

Effects of Dram Shop Liability and Enhanced Overservice Law Enforcement Initiatives on Excessive Alcohol Consumption and Related Harms

Two Community Guide Systematic Reviews

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Context: Dram shop liability holds the owner or server(s) at a bar, restaurant, or other location where a patron, adult or underage, consumed his or her last alcoholic beverage responsible for harms subsequently inflicted by the patron on others. Liability in a state can be established by case law or statute. Overservice laws prohibit the sale of alcoholic beverages to intoxicated patrons drinking in on-premises retail alcohol outlets (i.e., premises where the alcohol is consumed where purchased); enhanced enforcement of these laws is intended to ensure compliance by premises personnel. Both of these interventions are ultimately designed to promote responsible beverage service by reducing sales to intoxicated patrons, underage youth, or both. This review assesses the effectiveness of dram shop liability and the enhanced enforcement of overservice laws for preventing excessive alcohol consumption and related harms.

Evidence acquisition: Studies assessing alcohol-related harms in states adopting dram shop laws were evaluated, as were studies assessing alcohol-related harms in regions with enhanced overservice enforcement. Methods previously developed for systematic reviews for the *Guide to Community Preventive Services* were used.

Evidence synthesis: Eleven studies assessed the association of state dram shop liability with various outcomes, including all-cause motor vehicle crash deaths, alcohol-related motor vehicle crash deaths (the most common outcome assessed in the studies reviewed), alcohol consumption, and other alcohol-related harms. There was a median reduction of 6.4% (range of values 3.7% to 11.3% reduction) in alcohol-related motor vehicle fatalities associated with the presence of dram shop liability in jurisdictions where premises are licensed. Other alcohol-related outcomes also showed a reduction. Only two studies assessed the effects of enhanced enforcement initiatives on alcohol-related outcomes; findings were inconsistent, some indicating benefit and others none.

Conclusions: According to *Community Guide* rules of evidence, the number and consistency of findings indicate strong evidence of the effectiveness of dram shop laws in reducing alcohol-related harms. It will be important to assess the possible effects of legal modifications to dram shop proceedings, such as the imposition of statutes of limitation, increased evidentiary requirements, and

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caps on recoverable amounts. According to *Community Guide* rules of evidence, evidence is insufficient to determine the effectiveness of enhanced enforcement of overservice laws for preventing excessive alcohol consumption and related harms.

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Introduction

Excessive alcohol consumption, including binge and underage drinking, is responsible for approximately 79,000 deaths per year in the U.S., making it the third-leading cause of preventable death in the nation.¹ In 1998, the economic cost of excessive drinking was estimated to be \$184.6 billion, most of which was due to lost productivity.² The reduction of excessive alcohol consumption is thus a matter of major public health and economic interest.

Among a representative sample of U.S. adults from 13 to 14 states, interviewed anonymously by telephone in 2003 and 2004, respectively, 16.3% reported binge drinking (defined as consuming ≥ 5 drinks per occasion for men, and ≥ 4 drinks per occasion for women in the past 30 days).³ Approximately 30% of high school students in the U.S. report binge drinking in the past 30 days,^{4,5} and among full-time college students, almost half (48.6%) of male adolescents and 34.4% of female adolescents reported binge drinking.⁶

Among binge-drinking adults, half consumed ≥ 7 drinks during their most recent drinking episode; 32.7% had their most recent binge episode in a bar/club or restaurant; and between 16.3% and 20.8% of those who drank at a bar or restaurant drove a motor vehicle after binge drinking. Among all episodes of self-reported binge drinking, drinking in a bar/club or restaurant accounted for 54.3% of episodes, compared with 35.7% consumed in a home, and 10% elsewhere.³ Thus, drinking in bars and restaurants is strongly associated with binge drinking and with alcohol-impaired driving among U.S. adults who report binge drinking. In the U.S., the overservice of alcoholic beverages in on-premises alcohol outlets is a major source of public health problems. Approximately 13,000 U.S. residents die annually from alcohol-related motor vehicle crashes, and many others are injured.⁷

Alcohol control policies have been shown to be effective instruments for preventing alcohol-related harms.⁸ Systematic reviews of alcohol policy by the *Guide to Community Preventive Services (Community Guide)* have demonstrated the public health benefits of increasing alcohol excise taxes,⁹ enhanced enforcement of laws prohibiting alcohol sales to minors,¹⁰ limiting alcohol outlet density,¹¹ and limiting the days and hours when alcoholic beverages can be sold.^{12,13}

This report assesses two law-based interventions for preventing excessive alcohol consumption and related harms, which focus on promoting responsible beverage

service in on-premises retail alcohol outlets (e.g., bars or restaurants): dram shop liability and enhanced enforcement of overservice laws. Dram shop liability involves holding the owner or server(s) at an on-premises retail alcohol outlet liable for alcohol-attributable harms (e.g., an alcohol-attributable motor vehicle crash death) caused by a patron who was illegally served alcoholic beverages because the patron was underage or already intoxicated. For there to be liability for service to an intoxicated person, it must be shown that the server either knew or should have known that the patron was intoxicated.

