol use and violence during the period when the personality is developing.

The Rutgers Health and Human Development Project collected three waves of data on New Jersey adolescents (aged 12 through 18) in 1982 through 1984, 1985 through 1987, and 1992 through 1994 (White et al. 1993*a,b*, White 1997). The results of this research project indicated that the apparent connection between aggression and alcohol use in adolescents was actually caused by a third factor—a proclivity for exhibiting generalized problem behavior—that caused both heavy drinking and aggression. (In this study, “aggression” was defined to include (1) hurting someone badly, (2) using a weapon in a fight, (3) vandalism, (4) hitting parents, or (5) fighting at school. As most of these items also indicate violence, the conclusions about aggression may be taken to generally apply to violence as well.)

The Buffalo Longitudinal Survey of Young Men was similar in that it focused on younger subjects (aged 16 through 19), used a research design that collected data in waves over time, and examined underlying personality factors at work in the alcohol-violence connection (Zhang et al. 1997). The study contained two analyses: one predicted the probability that a person would commit an assault, and the other predicted how frequently assaults would occur among those who did commit them. In the first analysis, offenders’ drinking patterns did not independently contribute to the probability that they would commit an assault, but the patterns did act in concert with such personality factors as deviant attitudes, aggressiveness, and hostility to raise that probability. In the other analysis, involving those who did commit assaults, increased drinking was directly related to greater frequency of assault.

In sum, recent research on the relationship between offenders’ drinking and the perpetration of violence has continued to show that offenders’ drinking is related to violence, that the amount of alcohol consumed tends to be larger in more serious offenses, and that the connection between drinking and violence is stronger where the relationship between perpetrator and victim is closer. Studies are now trying to explore these

issues further, largely through examining the interactions between personality and situational factors and both alcohol use and violence in youth.

Individual-Level Studies: Drinking by Victims

Researchers have also examined the matter of drinking by the victims of violence. While alcohol consumption by a victim does not excuse an offender’s actions, drinking may reduce a person’s awareness of or ability to respond to threatening situations, place a person in a social situation or environment that is more violence prone, or mark a potential victim as an easy target.

Much of the data on the connection between alcohol and violent injuries has come from studies carried out in hospital emergency rooms. Reviews of these studies have found that persons in emergency rooms with violence-related injuries were two to five times as likely as persons injured from all other causes to have some alcohol in their bloodstream or to be intoxicated (Cherpitel 1994, 1997). In addition, persons consuming larger amounts of alcohol were found to be at greater risk for violence-related injuries than those consuming smaller amounts (Borges et al. 1998).

A substantial amount of the research on victims’ drinking has focused on the victims of sexual assaults. Researchers have found positive associations between alcohol use and sexual assault in studies of college students (Abbey et al. 1996, 1998; Muehlenhard and Linton 1987), convicted rapists (Ullman and Knight 1993), and spouses involved in marital rape (Russell 1990). One study of 52 women bar drinkers reported that most of the women (85 percent) had experienced some form of nonsexual physical aggression and one-third (33 percent) had experienced attempted or completed rape associated with drinking in a bar (Parks and Miller 1997). Although the researchers found that the risk of nonsexual victimization was not related to how frequently the women went to bars, they found that the women who went to bars more often had a

greater risk of sexual victimization. Other research shows that increased likelihood of victimization among drinking and intoxicated women may be related to their impaired cognitive and motor functions, which reduces the ability to perceive risk or avoid aggression, and the perpetrators' expectancies of increased sexual availability (Abbey et al. 1996).

