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The Relationship between Alcohol and Violence – Population, Contextual and Individual Research Approaches

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Abstract

Alcohol-related violence causes substantial death, injury and health problems. The 2004 Global Burden of Disease project estimated that alcohol-attributable violence accounted for 248,000 deaths annually worldwide [1]. As noted by Bellis and Hughes in this issue [2], the link between alcohol and violence has been recognized as far back as the 4th century BC. However, understanding this link and especially how to prevent alcohol-fuelled violence continues to perplex contemporary scientists and policy-makers. Thus, in March 2010, researchers from 14 countries met in Melbourne to present recent research on this topic and discuss issues and solutions. This special issue includes 12 papers from that conference. Other papers from the conference are included in a companion issue published in *Contemporary Drug Problems, Volume 38(2)*, 2011.

Overall statistical link between alcohol consumption and violence: Population level studies

Many alcohol policy levers (e.g. taxation, availability and advertising restrictions) are aimed at reducing consumption at the population level. The extent that these measures will affect violence, however, depends upon the relationship between population level consumption and violence. Previous research [3–5] suggests that per-capita alcohol consumption is an important determinant of homicide rates, with a stronger relationship in Northern Europe where drinking has tended to be more intoxication-oriented than in the rest of the continent [5]. However, the pattern is not wholly consistent in that one study found a weaker relationship in some Eastern European countries despite their pattern of intoxication-oriented drinking [4], suggesting that other factors besides drinking pattern affect the relationship.

In this issue, Norström [6] further explores the relationship between population consumption levels and homicide in the United States by focusing on whether the relationship is

moderated by state-level drinking cultures, categorized as “wet” (high prevalence of heavy episodic drinking, low rate of abstaining and high per capita consumption), “moderate” and “dry.” Although homicide rates did not differ between wet and dry states, Norström’s analyses indicate a stronger relationship between overall consumption and homicide in wet states than in dry states, perhaps because of the higher rate of heavy episodic drinking in wet states, similar to results found relating to intoxicated-oriented drinking in Northern versus Southern Europe [5].

Ramstedt [7] provides the first comparable analysis of the relationship between alcohol consumption and homicide using Australian data. He finds that a 1 litre increase in per-capita consumption is associated with an 8% increase in the Australian homicide rate, a relationship that is comparable to that found by Norström [6] of 9% increase overall for the U.S. These results suggest that the role of alcohol in homicide is greater in the U.S. and Australia than in all but six of twenty European countries examined by Bye [4] and Rossow [5]. Ramstedt’s beverage-specific analyses further show that beer consumption is the strongest predictor of homicide in Australia. This is perhaps unsurprising, given the historical dominance of beer in the alcohol market in Australia [8] and the fact that beer is the preferred beverage of young men [9], the population subgroup most likely to commit homicide.

Similar research examining the relationship between per-capita consumption and self-inflicted violence (i.e., suicide) has produced mixed results [10–13]. In their paper, Kerr et al. [14] argue that previous research has focused on the acute role of intoxication, failing to consider the potential long-term effects of alcohol consumption on suicide (via depression). They confirm the positive link between population drinking and suicide rates in the U.S. and further show that the majority of the effect is mediated by the chronic effects of long-term alcohol consumption. Thus, their analyses identify a major gap in previous aggregate attempts to tackle this question.

Combined, the three papers demonstrate that the drinking level of the population is an important predictor of violence-related mortality, particularly in cultures with intoxication-oriented drinking patterns. The specific mechanisms linking alcohol consumption and violence are varied and complex [15, 16], but these studies suggest that policies that reduce per-capita consumption in a society are likely to result in an indirect, possibly substantial, reduction in violence, especially in cultures where the link between alcohol consumption and violence is strong.

The role of alcohol at the individual level: Partner and sexual violence

The statistical link between alcohol and violence at the population level described in the first three papers does not necessarily reflect a *causal* relationship attributable to the pharmacological effects of alcohol. This link could be due, for example, to contextual and cultural factors [see 17] such as strong cultural associations between drinking and violence [18], expectations that drinking will lead to violence [19], alcohol being consumed in contexts where violence is more likely to occur [20] and greater tolerance of violence when people have been drinking [21]. Although experimental research suggests a causal contributing role in aggression of both the pharmacological effects of alcohol and the expectations associated with drinking [22, 23], the causal role of alcohol has been particularly contested in the area of intimate partner violence [24, 25]. Two papers in this issue address the relationship between alcohol and intimate partner [26] and sexual violence [27].