Liability can be established in states either by case law or statute. Most states have enacted dram shop statutes; several states have established dram shop policies by case law/precedent; seven states (Delaware, Kansas, Louisiana, Maryland, Nevada, South Dakota, and Virginia) have neither statutory nor precedent dram shop liability.¹⁴ Most dram shop statutes create barriers to lawsuits not present in common law liability, such as damage caps or stringent evidentiary requirements. Dram shop suits are generally brought by those harmed or by their families. The existence of dram shop liability in a state is thought to promote caution on the part of on-premises owners and staff; owners may purchase liability insurance to protect themselves from financial loss resulting from dram shop law suits.

The second law-based intervention assessed was enhanced enforcement of laws prohibiting “overservice” (defined as sale of alcohol to intoxicated patrons). As with dram shop liability, states vary widely regarding the evidence needed to establish a violation. Enforcement activities are usually carried out by plainclothes or uniformed police, Alcohol Beverage Control personnel, or both. Alcohol Beverage Control Boards are state-operated organizations charged to regulate the sale of alcoholic beverages.

In addition to these direct enforcement actions, this intervention may involve prior notification of retail alcohol outlets of planned enforcement actions, and the training of outlet managers and staff in responsible beverage service, including how to recognize intoxicated patrons and prevent overservice. Legal penalties for overservice may include fines or criminal sanctions for alcohol servers; fines or licensing actions against license holders (including revocation of alcohol sales license); or both. However, a recent systematic review of overservice laws in the U.S. concludes, “The single most notable finding

from the qualitative enforcement research is that enforcement of laws that prohibit alcohol sales to intoxicated patrons is relatively rare.”¹⁵

Both interventions are assumed to work by deterrence, the notion that if premises owners or servers perceive a high probability of incurring substantial penalties by overserving, they will be more likely to avoid doing so. The effect of deterrence depends on three key elements: perceived certainty of detection and punishment, perceived swiftness of punishment, and the perceived severity of punishment.¹⁶ Although both interventions have all the elements, dram shop liability may present a greater perceived threat of meaningful consequences among alcohol premises personnel.¹⁷ This is supported by survey research indicating that actual and perceived threat of dram shop liability are associated with more responsible service practices, but levels of enforcement tend not to be.¹⁸

Findings, Recommendations, and Directives from Other Reviews and Advisory Groups Related to Dram Shop Liability and Overservice Enforcement

The WHO has published a review that identifies both the enforcement of overservice laws and dram shop liability as effective methods for reducing alcohol-related harms.⁸ The Substance Abuse and Mental Health Services Administration’s Prevention Enhancement Protocols System¹⁹ recommended “that jurisdictions strictly and uniformly enforce the laws regarding the sale of alcohol to such individuals” (i.e., those who were intoxicated or underage) and “that States and jurisdictions undertake efforts to keep the burden of legal responsibility [for intoxication-related problems caused by patrons] on the owners of drinking establishments and alcohol licensees rather than their employees, such as servers. Jurisdictions might, in fact, consider increasing such liability burdens, not decreasing them.”

Evidence Acquisition

The *Community Guide* systematic review process was used to assess whether dram shop liability or overservice law enforcement initiatives lead to decreases in excessive alcohol consumption and related harms. Details of the *Community Guide* review process are presented elsewhere.^{20,21} The process involves forming a systematic review team; developing a conceptual approach to organizing, grouping, and selecting interventions; prioritizing these interventions; systematically searching for and retrieving the existing research evidence on the effects of the interventions; abstracting information from each study that meets qualifying criteria; assessing the quality of each study; drawing conclusions about the body of evidence on intervention effective-

ness; and translating the evidence on effectiveness into recommendations.

The systematic review team consists of systematic review methodologists and subject matter experts from a range of agencies, organizations, and academic institutions. The review team works under the oversight of the nonfederal, independent Task Force on Community Preventive Services (Task Force), which directs the work of the *Community Guide*.

The systematic review team (the team) collects and summarizes evidence on (1) effectiveness of interventions in improving health-related outcomes of interest and (2) additional benefits and potential harms of the intervention on other health and nonhealth outcomes. When an intervention is shown to be effective, information is also included about (3) the applicability (i.e., generalizability) of the evidence to diverse population segments and settings, (4) the economic impact of the intervention, and (5) barriers to implementation. Such information may also be provided in the absence of sufficient evidence of effectiveness. The team then presents the results of this review process to the Task Force, which determines whether all of the evidence presented is sufficient to warrant a recommendation for practice or policy.²⁰

The rules of evidence under which the Task Force makes its determination address several aspects of the body of evidence, including the number of studies of different levels of design suitability and execution, the consistency of the findings among studies, the public health importance of the overall effect size, and the balance of benefits and harms of the intervention.