Although many studies have found an association between alcohol consumption and domestic violence, both in general population samples (see Kantor and Straus 1987; Leonard and Senchak 1993) and in studies of batterers (see O'Farrell and Murphy 1995), findings regarding alcohol use by victims are mixed. One recent study found that there is little evidence that the wife's drinking is associated with the husband's aggression (Leonard and Quigley 1999). Also, a review of the literature on the "intoxication-victimization" hypothesis, which suggests that women "under the influence" of alcohol or drugs may become targets of male aggression, found mixed evidence supporting an association between women's intoxication and physical assaults by husbands (Kantor and Asdigian 1997). An analysis by the same researchers of data from the 1992 National Alcohol and Family Violence Survey indicated that the wife's alcohol use did not have significant effects on husband-to-wife violence when the husband's drinking, use of drugs, and selected sociodemographic variables were accounted for in the analysis (Kantor and Asdigian 1997). The researchers concluded that there is little evidence that women's drinking provokes or even precedes aggression by husbands. In short, the evidence for a connection between victims' drinking and the experience of violent victimization is not as clear in the case of partner or spouse abuse as it is in sexual assaults by other perpetrators.

Environmental Influences

An alternative to studying the individuals involved in violent events (whether offenders or victims) is to study the places where violence occurs. Several recent studies have taken this approach. In some older research, criminologists

studying the geographic distribution of violence had found that alcohol availability was a key factor in identifying where crimes of violence occurred. In an investigation of locations in a large U.S. city to which police were dispatched to handle violent crimes, researchers found that on-site alcohol outlets such as bars and restaurants were among the "hottest" of the "hot spots" for violence (Sherman et al. 1989). In another large U.S. city, researchers found that city blocks with bars had higher rates of assaults, robberies, and rapes than other blocks, even after the analysis accounted for the impact of unemployment and poverty (Roncek and Maier 1991).

A number of studies have analyzed the characteristics of bars that are most strongly associated with violence. The characteristics include the type of drinking establishment, the physical and social environments, the types of patrons, and the role of bar workers. For example, bars with a reputation for violence, skid row bars, and discotheques are more likely than others to experience violent incidents (Homel and Clark 1994). Bars that are unclean, poorly ventilated, and dimly lit, and those patronized primarily by groups of males rather than solo males and couples, are also more likely than others to experience violent incidents (Homel and Clark 1994). The same study found that barroom environments predictive of aggression were those where there was swearing, sexual activity, prostitution, drug use, drug dealing, and an "anything goes" atmosphere. In other research, aggression has also been found to be associated with lack of control by bar workers, low staff-to-patron ratios, crowding, and failure to engage in responsible serving practices (Graham 1985; Homel et al. 1994; Stockwell et al. 1993).

Studies Across Different Locations

Other recent studies have focused on the effects of alcohol outlet density on violence across cities, with mixed findings. A study of 74 cities in Los Angeles County found that rates of assault reported to the police were significantly associated with the density of outlets selling alcohol for consumption either on or off the premises

(Scribner et al. 1995). A 1-percent increase in the density of outlets was associated with a 0.62-percent increase in the rate of violent offenses. However, a study using the same methodology to analyze data from 223 municipalities in New Jersey with populations greater than 10,000 found no significant association between outlet density and violence, after the researchers accounted for variables similar to those used in the Los Angeles study (Gorman et al. 1998).

In interpreting these conflicting findings across sites, researchers have speculated that outlet density may be related to violent assaults “only when certain conditions prevail, for example, when average population size is large, alcohol outlets density crosses a certain threshold, and/or alcohol is sold through certain types of ‘easy access’ retail outlets such as mini-markets” (Gorman et al. 1998, p. 99). Other researchers have made the similar argument that if alcohol outlets dominate a location, then this feature of the local environment might act to stimulate crime by attracting certain types of activities, such as drug sales, prostitution, and gang activities (Alaniz et al. 1998).

Studies Across Time

In an unusual recent study, a series of local policy changes in Barrow, Alaska, provided the basis for a natural experiment in the form of an across-time study (Chiu et al. 1997). During a 33-month period, referenda passed by the citizens at first imposed, then withdrew, and finally reimposed a total ban on alcohol sales in the Alaskan village. Research findings indicated significant decreases in emergency room visits (including those for assaults) when alcohol was banned, increases to levels of the pre-ban period when the ban was lifted, and significant declines again when the ban was reimposed by Barrow voters. The ability to provide contrasts between periods when the policy was in force and periods when it was suspended makes this an especially persuasive study.