Abbey [27] evaluates explanations for the substantial co-occurrence of alcohol consumption and sexual assault perpetration by examining the convergence of findings from different

research approaches to the topic. She links survey studies of self-reported sexual assault perpetration with experimental research on alcohol's role in aggression generally and the effects of alcohol on hypothetical decision-making related to sexual assault perpetration. Her review indicates that experimental research on alcohol's effects on hypothetical willingness to commit sexual assault is consistent with a contributing role of alcohol that is modified by the individual's attitudes and personality. Findings from survey research further suggest that alcohol's contributing role may be at least partly attributable to the perpetrator's drinking pattern *and* expectations about the effects of alcohol.

Pérez-Díaz and Huré [26] provide a different kind of insight into the alcohol-aggression relationship in their examination of the disposition of intimate partner violence cases in the Paris penal system. They find that perpetrators with a pattern of heavy drinking were more likely to have a history of prior aggressive acts; that is, habitual heavy drinking seems to be associated with habitual partner violence. However, contrary to the hypothesis that alcohol consumption might be treated as an excuse for violence, their analyses find that perpetrators who were drinking before the incident or were habitual heavy drinkers were actually less likely to have their case dismissed (compared to offenders who had not been drinking and were not habitual heavy drinkers), controlling for prior history of aggressive acts as well as demographic and other variables. This finding mirrors the seeming contradiction identified in previous research, that while people may view alcohol as a "cause" of violence, they do not view it as an "excuse" [19, 28, 29]. And, although this one study from one area of Paris does not necessarily reflect responses by the correctional system in other parts of the world, a recent study in the U.S. [30] found similar results, with suspects in domestic violence interventions by police *more likely* to be arrested if they had been drinking, controlling for other factors such as injury of the victim, the presence of weapons and hostility of the suspect. These studies suggest that recognition of alcohol's role in intimate partner violence may lead to more serious consequences for offenders.

Alcohol availability and accessibility

As described by Babor et al., [31, p.127], "...availability refers to the ease or convenience of obtaining alcohol. Availability policies are based on the assumption that easier access to alcohol increases overall consumption in a population, which, in turn, increases alcohol problems." Alcohol-related violence, however, may be affected not only by increased consumption but also by other factors associated with alcohol availability, such as the impact of availability on drinking contexts (where and with whom the alcohol is consumed) and broader social factors [32, 33]. Four papers in this issue examine specific facets of availability [34–37].

Enhanced availability in the form of sale of single-serve containers of alcohol for off-premises consumption, for example, may be associated with violence because single-serve containers make it easier for unplanned consumption in high risk settings and for the purchase of alcohol by persons who have little money (which could especially apply to youth and young adults who are more likely than older adults to be violent). Accordingly, geographic analyses by Parker and colleagues [34] find higher rates of violence in proximity to stores that devote a larger proportion of shelf space to single-serve alcohol containers (compared to stores devoting a lower proportion), controlling for other environmental variables.

A second study by Parker and colleagues [35] examines the link between alcohol availability and homicides committed by youth and young adults. Using longitudinal data from 91 U.S. cities, they demonstrate that changes in the density of retail (off-premise) outlets are associated with changes in rates of homicide committed by persons aged 13 and 24 years,

controlling for a range of relevant factors including drug market activity, gang activity and socio-economic status.

Although findings by Parker et al. [34] suggest that the youth homicide rate may be driven in part by alcohol availability, the growing body of literature on the relationship between alcohol availability and harm has not always found consistent results [38]. Thus, there remains significant uncertainty about how different types of alcohol outlets relate to rates of violence. The research by Livingston [36] and Liang and Chikritzhs [37] goes some way toward addressing this uncertainty by dealing with two key issues in the link between alcohol availability and harm: (1) distinguishing between sales of alcohol for consumption on premises versus sale for consumption elsewhere; and (2) examining different types of harms.