Conceptual Approach and Analytic Framework

Dram shop liability. The effect of dram shop liability on alcohol-related outcomes may be influenced by at least two factors (Figure 1). In states with dram shop liability, premises owners perceive a potential for liability suits,²² which may be communicated by public and trade media and word of mouth. Such perception may result in increased training of outlet personnel in responsible beverage service, increased motivation, increased oversight, and increased compliance with liquor laws.

These changes may result in reduced illegal beverage service, including service to intoxicated patrons and underage youth, and ultimately reduced excessive consumption and related harms. In states with dram shop liability, many owners of on-premises outlets commonly purchase liability insurance and thus have some financial protection against possible legal action. Because of this protection, insurance may reduce the deterrent effect of liability; the team encountered no evidence regarding this conjecture.

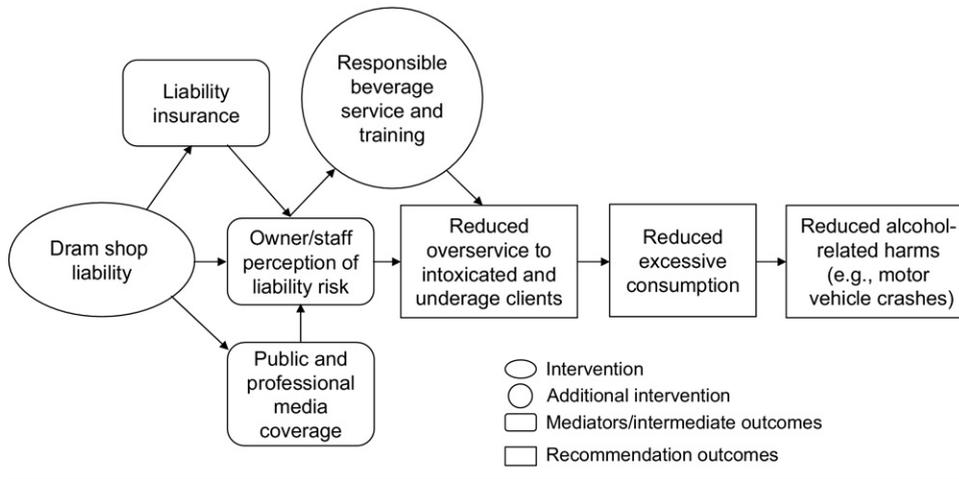


Figure 1. Analytic framework: dram shop liability

Enhanced enforcement of overservice laws. Overservice enforcement initiatives are designed to increase the perceived risk by servers and managers of on-premises retail alcohol outlets of sanctions resulting from serving intoxicated patrons (Figure 2). In response to such initiatives, establishment personnel may undergo training to improve the ability of servers to detect patrons who are intoxicated, so that they can then refuse to serve additional alcohol. These intermediate consequences of enhanced enforcement are hypothesized to reduce excessive alcohol consumption and alcohol-related harms.

Inclusion Criteria

To qualify as a candidate for inclusion in this review, a study had to:

- Evaluate the effectiveness of dram shop liability or initiatives for enhanced enforcement of overservice regulations that could and did apply legal or administrative sanctions.
- Be conducted in a country with a high-income economy,^{a,23} be primary research (rather than a review of other research), and be published in English.
- Compare attributes of participants before and after the implementation of the intervention or compare a group receiving the intervention with a group not receiving it.

^aCountries with high-income economies as defined by the World Bank are Andorra, Antigua and Barbuda, Aruba, Australia, Austria, The Bahamas, Bahrain, Barbados, Belgium, Bermuda, Brunei Darussalam, Canada, Cayman Islands, Channel Islands, Cyprus, Denmark, Estonia, Faeroe Islands, Finland, France, French Polynesia, Germany, Greece, Greenland, Guam, Hong Kong (China), Iceland, Ireland, Isle of Man, Israel, Italy, Japan, Republic of Korea, Kuwait, Liechtenstein, Luxembourg, Macao (China), Malta, Monaco, Netherlands, Netherlands Antilles, New Caledonia, New Zealand, Norway, Portugal, Puerto Rico, Qatar, San Marino, Saudi Arabia, Singapore, Slovenia, Spain, Sweden, Switzerland, Trinidad and Tobago, United Arab Emirates, United Kingdom, U.S., Virgin Islands (U.S.).

- Report outcomes related to excessive alcohol consumption or related harms, such as alcohol-impaired driving or alcohol-related motor vehicle crashes.