In one recent study that focused solely on homicide, researchers conducted a time-series analysis of annual U.S. homicide rates and annual

estimates of U.S. beer, wine, and spirits consumption for the years 1934 through 1994 (Parker and Cartmill 1998). The study found evidence for a link between alcohol consumption and homicide across races, with the effects being stronger for whites than nonwhites. The findings indicated that homicide rates for whites rose with rising consumption of spirits, were unrelated to beer consumption, and rose with falling consumption of wine. The analysis of nonwhite homicide rates contained much less evidence of a link, in that beer was the only beverage for which consumption increased with increasing homicide rates, and this relationship was found in some but not all of the statistical components of the study. Although the researchers reported that declining alcohol consumption is related to the falling rate of homicide in the United States, they noted that “it would be inappropriate to claim that a decline in alcohol consumption is the most important or the only reason why homicide rates are falling” (Parker and Cartmill 1998, p. 1374).

Studies Across Time and Different Locations

Studies with particularly strong research designs are those that take advantage of data collected both over time and across different locations. Among these was a study of alcohol consumption (based on sales data), State-level beer taxes, and rates of homicide, rape, robbery, and assault (from the Federal Bureau of Investigation’s [FBI] Uniform Crime Report) (Cook and Moore 1993). This analysis used annual data for each of the contiguous 48 states for the years 1979 through 1988 in a pooled, cross-sectional, time-series analysis. The study found significant relationships between alcohol consumption and crime rates for rape, assault, and robbery, but not for homicide. It also found that variations in the beer tax were associated with changes in alcohol consumption, with consumption being lower when taxes were higher. The researchers controlled for the effects of a number of variables, including poverty and State racial composition.

Another example of an analysis conducted both over time and across different locations involved data collected across 256 large U.S. cities over a

period of 20 years to see how changes in alcohol outlet density were related to changes in the homicide rate (Parker and Rebhun 1995). This study controlled for such theoretically relevant variables as poverty, median family income, family structure, social bonds, racial composition, migration, region, participation by females in the labor force, and population density (Parker and Rebhun 1995). The study analyzed the relationship between alcohol availability (measured by the number of liquor stores per 1,000 population) and homicide rates reported in the FBI's Uniform Crime Report series. Although analyses were conducted for 1960, 1970, and 1980, only in 1970 did the investigators find a significant, direct relationship between alcohol availability and homicide.

Another study by the same investigators took a somewhat different tack by examining the relationship between minimum legal drinking age laws and rates for youth homicides (Parker and Rebhun 1995). Although this approach differs from one focusing on the effects of consumption or alcohol availability, the general intent is similar since the researchers reasoned that restricting alcohol access by raising the minimum drinking age would reduce alcohol consumption and consequently reduce violence. The results did not provide strong confirmation of a link between raising the minimum purchase age and homicide rates. In only one of the six analyses conducted (homicides of victims aged 21 through 24 in which the victim and the assailant knew each other) did the researchers find that raising the minimum age had a significant effect on reducing homicide rates.

In summary, while environmental studies have suggested the potential for preventing violence through reducing alcohol availability, they are less than conclusive in demonstrating a causal role of alcohol availability in the occurrence of violent events. Not all studies have found a significant relationship between alcohol availability (or alcohol consumption) and rates of violence. It is not clear, for example, why cross-sectional studies (such as the individual-level studies described earlier) consistently show that alcohol is involved

