Communities Mobilizing for Change on Alcohol: Initial Outcomes from a Randomized Trial

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The Communities Mobilizing for Change on Alcohol (CMCA) project was a community-organizing effort to reduce underage alcohol use and resulting problems, such as traffic crashes, using a theory-based process of community activation. Objectives of this randomized community trial include: (1) reducing the availability of alcohol to youth under age 21 (the legal age for drinking in the United States), (2) reducing alcohol consumption among youth, and (3) reducing injury and other health and social problems associated with alcohol use among young people. We hypothesized that reductions in underage drinking would result from changes in community- and institutional-level policies and practices, with consequent reductions in injury morbidity and other social and health problems associated with underage drinking. Further, we expect those changes will continue beyond the project. We also expected, through involvement with CMCA, communities would develop public problem solving skills that could be used to address other health and social issues.

DESIGN

To assess the effects of the intervention on youth alcohol access, alcohol use, and related problems, we used a combination randomized community trial and time-series design. The randomized community trial includes seven socially and geographically distinct upper midwestern communities randomly assigned to receive the intervention program, with eight others randomly assigned to serve as controls. Baseline surveys were conducted in each community among a number of targeted groups and repeated three years later. The multiple time-series design is superimposed on the community trial such that the same outcome measures (e.g., traffic crashes) are collected from the same communities, but the outcome variables are measured at many more points in time both prior to and after the onset of the intervention program (Wagenaar et al., 1994).

All school districts in Minnesota and western Wisconsin were screened for 9th grade
enrollments of at least 200, no participation in other University of Minnesota alcohol-related studies, at least 25 miles in distance from other eligible communities, and concentration of students in three or fewer municipal jurisdictions. Twenty-four districts that met these criteria were identified and invited to participate in the study. To participate, district officials had to agree to random assignment and allow access to 9th and 12th grade students for the baseline and follow-up school surveys. Fifteen of the 24 eligible districts agreed to participate in the study; the most common reason for refusal was recent participation in another alcohol-related survey. The 15 communities had an average population of 20,836. There were an average 35 “on-sale” outlets (i.e., take-out liquor and grocery stores) and 14 “off-sale” outlets (i.e., bars, taverns and restaurants) in each of these communities.

The 15 participating districts were matched on state, presence of a residential college or university, population size, and on the results of the baseline alcohol purchase survey. Given the odd number of sites, six pairs were formed, along with one triplet. One site from within each pair or triplet was selected at random for allocation to Group A and the remaining sites were assigned to Group B; in this way, the two groups were structured so as to be similar at baseline on the matching factors. One of the two groups was then assigned at random to become the Intervention Group; the other became the Control Group (Wagenaar et al., 1994).

**SOURCES OF DATA AND STATISTICAL ANALYSES**

Key pre- and post-intervention data were collected from a variety of sources, including: (1) self-administered or in-school surveys of 9th and 12th graders, (2) telephone surveys of young adults aged 18 to 20, (3) telephone surveys of alcohol outlet owners and managers, (4) pseudo-underage alcohol purchase attempts, (5) analyses of newspaper coverage of alcohol issues, (6) collection of archival data on community-level indicators of alcohol use and misuse, and (7) process evaluation data collected in the intervention communities by local community organizers. All data collection protocols included approved provisions for the protection of human subjects. The first four data collection components were conducted in 1992 as a baseline, before the community was organized for action on underage drinking, and again in 1995 to measure any changes that may be attributable to the organizing efforts. Data collection components five through seven continued throughout the baseline and intervention phases of the project. All data analyses used mixed-model regression (Murray & Wolfinger, 1994), taking into account baseline levels in both the intervention and control groups, controlling for a variety of relevant covariates, and accounting for the nesting of individual
respondents in communities.

**FINDINGS TO DATE**

The intervention phase ended December, 1995, data collection ended mid-1996, and follow-up data are now being analyzed. Results from baseline and early follow-up analyses have provided important information on patterns of alcohol availability among youth, where it is obtained, how it is used, and potential strategies for prevention.