Search for Evidence

The following databases were searched for this review: CINAHL, EconLit, Embase, ERIC (CSA), NLM Gateway, NTIS (National Technical Information Service), PsycINFO, PsycNET (APA), MEDLINE, Science Direct, Social Services Abstracts,

and Sociological Abstracts (CSA) Web-of-Science. All publication years covered in each database were searched up to October 2007. (Details of the search strategy are available at www.thecommunityguide.org/alcohol/supportingmaterials/SSalcoholuse.html.) Reference lists of articles reviewed as well as lists in review articles were also searched, and subject matter experts consulted for additional references. Published government reports were included, but not unpublished manuscripts because they are not commonly available in the public domain.

Evidence Synthesis

Assessing the Quality and Summarizing the Body of Evidence on Effectiveness

Each study that met the inclusion criteria for candidate studies was read by two reviewers who used standardized criteria (www.thecommunityguide.org/about/methods.html) to assess the suitability of the study design and threats to validity. Uncertainties and disagreements between the reviewers were reconciled by consensus among team members. Classification of the designs of reviewed studies accords with the way in which study findings were used in the review and with the standards of the *Community Guide* review process²¹; they may differ from the classification reported in the original studies.

Each candidate study for this review was evaluated for quality of study design and execution. Studies with greatest design suitability were those in which outcome data on exposed and comparison populations were collected prospectively, such as panel (i.e., cohort) studies; studies with moderate design suitability were those in which data on exposed and comparison populations were collected retrospectively or in which there were multiple pre- or post-intervention measurements, but no concurrent

comparison population; and studies with least suitable designs were cross-sectional studies or those that had no separate comparison population and only a single pre- and post-measurement in the intervention population.

On the basis of the number of threats to validity—such as poor measurement of exposure or outcome, lack of control of potential confounders, or high attrition—studies were characterized as having good (≤ 1 threat to validity); fair (2–4 threats); or limited (≥ 5 threats) quality of execution. Studies with good or fair quality of execution and any level of design suitability (greatest, moderate, or least) qualified for the body of evidence; studies with limited quality of execution were excluded.

With dram shop liability jurisdiction as the unit of analysis, effect estimates were calculated as relative percentage change using the following formulas:

- For studies with before-and-after measurements and concurrent comparison groups:

Effects Estimate

$$= [(I_{\text{post}}/C_{\text{post}})/(I_{\text{pre}}/C_{\text{pre}}) - 1] \times 100\%$$

where:

I_{post} = last reported outcome rate in the intervention group after the intervention;

I_{pre} = last reported outcome rate in the intervention group before the intervention;

C_{post} = last reported outcome rate in the comparison group after the intervention;

C_{pre} = last reported outcome rate in the comparison group before the intervention.

- For studies with before-and-after measurements but no concurrent comparison:

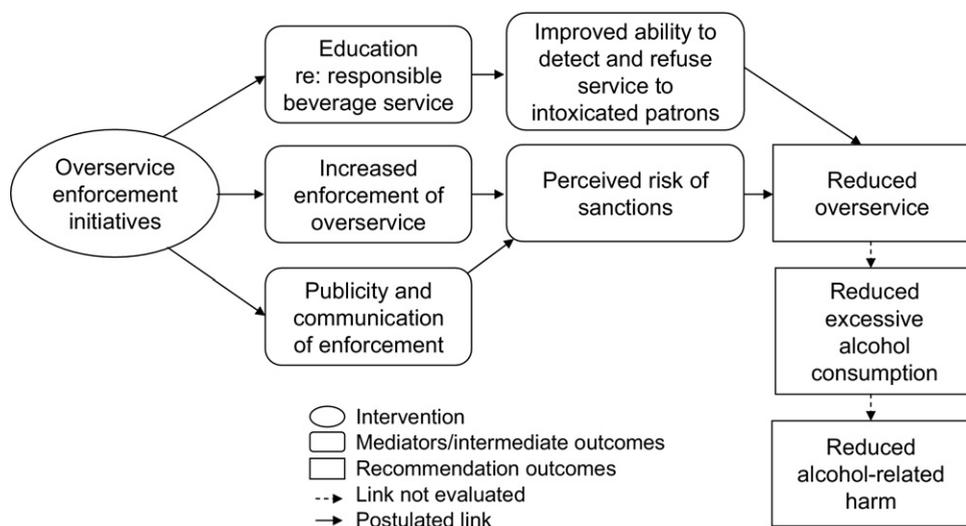


Figure 2. Analytic framework: enhanced enforcement of alcohol overservice initiatives

Effects Estimate

$$= [(I_{\text{post}}/I_{\text{pre}})/I_{\text{pre}}] \times 100\%$$

When appropriate data were provided, CIs for effect estimates were calculated. When a body of evidence included three or more studies, medians and data range of values were reported.