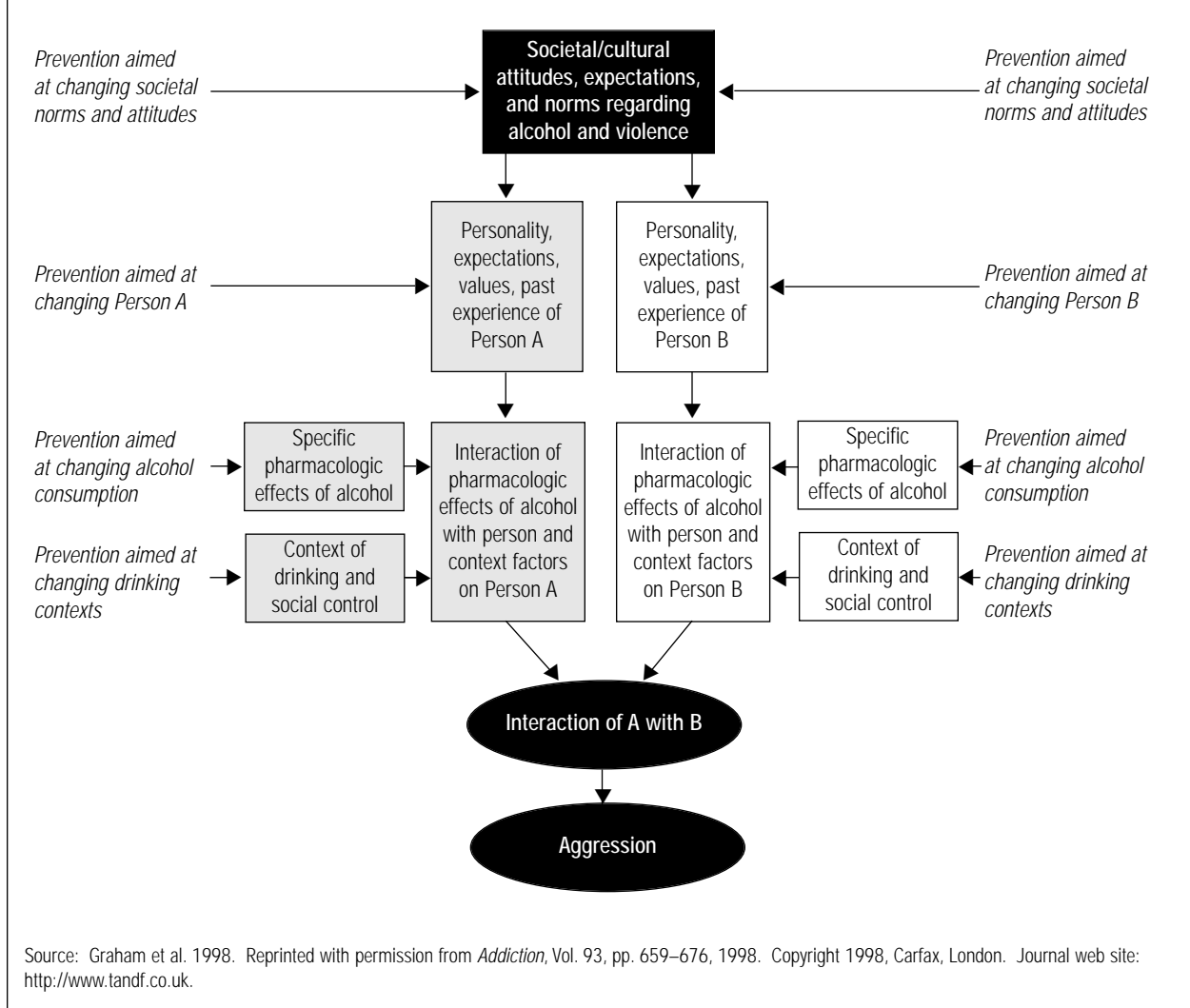
in a higher proportion of homicides than less serious crimes, whereas longitudinal studies at the environmental level do not show a consistent connection between homicide and consumption rates. In some cases, studies have not accounted for appropriate variables that can affect a relationship between consumption and violence. In other cases, such as the Barrow, Alaska, study, researchers are uncertain how far the results should be generalized beyond the particular cultural and social setting in which the study was done. Despite these remaining limitations, the convergence of environmental studies on the basic finding that alcohol availability and violence are positively related, taken together with the results of individual-level studies suggesting a relationship between alcohol consumption and violence, has increased the scientific community's confidence that alcohol availability plays a causal role in the generation of violence. However, additional research is needed to determine how alcohol availability interacts with other factors in the causal process leading to violence.