Livingston's [36] longitudinal analyses linking outlet density and hospital admissions in the state of Victoria, Australia, demonstrate that assault hospitalisations are best predicted by density of "general licenses" (i.e., licenses for both on-premise and off-premise sales that include taverns, hotels, pubs and some nightclubs) and "packaged licenses" (i.e., off-premise sales), while admissions related to chronic alcohol use (i.e., unrelated to violence), although also associated with packaged licenses, are significantly associated with density of on-premise licenses (i.e., restaurants and bars) but not with general licenses. Thus, while the common link with packaged licenses suggests a role of overall consumption in both assault and chronic alcohol problems, the differential link with general licenses versus on-premise licenses indicates an important contextual influence in the occurrence of assault.

Liang and Chikritzhs [37] further clarify the differential association of assault with alcohol sales versus outlet density and with on- versus off-premise drinking. They find that density (but not sales) of on-premise outlets is associated with assaults that occurred on-premises and in places other than private residences while sales (but not density) at off-premise outlets predict assaults in all locations, including assaults occurring in on-premise drinking locations. Thus, these results identify the role of overall alcohol consumption (as measured in terms of off-premise sales) as well as an additional role of drinking context (as measured by density of on-premise outlets, controlling for sales) in contributing to violence – supporting the importance of directing policies toward *both* types of outlets.

Contextual factors: Addressing violence associated with on-premise drinking

The increased risk associated with density of general licenses in Livingston's analyses and on-premise outlets in the analyses by Liang and Chikritzhs confirms the well-known link between violence and on-premise drinking [see 39]. Three papers focus in this issue focus on this drinking context.

The paper by Bellis and Hughes [2] takes a broad look at nightlife policy in the UK and associated public health consequences. They review the many interventions directed toward licensed premises and nightlife generally, including a large increase in police deployment in the city centres in the UK, and conclude that while there is evidence of some of these interventions having an impact on levels of violence, most interventions do not address, and may even encourage, the culture of drunkenness and often lead to displacement rather than reduction of problems.

Miller and colleagues [40] evaluate several community-level interventions directed toward reducing night-life-related violence introduced over a two-year period in the city of Geelong, Australia. Their time series analyses of emergency department admissions indicate

that none of the interventions was able to counteract a state-wide increase in alcohol-related presentations at emergency departments during the period. Their study underscores the importance of basing interventions on a clearly-articulated rationale that links components of the intervention to specific outcomes [41]. For example, one of the interventions was a media campaign, despite fairly consistent research suggesting that educational interventions are unlikely to be effective [31]. On the other hand, a preventive impact from enhanced policing might have been expected at least in the short term given previous research suggesting its effectiveness [42, 43] although the evidence overall is mixed relating to enhanced policing and is likely to be related to how the policing is implemented [39].

Graham et al. [44] focus on the culture within licensed premises, exploring the apparent motivations of patrons who engage in aggression in public drinking contexts and how knowledge of these motives can be applied to prevention. Thus while the papers by Bellis and Hughes [2] and Miller et al. [40] draw attention to the wide-ranging attempts being made to reduce violence around late-night entertainment districts (with varying success), Graham et al. provides some insight into how to direct these preventive interventions toward the factors that actually motivate aggression by patrons of drinking establishments. For example, ID scanning (one of the preventive interventions implemented in the Geelong study that was found to have no preventive effects) could actually increase violence if implementation of scanners involves an officious approach by aggressive bar staff and use of power to provoke social identity concerns and increase violent reactions among patrons [see 39, 45, 46].

The extent of violence associated with licensed premises and the night-time economy generally makes public drinking an appropriate focus for prevention. However, as noted by Bellis and Hughes [2], this focus has sometimes led to governments paying little attention to other impacts of alcohol consumption, such as the role of off-premise outlets, despite the strong link between off-premise outlets and violence which has been shown by other studies in this issue [34, 36] and elsewhere [47, 48]. Thus, taken together, the papers in this issue suggests the need for a broader focus in policy responses to alcohol-related violence that includes but is not limited to licensed premises.

In summary, people consume alcohol for the pleasure it brings them, but alcohol also brings problems for drinkers and for society generally. The papers in this issue examine both the extent that alcohol is linked to the problem of violence as well as the factors that can modify this link, including preventive interventions aimed at reducing alcohol-related violence. The breadth of the papers, from population-based statistical relationships to contextual and individual approaches to barroom and intimate/sexual violence, increases our understanding both of specific aspects of the alcohol-violence relationship as well as the commonalities and potential synergies of differing focuses of preventive interventions.

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