Intervention Effectiveness: Dram Shop Liability

The review included 11 studies^{22,24-33} of the effectiveness of dram shop liability in preventing excessive alcohol consump-

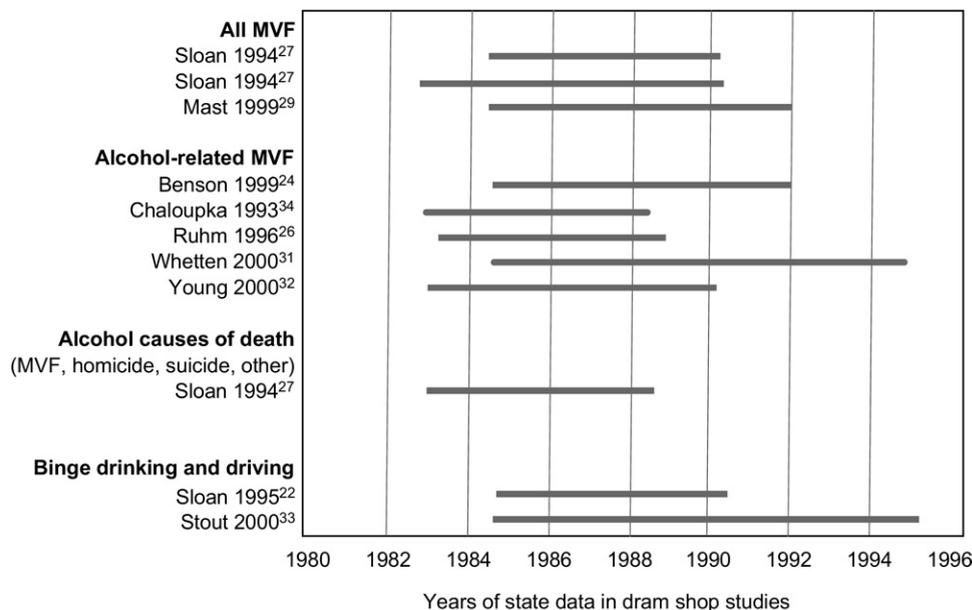


Figure 3. Overlap in time periods among dram shop studies indicating dependence among the data
 MVF, motor vehicle fatalities

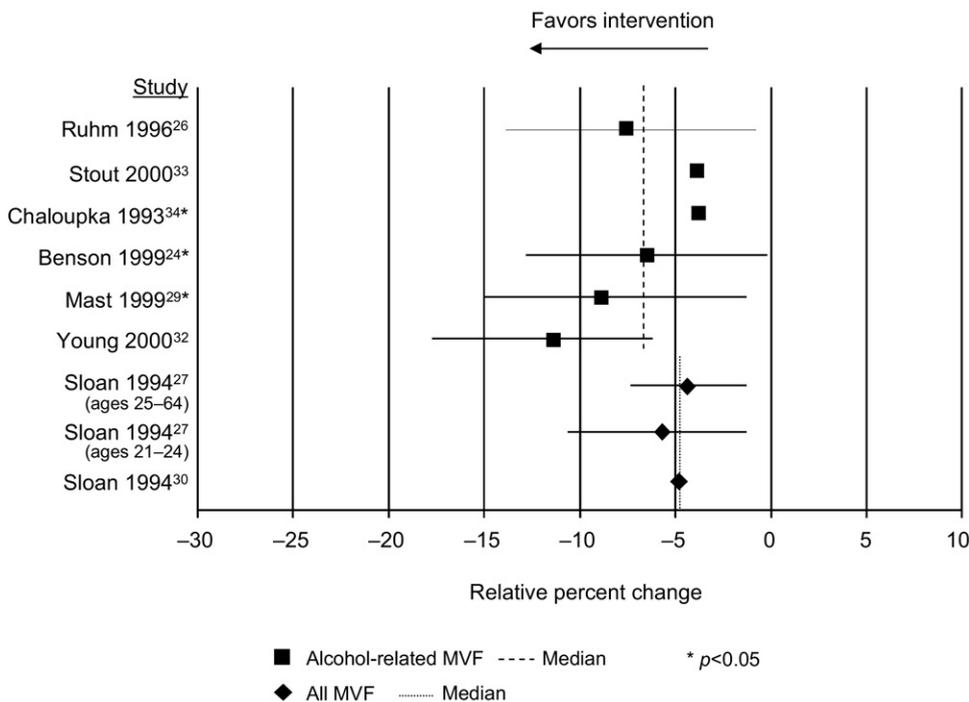


Figure 4. Relative percentage change in alcohol-related and all-cause motor vehicle fatalities associated with dram shop liability

tion and related harms. Nine²⁴⁻³² of these were of greatest design suitability and two^{22,33} were of least suitable design. Five²⁴⁻²⁸ were of good quality of execution and six^{22,29-33} were of fair quality of execution.

All studies but one²⁸ were panel studies of U.S. states using econometric models to assess the effects of dram shop liability and other interventions on diverse outcomes. These studies covered overlapping time periods (Figure 3) and states, and thus are not entirely independent. However, the models in these studies included different covariates and assessed effects on different outcomes.