Theoretical Developments

Recent progress has also been made in constructing theoretical models to explain the alcohol-violence link. Two such recent approaches deserve some discussion here, as they can be expected to supply some of the theoretical framework that will guide future research in this area.

The first of these two theories, called the "selective disinhibition theory," proposes that alcohol's effect in a situation with the potential for violence depends on contextual factors specific to the situation, the actors involved and their relationships with one another, and the impact of bystanders (Parker and Rebhun 1995). The theory holds that individuals are constrained from engaging in violence by standards, or norms, they have internalized concerning proper conduct in an interpersonal argument. Individuals may, however, also have alternative norms that support the use of violence in some situations. Particularly in a situation with interpersonal conflict (such as an open display of disrespect) and weak environmental support for norms that forbid

Figure 2: Factors contributing to intoxicated aggression: the example of aggression involving two people (showing opportunities for prevention at different levels)



violence (such as a bar with an “anything goes” atmosphere), alcohol use may be more likely to relax, or “disinhibit,” any antiviolence norms and lead to an escalation into violent behavior. In addition, in situations that require a conscious decision to refrain from violence when it is likely to resolve the situation in one’s favor, the use of alcohol may undermine the constraint of active antiviolence norms. Thus, the selective nature of alcohol-related violence can be seen as a product of impaired rationality and the nature of the social situation (Parker and Rebhun 1995). This theory has received support indirectly from analyses of data collected at the Statewide and communitywide levels (Alaniz et al. 1998; Parker 1995; Parker and Rebhun 1995), but it has not

been tested directly at the individual or small-group levels.

The other theoretical development is an effort to more fully specify the multiple causes and processes underlying intoxicated aggression. Based on a multidisciplinary perspective, this model shows that societal and cultural factors related to both intoxication and aggression provide the background for alcohol-related violence that emerges from the social interaction of at least two individuals (figure 2). What emerges, however, depends on cultural framing of shared attitudes and expectancies of their society, the characteristics of each individual (including his or her personality, history of violence, and

alcohol-related expectancies), the psychopharmacologic and expectancy effects of alcohol on the brain and related cognitive functions, and the influence of the drinking context (Graham et al. 1998). Each of these factors has been addressed in a wide range of studies but not previously synthesized in a single model.

In Closing

Studies of violent incidents have continued to find that alcohol use often precedes violent events and that the amount of drinking is related to the severity of the subsequent violence. Research has been advancing beyond confirmation of these basic relationships toward an examination of the personality and situational factors that interact with both alcohol use and violence. One area of research is focusing on youthful perpetrators in the hope of offering findings that will be relevant for successful interventions. Research has also focused on alcohol use by the victims of violence. Here, research has concentrated on sexual assaults and domestic abuse. Findings have indicated that the connection between victims' drinking and violent attacks is not as clear in the case of partner or spouse abuse as it is in sexual assaults by other perpetrators. Studies have also focused attention on the environments where violence has occurred. Such analyses continue to find that violence is more prevalent in localities where alcohol is more widely available. However, research has yet to determine how availability interacts with other factors in the causal process leading up to the generation of violence.

To assist in the development of policies and intervention programs to reduce or prevent alcohol-related violence, future investigations will need to focus further on (1) identifying the individual and environmental conditions and situations in which alcohol use may cause violence; (2) determining the interrelationships among these individual and environmental factors that lead to violence with alcohol consumption; (3) elucidating the biological and psychosocial processes through which alcohol consumption may lead to escalating aggression and violence; (4) determining the role of alcohol consumption

in specific high-risk environments, such as bars and gangs, and in specific social contexts, such as the family; and (5) improving treatment for individuals who abuse alcohol and have a history of domestic or other violence. Policies and intervention programs based on understandings from such research will need to be implemented and, of equal importance, evaluated rigorously to provide guidance for continuing efforts to reduce or prevent alcohol-related violence.

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