We sought to increase the proportion of alcohol outlets that request age identification from young buyers and decrease the propensity of outlets to sell to those buyers. Alcohol purchase attempts assessed the degree to which buyers who appeared under the legal age could purchase alcohol. Results at baseline showed that buyers were successful in purchasing beer without age identification in 50% of attempts in “on-sale” outlets and in 52% of attempts in “off-sale” outlets (Forster et al., 1995). In “off-sale” businesses, buyers were more successful if the salesperson was male and if the businesses were located in a residential area or a mall. “on-sale” purchase attempts were more likely to be successful if the server appeared to be younger than 30 years old, if the business was a restaurant as opposed to a bar alone, and if signs warning against sales to underage persons were located at checkouts. After the community organizing intervention the proportion of outlets checking age identification increased among both on- and “off-sale” alcohol outlets, with a greater increase among “off-sale” outlets, an effect seen uniformly across the seven intervention sites. Also, the proportion of both on- and “off-sale” outlets selling to our confederate buyers decreased (Figure 1).

In addition to testing the propensity of alcohol outlets to check age identification and sell to young-appearing buyers, practices and policies of commercial outlets in the 15 study communities were examined via telephone surveys of owners and managers (Wolfson et al., 1996; Figure 2). The surveys revealed changes potentially resulting from the intervention. Merchants were asked whether they check age identification for all customers who appear under age 30. The proportion responding affirmatively did not change in “on-sale” outlets, but increased among “off-sale” outlets in the intervention communities. We asked whether merchants had ever been cited for sales to minors. Among both on- and “off-sale” outlets the intervention was associated with an increase in the proportion reporting having been cited, although the increase among “off-sale” outlets was smaller. While not statistically significant at conventional levels, the effect was seen uniformly across the seven intervention cities. We also assessed merchants’ perceived likelihood of being cited by law enforcement agents if
they were to sell or serve to minors. An objective of the intervention was to deter merchants from selling to minors by increasing the perceived chances of receiving an enforcement consequence. In both on- and “off-sale” outlets the intervention resulted in higher levels of perceived likelihood of citation. Finally, a measure of merchants care in preventing access to alcohol by minors is the degree to which they refuse sales to a 21-year-old accompanied by a minor. At post-test, outlets in the intervention communities were less likely to report that they would sell in such situations, compared to the control group.

Results from baseline surveys of high school students (n=10,391) and 18- to 20-year-olds (n=3,095) showed that a person age 21 or over was the most common source of alcohol for last drinking occasion, and that direct purchase from a commercial outlet (e.g., bar, liquor store) was the second most prevalent source for those aged 18 to 20 (Wagenaar et al., 1996). Post-test surveys of 18- to 20-year-olds revealed substantial declines due to the intervention in the proportion of older teenagers who tried to buy alcoholic beverages. Eighteen to 20-year-olds were also less likely to drink in bars or taverns after the intervention, and reported increased difficulty in getting alcohol from outlets (Figure 3). High school seniors similarly reported increased difficulty in getting alcohol from outlets after the intervention.

The surveys of 18- to 20-year-olds found that the intervention resulted in a decline in the proportion who provide alcohol to younger teens. In addition, the proportion of 18- to 20-year-olds who drank alcohol in the past 30 days declined, and the number of drinking occasions in the past month and the number of drinks on the last drinking occasion declined. The prevalence of binge drinking was not affected (Figure 3).

The CMCA project successfully mobilized randomly selected communities, improved the practices of alcohol merchants, and reduced the accessibility of alcohol to 18- to 20-year-olds, traditionally a difficult segment of the population to affect. While these initial analyses are important, results should be interpreted cautiously. There was a secular trend in our control group that resulted in the intervention versus control group differences being smaller than we had adequate statistical power to fully assess. Investigation of such contextual factors and additional statistical analyses are continuing on the CMCA project. Nevertheless, results to date indicate that a community organizing approach to changing public policy and institutional practices can be useful and effective in reducing risk and creating healthier communities.
Figures 1, 2

Figure 1: Net Effects of the CMCA Project on Alcohol Merchants: Observed Behavior

Figure 2: Net Effects of the CMCA Project on Alcohol Merchants: Self-reported Perceptions and Behavior
Figure 3: Net Effects of the CMCA Project on 18- to 20-year-olds

- Percent Change

-30 to 0
-25 to -30
-20 to -25
-15 to -20
-10 to -15
-5 to -10
0 to 5

- Alcohol Occasion
- Last Drinking Occasion
- Last Drinking Occasion in Bar/Bar
- Bought Alcohol
- Provided Alcohol to Youth
- 30-day Drinking Prevalence
- # of Drinking Occasions in Last month
- % of Drinks on Last Occasion
- Binge Drinking Prevalence

Fig 3
REFERENCES