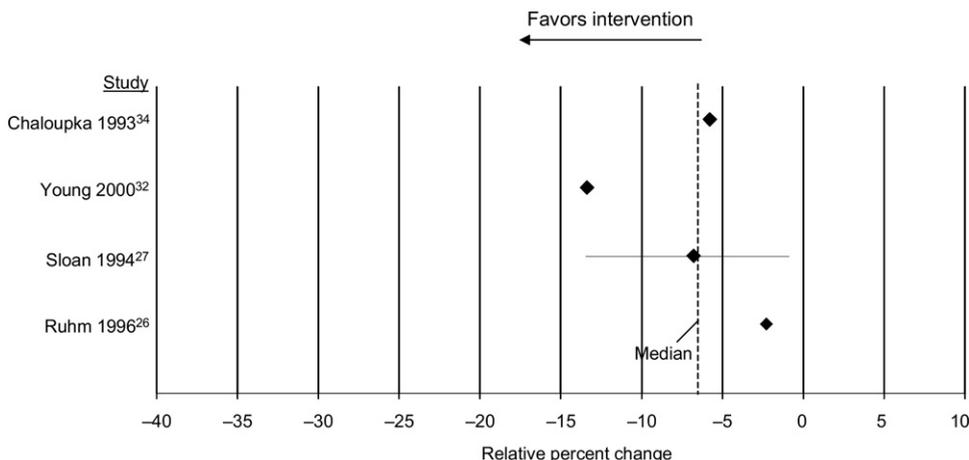


Figure 5. Relative percentage change in alcohol-involved motor vehicle fatalities associated with dram shop liability for underage drinkers

Six studies^{24-26,29,32,33} that assessed the effects of dram shop liability on alcohol-related motor vehicle fatalities found a median reduction of 6.4% (range of values 3.7% to 11.3% reduction) associated with these policies (Figure 4). Two studies^{27,30} that assessed all-cause motor vehicle fatalities (in which not all crashes were attributable to alcohol) found a median reduction of 4.8% (Figure 4). Those^{26,27,32,34} that reported all-cause motor vehicle fatalities among underage drinkers all found reductions of between 2.2% and 13.0% (Figure 5). Only two studies^{22,33} assessed changes in alcohol consumption

(i.e., self-reported binge drinking) as an outcome; both found small, nonsignificant decreases (1.2% and 2.4%) associated with dram shop liability in states (data not shown in graphic).

One panel study²⁸ assessed the effects of two lawsuits brought against on-premises alcohol outlets in Texas in 1983 and 1984. These suits, filed by the families of people killed in alcohol-related motor vehicle crashes, were publicized in general public and alcohol-industry periodicals. The researchers used interrupted time-series models to assess the effects of these suits on single-vehicle nighttime crashes in Texas, compared with the 47 other contiguous U.S. states. The researchers found that the first suit was associated with a 6.6% decrease (95% CI=0.5%, 11.3%) in single-vehicle nighttime crashes, and the second suit was associated with an additional 5.3% decrease (95% CI=0.4%, 10.1%) in single-vehicle nighttime crashes (data not shown).

One study²⁷ reported reductions in rates of suicide, homicide, and alcohol-

related medical conditions; the last two findings were significant ($p < 0.01$), the first was not ($p > 0.10$).

Summary: Results of Dram Shop Liability Review

Eleven studies of dram shop liability consistently found that this intervention reduced motor vehicle crash deaths in general and alcohol-related crash deaths in particular. Strong evidence indicated that dram shop liability is an effective intervention for reducing alcohol-related harms, as indicated by reduced motor vehicle crashes. Two studies of binge drinking did not provide sufficient independent evidence on the effect of dram shop liability on excessive consumption.

Intervention Effectiveness: Enhanced Enforcement of Overservice Laws

Two studies assessed the effects of enhanced enforcement of overservice laws.^{35,36} Both studies were of greatest design suitability and fair quality of execution. Both studies had pre-post designs, with concurrent comparisons. They provided information on two key components of enhanced enforcement initiatives: (1) owners and servers of establishments serving alcohol were made aware of enforcement efforts through media coverage, letters, presentations, and reports containing information about undercover visits; and (2) owners and servers were offered server training and educational materials on responsible beverage service.

One study³⁵ assessed an overservice initiative in Washtenaw County, Michigan. State Police Department enforcement was countywide, and was followed by after-visit reports notifying licensees visited by undercover police officers that enforcement was in progress. After 1 year, prevalence of service to pseudo-intoxicated pseudo-patrons in intervention settings decreased by 14.8% compared with control settings, and the percentage of driving under the influence (DUI) arrestees in the experimental county who reported having consumed their last drink in an intervention setting decreased by a relative 36.3% in the intervention sites.

The second study³⁶ assessed the impact of enhanced enforcement of overservice laws administered by the Washington State Liquor Control Board in bars and restaurants in Washington State, assessing service to pseudo-patrons and DUI associated with alcohol consumption in intervention and control outlets. Compared with control sites, alcohol sales to pseudo-intoxicated pseudo-patrons in intervention sites increased 82.6%, and the average number of monthly DUI arrests in which intervention establishments were identified as “place of last drink” decreased by 31.2% ($p > 0.05$).

Summary of Results of Enhanced Enforcement Initiative Review

The only available two studies of enhanced enforcement of overservice laws included in this review differed substantially in design (i.e., sample size and analysis) and findings. All outcomes in the Michigan study³⁵ had favorable and significant findings, but the Washington study³⁶ had contrary results (i.e., an apparent increase in service to pseudo-intoxicated pseudo-patrons, but an apparent decrease in DUIs). The small number of studies and inconsistent findings provided an insufficient body of evidence to determine the effectiveness of enhanced enforcement of overservice laws on excessive alcohol consumption and related harms.

Potential Harms, Additional Benefits, and Barriers to Implementation

Although dram shop liability appears to have deterrent effects, litigation may be an expensive and inefficient method of achieving this outcome. Under dram shop liability, for legal actions to be brought against a manager or server in an on-premises establishment, there must have been both illegal beverage service (e.g., service to an intoxicated patron) and harm to someone as a result of this illegal service. In addition, an individual who experienced harms related to illegal beverage service (or a representative of that individual) must prove that illegal service took place, which may be difficult.

On the other hand, dram shop liability can foster an environment that encourages responsible server behavior, and thus encourages investment in server training and other primary prevention strategies. This intervention can also help to create a retail environment that makes responsible beverage service the norm and, thus, does not unfairly disadvantage responsible beverage servers.

Despite these challenges to implementation, dram shop liability may be useful because it focuses on a regulated environment which is thus amenable to control. Furthermore, on-premises alcohol outlets have been strongly associated with high-intensity binge drinking (i.e., a higher self-reported number of drinks per binge episode) and related risk behaviors, such as driving after binge drinking, furnishing a strong public health justification for targeting interventions to these settings.

One harm that may be posited with overservice enforcement is that underage drinkers and intoxicated patrons in on-premises facilities may move to uncontrolled settings to consume additional alcohol. The team found no evidence on this issue.

Applicability

Much of the research assessing the effectiveness of dram shop liability was conducted before the enactment of various

caps on the financial liability of servers and managers in dram shop cases in the late 1990s. These changes may have modified the effectiveness of this intervention, limiting its applicability to current circumstances. Some states have instituted statutes of limitation that require injured plaintiffs to sue within a specified time period. The standards of evidence required in dram shop liability cases have also grown more stringent, making it increasingly difficult to prove illegal beverage service. In addition, knowledge of and access to legal services vary greatly by SES, making it difficult for some segments of the population to obtain legal services for dram shop litigation.

Economic Efficiency

Dram Shop Liability

The systematic economic review did not identify any studies that examined the costs and benefits of dram shop liability. Thus an economic analysis was not possible for this review.

Overservice Law Enforcement

Although insufficient evidence to determine the effectiveness of enhanced enforcement of overservice law initiatives was found, the systematic economic review identified two analyses that estimated the costs of enhanced enforcement of overservice laws, and found substantial benefit. Both studies were based on the findings of the Michigan program described above.³⁵ This evidence is summarized now, in case evidence accrues in the future to support this intervention.

Levy and Miller³⁷ conducted a cost–benefit analysis and estimated that the combined police, supervisory, and miscellaneous costs for enhanced enforcement of overservice laws in Ann Arbor city and Washtenaw County was \$84,296 in 2009 dollars. The estimated benefits of the program (in 2009 dollars) attributable to reduced tavern-related DUI cases alone were approximately \$800,000 in medical cost savings, and about \$6.1 million when additional savings were taken into account (e.g., reduced demand for emergency services, such as fire and police; travel delays for motorists who would have otherwise been involved in crashes; property damage; costs to employers caused by workplace disruption; productivity losses for employees; and administrative costs, including claims-processing and legal and court costs).

If pain and suffering and lost quality of life were added, the economic benefit of enhanced enforcement would increase to about \$16.6 million. However, the estimated benefit of this intervention would decline to about \$8 million if only averted external costs (i.e., costs to third parties) were included. In the best-case scenario, when all societal benefits from averted DUI crashes are properly

accounted for, each dollar invested in the program returned more than \$196 in benefits. It is important to note that this benefit–cost estimate is exclusively based on traffic-related injuries, and does not consider other household injuries (e.g., assault and domestic violence) resulting from excessive drinking. The benefits of overservice enforcement may be reduced if people who are refused a drink in one location resume drinking at another location and then drive or engage in other risky behavior.

McKnight et al.³⁵ extended the cost–benefit analysis of the Washtenaw County Service to Intoxicated Patrons program to the national level, using benefit estimates from Miller and Levy.³⁷ Assuming an estimated total cost of a nationwide law enforcement effort of \$74.5 million per year and annual net savings of \$21 billion from averted costs related to DUIs and crashes, they reported a benefit of \$282 for each dollar invested in the program. (All dollar figures are adjusted to 2009 dollars based on the consumer price index.) Thus, studies indicate the large potential cost benefit of this intervention, were it found to be effective.

Research Gaps

As noted, many of the studies included in this review were conducted prior to the enactment in the late 1990s of various caps on financial liability of servers and managers in dram shop cases, in addition to statutes of limitation and increased legal evidence requirements. Further research is needed to assess what impact, if any, these limits on liability have had on the effectiveness of dram shop laws in reducing excessive alcohol consumption and related harms.

Additional studies are needed to assess how effective enhanced enforcement of overservice regulations is in reducing excessive alcohol consumption and related harms. It would be useful to ascertain barriers to effective enforcement. In addition, research is needed to assess the role of the media in publicizing enhanced enforcement and enhancing its effectiveness and the potential role of responsible beverage service training programs in reducing overservice and thus enhancing the effectiveness of enforcement. The latter is important as these multicomponent server intervention programs may prove beneficial in decreasing excessive alcohol consumption and related harms in on-premises retail alcohol settings. The potential cost savings to owners of on-premises retail alcohol outlets through the promotion of responsible beverage service will be useful in assessing economic benefits.

The signs of intoxication that a patron exhibits may be difficult for servers or law enforcement officials to identify. To help servers avoid engaging in illegal service, additional research is needed to improve methods for identifying patrons who are intoxicated, underage, or

both. Other methods for avoiding overservice can also be explored, such as counting drinks and spacing out the frequency of drink service through the use of food or nonalcoholic drinks after a predetermined threshold has been achieved.

Although enforcement of existing laws and regulations prohibiting service of alcohol to intoxicated patrons appears to be cost-beneficial based on the estimated findings from Washtenaw County, additional studies are needed for a more reliable estimate of the economic value of enforcement.

Finally, additional research is needed to assess the effectiveness of both dram shop liability and enhanced enforcement in achieving these broader societal impacts, but if further research corroborates these findings, dram shop liability and enhanced enforcement of overservice laws could provide many collateral benefits.

Discussion

This review assesses two law-based approaches to promoting responsible beverage service in on-premises retail alcohol settings, including bars and restaurants. Room and colleagues³⁸ have argued that “the general rule in such situations is that it is easier and more effective for the state to influence licensed occupational behavior than it is to influence the behavior of private customers.” Evidence of the effectiveness of one of these approaches—dram shop liability—is strong. The effectiveness of this approach, however, may be diminished by restrictions on these laws by stringent monetary caps, evidentiary requirements, and statutes of limitations. The effects of these restrictions should be investigated.

No studies of the economic effects of dram shop liability were found. Nevertheless, given the association between drinking in on-premises retail alcohol outlets and high-intensity binge drinking, and the relationship between binge drinking and a variety of other health and social problems, including alcohol-impaired driving and interpersonal violence, the potential economic impact of promoting more responsible beverage service by holding managers and servers responsible for harms resulting from illegal beverage service could be substantial. The real benefit of maintaining strong dram shop liability, however, may result from creating a business environment that supports responsible beverage service at on-premises retail outlets without penalizing servers and managers who strive to comply with liquor control laws. This would, in turn, help to reduce illegal beverage service and harms resulting from it, thus decreasing the likelihood that dram shop liability cases will need to be adjudicated by the courts. Furthermore, reduced prevalence of drunken and disorderly conduct in on-premises retail

alcohol outlets may also reduce the cost of operations for owners, and thus offset the potential loss in sales that may result from the intervention.^{37,39}

Effectiveness of the other approach assessed in this review—the enhanced enforcement of overservice regulations—could not be determined because there were too few studies and inconsistent findings. There are examples of intensive enforcement efforts among U.S. states. New Mexico has one of the strongest overservice enforcement programs. As of 2006, alcohol licensees in New Mexico are subject to license suspension for a first violation and to license revocation following three violations within 1 year. Presumptive evidence of overservice can be established by a blood alcohol level of 0.14 g/dL in patrons within 90 minutes of exiting a drinking establishment. In addition, the New Mexico Department of Public Safety has a “Mobile Strike Team” that investigates licensed establishments where overservice has been noted.

Awareness of such policies may increase the level of deterrence in the state. A National Highway Traffic Safety Administration report, “Laws Prohibiting Alcohol Sales to Intoxicated Persons,”¹⁵ proposes a series of “best practices,” including the use of presumptive evidence of a blood alcohol level of 0.14 g/dL in patrons exiting a drinking establishment, as in New Mexico; enactment of service to intoxicated patron legislation in all states; the collection of data for the monitoring of alcohol-related harms; and the training of law enforcement personnel in the enforcement of service to intoxicated patron rules. Such measures may assist in the development of more-effective procedures for the reduction of the harms associated with excessive alcohol consumption in the U.S.

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